सत्यमेव जयते
Department of
Science and Technology
Government of India

LOCKHEED MARTIN
We never forget who we're working for®

IUSSTF
Indo – US
Science & Technology Forum

FICCI

STANFORD GRADUATE SCHOOL OF BUSINESS

IC2 INSTITUTE
THE UNIVERSITY OF TEXAS AT AUSTIN
IC² Institute
University of Texas at Austin, USA

TiE
The Indus Entrepreneurs
TiE Silicon Valley

DST - Lockheed Martin India Innovation Growth Programme 2007-2015

Compendium of Selected Technologies

Compendium Compiled By:

EY
Building a better working world

सत्यमेव जयते
Department of
Science and Technology
Government of India

LOCKHEED MARTIN
We never forget who we're working for®

IUSSTF
Indo – US
Science & Technology Forum

FICCI

STANFORD GRADUATE SCHOOL OF BUSINESS

IC² INSTITUTE
THE UNIVERSITY OF TEXAS AT AUSTIN
IC² Institute
University of Texas at Austin, USA

TiE
The Indus Entrepreneurs
TiE Silicon Valley

DST - Lockheed Martin India Innovation Growth Programme 2007-2015

Compendium of Selected Technologies

Compendium Compiled By:

EY
Building a better working world

Disclaimer

The information provided in the report are believed to be correct at the time of publication but cannot be guaranteed. The findings, conclusions and recommendations are based on information gathered in good faith from responses provided by innovators, whose accuracy we are not always in a position to guarantee. EY and FICCI will not be held liable or responsible for actions taken by any third party based on any information that may subsequently prove to be incorrect.

The data on technology features & capabilities, patents & development status, etc. were obtained from innovators/ companies, which is deemed by EY to be authentic and reliable. However, neither FICCI nor EY makes no claims, as to the accuracy of the information, and will not be held responsible for any information which may be erroneous due to changes in market forces, economic changes, inaccuracies in information provided by innovators/ companies, lack of response from the innovators/ companies or any other changes due to force majeure.

Table of Contents

Technologies Selected in IIGP 2007

Technologies Selected in IIGP 2007

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	3D imaging for characterization of semiconductor wafers	Pullaiah Dussa	-
2.	Apoptopic proteins	Janak Sheth	Century Pharmaceuticals Ltd.
3.	Biodiesel Process	Sanjeev Sharma	Gomti Biotech Ltd.
4.	Biomass gasification for electricity generation & thermal applications	Ankur Jain	Ankur Scientific Energy Technologies Pvt Ltd.
5.	CAD tool for rapid automated 2D to 3D conversion (RapidSOLID)	Amarnath Bhat	Oriental Software Pvt Ltd.
6.	CastDESIGN	Amarnath Bhat	Oriental Software Pvt Ltd.
7.	Catalytic conversion of waste plastic to petroleum fuels	T. Raghavendra Rao	Sustainable Technologies & Environmental Projects Pvt Ltd.
8.	Embedded technology, smart card operated prepaid energy meter with automatic load controller	Joydeb Roy Chowdhury	Embedded system laboratory CSIR – Central Mechanical Engineering Research Laboratory
9.	Energy conservation	Bipin Gadhiya	Genius Technologies
10.	Energy saving LED lighting solutions for rural & urban lighting	K. Vijaya Kumar Gupta	Kwality Photonics Pvt Ltd
11.	Generation of electrical energy from sea waves	W. Amarnath	Kenwrich Technologies
12.	Gold tracking	Sanjay Vijayakumar	-
13.	Green energy & environment conservation (GEECON) technology	D.M. Charles	-
14.	Hasta-Vaani	Ruzan Khambatta	-
15.	Herbal insects repellent	Meera Goel	Som Extracts Limited
16.	iMFAST	Mahendra Pratap	Integra Micro Systems Pvt Ltd.
17.	Industrial applications of applied mathematics	Vishal Goyal	Sigma Numerics Pvt Ltd.
18.	Mobile internet browser	Arun Tanksali	-
19.	Nanotech	Surjit S Maann	Maann Innovations
20.	Natural Fibre - glass fibre hybrid bio-composites materials and products	R. Gopalan	Composites Technology Park
21.	Nitrifying bioreactor technology	Mohan Kandaswamy	Oriental Aquamarine Biotech India Private Limited
22.	Numerical simulations	Basant Kumar Gupta	Zeus Numerix Pvt Ltd.
23.	Passenger connectivity	Ashwin Bhambri	Dotcommer
24.	Physician assistant artificial intelligence system (PAIRS)	A.M. Mohan Rao	Logic Medical Systems
25.	Pollution free cotton seed delinting technology	Vinod Kalbande	Maharashtra State Seeds Corporation Limited
26.	RAGe	Panikumar sharma HS	Avishkaar
27.	Real time dual kernel Linux operating software	G.K. Sastry	-
28.	SMSReachOut	Natesh Babu	Techweb Technologies Pvt Ltd.
29.	Unmanned aerial airship	Raejus. T. Job	Thaejus Aerodyne Research Labs.
30.	Unmanned aerial vehicles	Nimish Sharma	Aurora Integrated Systems Pvt Ltd.

1. Technology: 3D imaging for characterization of semiconductor wafers

Key facts:

Innovator's Name	Pullaiah Dussa
Company/Institution Name	-
Address	No.S-2, HIG Flats, Kottur Gardens, Kottur Puram, Chennai -600085
Company website	-
IP Status	-

Innovation brief

3D imaging for characterization of semiconductor wafers is an optical technology used to characterize silicon wafer substrates and provide high-resolution surface topography, used for inspection of wafer and highly polished lens mirror surfaces.

The technology is based on the measurement of each pixel intensity values of a successive reflected pattern as a sequence in time (Time multiplexing) with successive projection of different sets of patterns on to the object of interest. Reflected pattern image carries the information of surface topography of the object in the form of deformed image. The height variations of the object cause phase difference.

The technology has been developed by Mr. Pullaiah Dussa.

2. Technology: Apoptopic proteins

Key facts:

Innovator's Name	Janak K Sheth
Company/Institution Name	Century Pharmaceuticals ltd
Address	406, World trade Centre, Sayajigunj, Vadodara - 300005
Company website	www.centurypharma.com
IP Status	Patented by the innovator and full rights transferred to Century to commercialize and market globally

Innovation brief

The technology is a potential new treatment for allergy and asthma sufferers. It is being developed for the preparation of apoptopic proteins which will be fused with human proteins for the treatment of allergy and asthma. These apoptopic proteins will work on mast cells only and trigger programmed cell death. The remnants of the dead cells will not have any side effects. The apoptopic protein development has a wide application not only in asthma and allergy but also in cancer and other segments of the market.

Century Pharmaceuticals Ltd has the right to commercialize the technology. However, the intellectual property rights for this technology is held by its Israel based joint venture partner. The technology is in preclinical stage.

3. Technology: Biodiesel Process

Key facts:

Innovator's Name	Sanjeev Sharma
Company/Institution Name	Gomti Biotech Ltd.
Address	Tikonia Road, Haldwani - 263139
Company website	www.gomtibiotech.in
IP Status	-

Innovation brief

Biodiesel process is one of the most economical processes to produce biodiesel. The technology is used to convert non-edible oil into a good quality biodiesel. The company uses non-edible oils and fats such as waste oil or by-products of edible oil refinery such as acid oil, used vegetable oil, animal fats, fatty acid and oil extracted from activated earth as feedstock for the production of biodiesel.

Mr. Sanjeev Sharma owns the intellectual property right for this technology. The technology has already been developed and a manufacturing unit with a capacity to produce 40 tons per day has been established. The company has developed its own production processes and has filed for a patent.

4. Technology: Biomass gasification for electricity generation & thermal applications

Key facts:

Innovator's Name	Ankur Jain
Company/Institute Name	Ankur Scientific Energy Technologies Pvt. Ltd.
Address	Near Old Sama Jakat Naka, Vadodara - 390008
Company website	www.ankurscientific.com
IP Status	-

Innovation brief

Biomass gasification for electricity generation & thermal applications is a technology which can be used to convert agro wastes and residues to a combustible gas. This gas can be used for power generation as well as thermal applications where a variety of fossil fuels can be replaced. The systems developed by the innovators essentially produce clean, tar-free gas within the gasifier itself, so that downstream gas cleaning systems become simple and manageable. The filter media used is also biological in nature and the disposal could be in the gasifier itself.

The proprietary technologies and devices ensure consistent and continuous operation at high efficiencies. This is a renewable technology which is carbon neutral and environment friendly, thus reducing global warming. The technology has been developed completely and is in active use. The company also has some patents for specific interventions in the system.

5. Technology: CAD tool for rapid automated 2D to 3D conversion (RapidSOLID)

Key facts:

Innovator's Name	Amarnath Bhat
Company/ Institution Name	Oriental Software Pvt. Ltd.
Address	43/1, Richmond Road, Bengaluru - 560025
Company website	www.oriental-software.com
IP Status	-

Innovation brief

The CAD tool for rapid automated 2D to 3D conversion technology, RapidSOLID, is a software solution that automatically converts 2D engineering data into 3D solid models, with minimal effort and manual intervention. This technology is also useful for rapid automated 3D constructing solids from 2D views. The volume-based approach reduces the size of the problem that has to be handled by the bottom-up technique and the comparison of generated and input views and the use of the bottom-up technique ensures correctness of the result.

The intellectual property right for this technology is jointly held by Oriental Software Pvt Ltd. and Indian Institute of Science (IISc) while OSPL has the right to commercialize it. The patent protection for this technology is currently pending. It has been developed as core algorithms and is ready as a software prototype. However, the market version of the technology is under development.

6. Technology: CastDESIGN

Key facts:

Innovator's Name	Amarnath Bhat
Company/Institution Name	Oriental Software Pvt. Ltd.
Address	43/1, Richmond Road, Bengaluru - 560025
Company website	www.oriental-software.com
IP Status	-

Innovation brief

CastDESIGN is a design for manufacturing (DFM) system for assessing and improving component design, from a manufacturability perspective. It provides inputs to the component designers, to enable them to assess their designs and cater to their functional requirements.

The IP is held jointly by Oriental Software Pvt. Ltd (OSPL) and Indian Institute of Science (IISc). OSPL has the right to commercialize the technology. The technology prototype has been completed. Some of the software modules (thermal analysis, geometry analysis, manufacturability assessment) have been completed or are nearing completion. Other modules including technology mapping - grouping as per technological genetic codes, etc., are yet to be developed into software.

7. Technology: Catalytic conversion of waste plastic to petroleum fuels

Key facts:

Innovator's Name	T. Raghavendra Rao
Company/Institution Name	Sustainable Technologies & Environmental Projects Pvt. Ltd.
Address	602-B, Sweet Home, SV Patel Nagar, Andheri west, Mumbai- 400053
Company website	www.stepsenergy.net
IP Status	

Innovation brief

Catalytic Conversion of Waste Plastic to Petroleum Fuels technology has been developed and successfully tested by Sustainable Technologies & Environmental Projects Pvt. Ltd.

The speciality of this process is that all kinds of plastics, both recyclable and non-recyclable, are converted into petroleum fuels, which can be used as alternate sources of fuels for industrial, residential and other needs. In the process of conversion of waste plastic into fuels random de-polymerization is carried out in a specially designed reactor in the absence of oxygen and in the presence of a proprietary catalyst. The maximum reaction temperature is 350 degree centigrade. The plastics are converted completely into value added fuel products.

The technology has been completely developed and is ready for commercialization. The company has signed several deals with business partners. For instance, it entered into distribution agreement with RV Green technologies, the US; MOU with Mtec International, the US; distribution agreement with Trenary, Ireland; license agreement with Vulcanes GMBH, Germany; and distribution Agreement with CVharador, the UK.

8. Technology: Embedded technology, smart card operated prepaid energy meter with automatic load controller

Key facts:

Innovator's Name	Joydeb Roy Chowdhury
Company/Institution Name	Embedded system laboratory CSIR – Central Mechanical Engineering Research Laboratory
Address	Mahatma Gandhi Avenue, Durgapur- 713209
Company website	http://wattcontrol.in
IP Status	Patent

Innovation brief

The Embedded Technology is an electric meter utilizing a prepaid "smartcard" for application in areas using a high percentage of solar generation for production of electricity for retail consumption. The unique properties of the technology allow it to monitor and control how customers use electricity.

The concept of prepaid smart cards in India was developed at the Embedded Systems Lab, part of the Central Mechanical Research Institute (CMERI), and the technology which is the subject of this report was developed by Joydeb Roy Chowdhury, Scientist and Head of the Embedded Systems Lab.

The technology was developed to address the issues specific to establishing and providing electric service to areas geographically isolated from a large, well established electric "grid". The concept was subsequently championed by S.P. Gon Chowdhury, the Director of the West Bengal Renewable Energy Agency, whose organization funded further development of the technology for field application.

9. Technology: Energy Conservation

Key facts:

Innovator's Name	Bipin Gadhiya
Company/Institution Name	Genius Technologies
Address	Mahuva Road, Savarkundla-364515
Company website	-
IP Status	None

Innovation brief

The developed technology is an energy conservation system for lighting. It is based on low voltage system rather than high voltage system which is used in the existing lighting system and thus, helps saving the energy. The fixtures used in this technology are made from heavy reflectors which light out three times more than simple lighting time. An electronic circuit supply power regularly and conserve energy base through this system.

The technology has been developed by Mr. Bipin Gadhiya, and trial manufacturing has already been started.

10. Technology: Energy saving LED lighting solutions for rural and urban lighting

Key facts:

Innovator's Name	K Vijaya Kumar Gupta
Company/Institution Name	Kwality Photonics Pvt. Ltd.
Address	D28, Electronic Complex, Kushaiguda, Hyderabad- 500062
Company website	http://www.kwalityphotonics.com/
IP Status	Patented design

Innovation brief

Energy Saving LED lighting solutions for rural and urban lighting is a technology that involves manufacturing of Light Emitting Diode (LED) lighting using stored, solar or mechanical energy. This technology is the combination of LEDs, thermal design, electrical driving, engineering design, energy storage and energy generation technologies. The technology could be used in home lights and street lights with built-in storage and distributed generation (solar/ pedal, micohydel/ biogas, sterling engine) using sharp, long-life high power LEDs, with 50 to 70 Lumens/watt (LPW), that would enable lower energy consumption. The technology has been developed by Mr. K. Vijaya Kumar Gupta, and the design of this technology has been patent protected.

11. Technology: Generation of electrical energy from sea waves

Key facts:

Innovator's Name	W. Amarnath
Company/Institution Name	Kenwrich Technologies
Address	5, First Avenue, Indra Nagar, Adayar, Chennai - 600020
Company website	-
IP Status	Patent

Innovation brief

The technology is used to convert the sea wave energy into electrical energy effectively and efficiently. It uses specially designed paddles and has a mechanism to allow it to harness energy from both incoming and outgoing waves. The design incorporates mechanisms to handle the rise and fall in the sea level due to tides. The conversion of sea wave energy to electrical energy is more promising because it is from a renewable source of energy, clean, low cost, easy to install and offers high efficiency and can be installed along the coastal area. The energy produced can be used to feed the national grid and as such offer sufficient electricity to the present starved situation. energy and safer than atomic energy.

The intellectual property right of the technology is held by the innovator, Mr. W.Amarnath. The patent protection for the technology has been filed. The development of the technology is simple and a prototype can be made. However, this requires the approval from the government for erecting the prototype in the sea close to the coastline.

12. Technology: Gold tracking

Key facts:

Innovator's Name	Sanjay Vijayakumar
Company/Institution Name	Torque
Address	Torque, Technology Business Incubator, Park Center, Technopark, Trivandrum- 695581
Company website	-
IP Status	Patent approval pending

Innovation brief

Gold tracking using radio-frequency identification (RFID) technology can be used to monitor and track the movement of gold items within an outlet. The conventional system uses bar codes where each piece of gold is individually tagged and scanned. The system takes a lot of time and cannot be monitored or tracked for motion within a shop unlike an RFID Gold Tracking System. Using active RFID tags which send out a radio frequency signal within a given range, the time required for the tagging and scanning of gold items within an outlet can be brought down significantly. Further, this can help the retailers to make the system within the outlet more secure and intelligent thereby cutting costs and improving efficiency. The gold tracking technology is based on IMotion platform which is protected by US patents.

The intellectual property rights of the product developed on IMotion platform (Gold Tracking) is owned by the company, which also has the rights to commercialize it.

13. Technology: Green energy & environment conservation (GEECON)

Key facts:

Innovator's Name	D.M. Charles
Company/Institution Name	-
Address	259/14, Anbu colony, 7th Avenue, Annanagar, West Chennai - 600040
Company website	-
IP Status	-

Innovation brief

Green energy & environment conservation (GEECON) is an application derivative of the patented Dapcane Process. While Dapcane process was innovated to develop green field energy revolution sugar mills (ERSM), GEECON could be adopted for energy and environment conservation in existing sugar mills, revamping ageing sugar mills and new applications. Cost of the import content of proven original equipment, required to install green field energy revolution sugar mills based on Dapcane process technology has made it unviable at present in view of prevailing dollar rupee exchange rate and power purchase terms offered by the Indian electricity boards. GEECON technology installations could be developed at much lower cost and could be executed with minimum proven imported components and with major equipment fabrication and installation executed in India to ensure economic viability and robust investment payback.

14. Technology: Hasta-Vaani

Key facts:

Innovator's Name	Ruzan Khambatta
Company/Institution Name	-
Address	8th Floor, White House, Panchwati, Ahmedabad - 380006
Company website	-
IP Status	-

Innovation brief

Hasta-Vaani is a technology that helps the less privileged people with hearing/speech loss to communicate and lead a normal life. This technology would facilitate them to communicate better, faster, effectively and efficiently with others and vice versa.

This technological concept has been divided into three different applications/products: mobile application, hand held device, and video outlay device. The mobile application would convert speech to sign language/text so that the user would get on his/her mobile screen the sign language/text by which he/she would be able to understand what the caller on the other side wants to communicate, and then he/she can also communicate via text to speech convertors. The hand held device is a DVD/CD player with this conversion technology software. This device would pick up the voice and convert speech to sign language/text on the hand held screen. The video overlay device is connected to the speaker output of the TV. The person can see the sign language on the right bottom of the TV screen through the speech to sign language/text conversion application.

15. Technology: Herbal insect repellent

Key facts:

Innovator's Name	Meera Goel
Company/Institution Name	SOM Extracts
Address	B-6/2, Site IV, UPSIDC Industrial Area, Dist. Ghaziabad, Sahibabad - 201010
Company website	-
IP Status	-

Innovation brief

Herbal insect repellant is a formulation of herbal essential oils and natural extracts of herbs that repel insects, particularly, mosquitoes, from the vicinity. The property of more than 50 herbs was analyzed to figure out the active constituent in those herbs which was then isolated and utilized to produce a concentrate to derive the final product.

This product is developed without use of any synthetic insecticide or pesticide. Prof. Shiam C. Varshney owns the right to commercialize the product.

16. Technology: iMFAST

Key facts:

Innovator's Name	Mahendra Pratap
Company/Institution Name	Integra Micro Systems Pvt. Ltd.
Address	No.4, Bellary Road, 12th KM, Jakkur, Bengaluru - 560064
Company website	www.integramicro.com
IP Status	Patented Technology

Innovation brief

Integra's Mobile Financial Applications secured Terminal (iMFAST) is a software platform that enables banks to offer financial services to villagers in rural areas. This facilitates online banking to rural India overcoming the challenges of power and connectivity of rural environment. The technology is an innovative solution that empowers branchless banking and is designed to handle financial applications specifically targeted at the customers of rural and backward areas. It identifies and authenticates the user (for secured transactions) and prints the receipt for each of the transactions. The unique approach of iMFAST is its portability and features that enables it to operate effectively in the rural environment. The features like RFID identification, biometric authentication, GPS, voice guidance, online and offline transactions and the power backup through automobile battery enables it to provide secured transactions overcoming the challenges of low or no connectivity and inconsistent power in rural areas.

17. Technology: Industrial applications of applied mathematics

Key facts:

Innovator's Name	Vishal Goyal
Company/Institution Name	Sigma Numerics Pvt. Ltd.
Address	KM-78, Kavi Nagar, Ghaziabad- 201002
Company website	www.sigmanumerics.net/index.html
IP Status	Copyright

Innovation brief

Industrial applications of applied mathematics is a technology for the optimization of production planning in order to reduce costs. The technology uses linear programming approach coupled with heuristics to find the optimal schedules in the manufacturing units. The technology has already been tested in two paper mills and one modular furniture company. The technology also finds applications in film and fabrication industry. Current projects can be extended to other domains like logistics, supply chain optimization, telecom bandwidth optimization, pattern sequencing problems, aircraft scheduling, port optimization, etc. Mr. Vishal Goyal, the innovator of this technology, owns the copyright for this technology.

18. Technology: Mobile internet browser

Key facts:

Innovator's Name	Arun Tanksali
Company/Institution Name	-
Address	No.4, Bellary Road, 12th KM, Jakkur, Bengaluru - 560064
Company website	-
IP Status	-

Innovation brief

Mobile internet browser is a technology that enables internet access over the mobile phones. There are several players in the area of mobile browsers including renowned ones like Microsoft, Opera and Nokia's open source effort. However, the key aspects of the present technology lies in the layout and rendering approach which makes it easier to access the internet on mobile phones. This enables a very wide variety of users to access the internet on the move. The technology has been in development and been partly commercialized. It has also been given out for public trial on one of the websites.

19. Technology: Nanotech

Key facts:

Innovator's Name	Surjit S Maann
Company/Institution Name	Maann Innovations
Address	G-81, G K – 2, New Delhi- 110048
Company website	-
IP Status	Patented Technology

Innovation brief

The *nanotech* technology can be used to reduce the consumption of common salts and fresh water in cotton textiles dyeing process. At present, a huge amount of common salts and water is used for the cotton textiles dyeing, which results in wide spread salinity of water and top soil. In addition, this technology can also be used in domestic detergent and dyestuff formulations, restoration and conservation of heritage monuments. The intellectual property right for this technology is held by Mr. Surjit S. Maann.

20. Technology: Natural fibre - glass fibre hybrid bio-composites materials and products

Key facts:

Innovator's Name	R. Gopalan
Company/Institution Name	Composites Technology Park
Address	No. 205, BandeMutt, Kengeri Satellite Township, Bengaluru-560060
Company website	www.compositestechnologypark.com
IP Status	Patented Technology

Innovation brief

The technology *natural fibre-glass fibre hybrid bio-composites materials and products* is an engineered mixture of glass fiber and natural fiber in a desired ratio in order to get the best properties of natural fiber and glass fiber for cost and performance benefits. The Bio-composites materials based on natural fibers such as bamboo, coir, jute, and banana fiber have several advantages over traditional glass fiber in terms of costs, weight, specification and stiffness, energy consumption and bio-degradability. The technology is based on the advanced composites technology used in various industrial applications. In addition, this technology can find its application in industries including aerospace and defense, automotive, transportation, building and construction, electrical and electronics, on shore and off shore engineering and chemical.

The intellectual property right for this technology is held by Dr. R. Gopalan. The patent protection for this technology has been filed in India for which approval has been granted.

21. Technology: Nitrifying Bioreactor Technology

Key facts:

Innovator's Name	Mohan Kandaswamy
Company/Institution Name	Oriental Aquamarine Biotech India P Ltd.
Address	U 7, Kovaipudur, Coimbatore – 641042.
Company website	www.nitrifying-bioreactor.com
IP Status	Patent Design registration.

Innovation brief

India's National Center for Aquatic Animal Health and Cochin University of Science and Technology have developed a bacterial consortium delivery system for aquaculture hatcheries that removes or neutralizes nitrous waste including ammonia thus avoiding common industry use of chemical disinfectants and antibiotics. This organic aquaculture system enhances spawning and the survival rate of the shrimp larvae. Initial studies show an increase in shrimp spawn rates by approximately 20% and an increase in larval survival by 46%. This new system has been developed for the management of a larval prawn seed production system in prawn/shrimp hatcheries and comprises two bacterial consortium delivery systems known in the industry as bioreactors, and a pond or tank water recirculation system. The water recirculation or closed system hatchery is designed to avoid the introduction of deadly bacteria and viruses that are often pumped from infected waters of the wild into open system hatcheries. This recirculation system enables more consistent water quality management and fewer incidents of diseases typically leading to an increased larval survival rate. The system of nitrifying bioreactors allows the waters of a closed system hatchery to remain inhabitable by neutralizing the rapid build-up of waste that exists in a packed shrimp tank or pond.

The Nitrifying Bioreactor can be used as a stand-alone product or as a component of an Organic Recirculation Prawn Seed Production System (ORPSPS) designed to improve the health of shrimp and eliminate most viral and bacterial pathogens problematic to shrimp hatcheries.

22. Technology: Numerical Simulations

Key facts:

Innovator's Name	Basant Kumar Gupta
Company/Institution Name	Zeus Numerix Pvt Ltd
Address	I2IT Campus, Hinjewadi Phase 1, Plot 14, Pune - 411057
Company website	www.zeusnumerix.com
IP Status	-

Innovation brief

Numerical simulations is a technology which is based on the principle of use of mathematical tools for predicting the behavior of any engineering system that will be put to work. It helps in designing engineering systems at a faster pace as compared to a technology that uses closed form analytical solutions and use of experimental data. It provides all the necessary tools right from geometric modeling tool to prediction of stability analysis of an aerospace vehicle under a single environment.

The technology has applications in many areas such as - aerodynamic simulation of fighter aircraft in missile firing mode predicting safe separation of missile; opening of panels for vehicles at speeds above 4000 km/hr and ejection of smaller vehicle; design of landing gear for small aircraft; wing-winglet design using optimization algorithms and super-computers for civilian aircraft; design of high pressure valves for flow characteristics and material selection; concept design of manufacturing drawings for ground vehicle with speed in excess of 1000 km/hr; prediction of fire and smoke movement in tall residential buildings; noise prediction in spacecrafts while launching; reduction of noise while landing in civilian aircraft; and customized design software for RAMJET engines.

Zeus Numerix Pvt. Ltd holds the intellectual property right and has all the rights to commercialize this technology. Moreover, the application for patent protection by the company is pending. The numerical tools required in the technology have been developed to a large extent and have been customized for some industry verticals such as aerospace engineering. Presently, the technology has been demonstrated and is being used for some live projects.

23. Technology: Passenger connectivity

Key facts:

Innovator's Name	Ashwin Bhambri
Company/Institution Name	Dotcommer
Address	424, AFNO Enclave, Sector-&, Plot-11, Dwarka, Delhi-110075
Company website	-
IP Status	Patent approval pending

Innovation brief

Passenger connectivity technology enables passengers to interact with each other pre-flight, on-flight and post flight. This is achieved by a product design concept merged with an interactive software system. However the focus is on flight connectivity, the pre-flight and post-flight scenario only enhances the process. The benefits of this technology are more favourable to passengers flying in the first class or executive class.

Mr. Ashwin Bhambri, the innovator, holds the intellectual property rights for this technology. The patent protection for this technology has been filed. The company has also developed a design prototype of the technology.

24. Technology: Physician assistant artificial intelligence system (PAIRS)

Key facts:

Innovator's Name	A.M. Mohan Rao
Company/Institution Name	Logic Medical Systems
Address	80, Salarjung Colony, Kakatiya Nagar, Hyderabad- 500008
Company website	www.cyberdoc.freewebspace.com
IP Status	-

Innovation brief

Physician assistant artificial intelligence system (PAIRS) is an advanced diagnostic system that can work on a patient data comprising more than 50 features. It is useful for physicians to diagnose difficult cases. The technology's diagnostic decision support system works on a database of over 75,000 disease-feature links for 547 internal medicine diseases. PAIRS artificial intelligence is based on a system developed specifically for such large medical diagnostic decision domain. The influence of variables such as age, gender and geographic data extracted from NHS(UK), NHDS(US) and WHO, are incorporated in decision analysis. It has already completed the stage of standalone beta version. This standalone beta version was evaluated by NHS of the UK at their National Heart and Lung Institute, Imperial College London in January 2006, for possible use across the country.

Dr. A.M. Mohan Rao and Mr. S.B. Madan Kumar of Logic Medical Systems own complete rights to commercialize the technology.

25. Technology: Pollution free cotton seed delinting technology

Key facts:

Innovator's Name	Vinod Kalbande
Company/Institution Name	Maharashtra State Seeds Corporation Limited
Address	Mahabeej Bhavan, Krishi Nagar Akola-444104
Company website	www.mahabeej.com
IP Status	Patented Technology

Innovation brief

The technology *pollution free cotton seed delinting* has been developed to remove the fine linters on cotton seed to make it fit for sowing without causing environmental pollution. This technology is a pollution free cotton seed delinting plant. It has been developed for the cotton growing industry with the intention of providing a process for obtaining cotton seed in an environmentally friendly manner. The technology has no hazardous elements and is easy to operate due to calibrated flow meters and devices. Maharashtra State Seeds Corporation Limited holds the intellectual property rights and has the right to commercialize this technology. It has been certified by Maharashtra Pollution Control Board, Mumbai as pollution free technology.

Presently, the technology has been designed, developed, and commercialized in India for cotton seed delinting and is likely to be exported to East African countries soon. The company is also likely to export the technology to other countries including Tanzania, Kenya, Uganda, Malawi and Zambia.

26. Technology: RAGe

Key facts:

Innovator's Name	Panikumar Sharma HS
Company/Institution Name	Avishkaar
Address	18, Sri Rama Layout, Gnanajyohti Nagar, Bengaluru- 560056
Company website	www.avishkaar.co.in
IP Status	None

Innovation brief

The technology Revenue through Advertisements for the GSM enterprise (RAGe) is a method to deliver mobile advertisements and potentially other information content to mobile phone users, by utilizing the dead-time between when a mobile phone call is placed and when it is connected. RAGe would utilize this brief dead-time to send advertising or other content to the calling party while the call is being connected across the Mobile Service Provider's (MSP) network. When the call is connected, the advertisement would be broadcasted to the calling party. In this way, a revenue generating opportunity could be derived from the previously un-used dead-time.

RAGe guarantees delivering the fastest return on operators' investments through advertisements. By using the connecting time (minimum of 5 seconds), which is the time taken for the actual connection to be established between the caller and the receiver, to advertise to the consumers. The advertisements would be initially voice, text and images, which would mature to graphics with the transition of technology to 3.5G when available.

RAGe is currently in development. Avishkaar Techno Solutions Private Limited (Avishkaar) is looking out for a suitable MSP partner to assist in developing a working end-to-end network pilot project to prove the viability of the concept. The company secured a copyright for this concept in India in 2006. However, it does not have any patent protection in the US or outside India.

27. Technology: Real time dual kernel Linux operating software

Key facts:

Innovator's Name	GK Sastry
Company/Institution Name	-
Address	321, Jalvayu Vihar, Kukutpally, Hyderabad- 500072
Company website	-
IP Status	-

Innovation brief

The technology *real time dual kernel Linux operating software* can be used as a better alternative software to the existing real time operating systems available in the market. It is a robust software that can be used in mission critical applications like air defense, aerospace and any other field that require nano second responses. This software can substitute expensive real time operating system, which will result in reduction of costs. It is also a very low cost substitute for other real time software packages.

The product has been fully developed, tested and evaluated by defense organizations and is currently in use for air defense applications. It is also been successfully tested and evaluated by several other aerospace agencies in India. The technology is ready to enter commercial market and has crossed the concept and prototype stage.

28. Technology: SMSReachOut

Key facts:

Innovator's Name	Natesh Babu
Company/Institution Name	Techweb Technologies P. Ltd.
Address	No. 86, 3rd Floor, Gandhi Bazaar, Basavana Gudi, Bengaluru-560 004
Company website	www.techwebindia.com
IP Status	Patented Technology

Innovation brief

SMSReachOut is a fusion of mobile and net technology which helps the companies in lead generation and brand building. This technology provides simple means for companies to gather sales leads from customers using cellular phones. It provides the means to reach out to customers in an inexpensive way, giving them a means to opt for targeted information and automates the follow up on that lead. SMSReachOut appeals to any company that needs to get back to its customers who ask for more information about their products.

The patent protection for this technology has been approved in India. Presently, the technology has completed the test run and is ready for commercialization.

29. Technology: Unmanned aerial airship

Key facts:

Innovator's Name	Raejus T. Job
Company/Institution Name	Thaejus Aerodyne Research Labs.
Address	21/2, M.G. Road, Bengaluru - 560001
Company website	www.thaejus.com
IP Status	-

Innovation brief

The *unmanned aerial airship* is a remotely piloted and autonomous operating airship with extended range for surveillance, advertising, terrain mapping, highway and infrastructure inspection, transponder relay station, meteorological and atmospheric experimental platform, defense unmanned aerial vehicle platform and telecommunications platform. The sustainable advantages over the competition are: readily available material and skilled labour, and commercially-proven components with high reliability. The project is designed for adaptability and redundancy with lower operating costs

30. Technology: Unmanned aerial vehicles

Key facts:

Innovator's Name	Nimish Sharma
Company/Institution Name	Aurora Integrated Systems Private Limited
Address	60/4, Srirampura Cross Opp. JNC ASR, JakkurPost, Bengaluru - 560064
Company website	www.aurora-is.com
IP Status	In process

Innovation brief

The *unmanned aerial vehicles (UAV)* technology is based on the use of autonomous winged aircraft for surveillance and monitoring uses. It enables ground operators, either in defense scenario or in civil missions, the capability to carry out reconnaissance missions with greater flexibility and efficiency. These UAVs are proven solutions for over-the-hill reconnaissance and over-the horizon missions. This technology provides solution to precision agriculture, pipeline monitoring, disaster management, flood relief operations, landslide rescue missions, forest fires, riot situation, patrolling, etc. This is an economical and less critical solution to the above mentioned tasks as compared to any other alternatives like surveillance through a commercial aircraft or imagery through satellite. The technology can find its application in the defense, surveillance and the civil market. Aurora Integrated Systems Private Limited holds the intellectual property right and has the right to commercialize this technology.

The technology has passed concept stages and is being developed as a prototype. The technology has been validated at Indian Institute of Technology, Kanpur.

Technologies Selected in IIGP 2008

Technologies Selected in IIGP 2008

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	A method for carrying out a surface plasmon resonance measurement	L. Kameswara Rao	Indian Institute of Science
2.	A novel process for the fabrication of Mg-30% SiC particle reinforced composites by casting route	M.K. Surappa	Indian Institute of Science
3.	A novel therapy for colon cancer	V.B. Gupta	B. R. Nahata College of Pharmacy
4.	Agmonts adaptive autonomic system	Arhat Basak	-
5.	An electrochemical supercapacitor	N. Munichandraiah	Indian Institute of Science
6.	An improved method and system for ventricular defibrillation	Rahul Pandit	Indian Institute of Science
7.	ClimaGear	Kranthi Kiran Vistakula	Dhama Apparel Innovations
8.	Coir Atlas	Himanshu A. Sheth	Versatile Marketing
9.	Development of 2-MNA/PES based films for optoelectronic application	Yuvraj Singh Negi	IIT, Roorkee
10.	Dynamic software tools generation for new processors	Gopi Kumar Bulusu	Sankhya Technologies
11.	Fruit coatings	H.M. Chawla	Indian Institute of Technology, Delhi
12.	Integrated bio technological farm with self-sufficient energy generation	Ashok Shukla	SPA Associates
13.	Knowledge based engineering	Amit Dutta Gupta	Adroitec Information System Ltd.
14.	Low cost grey and waste water recycling	T. Raghavendra Rao	Sustainable Technologies & Environmental Projects Ltd
15.	Method of making Al rich and AlN rich matrix composites by pressureless infiltration of molten aluminum alloys using an external getter	Vikram Jayaram	Indian Institute of Science
16.	mPire - portlet maker	Ahmed Hasan	TransIT mPower Labs (P) Ltd.
17.	Optical cryocooler	Subhash Jacob	Indian Institute of Science
18.	Pedal crank assembly generating double torque	Manoj Kumar Mondal	IIT Kharagpur
19.	Power over ethernet technology (POE)	Devesh R. Agarwal	Infomart (India) Pvt. Ltd.
20.	Process for the manufacture of nitrobenzene using solid acid catalyst	Mohan K. Dongare	National Chemical Laboratory
21.	Project "Surya Kiran"	Col J.J. Singh	Surya Kiran
22.	Recombinant protein with serological and cancer diagnostic application	B.M. Swamy	Karnatak University
23.	Simple, cheap and eco-friendly process to polymerize silicone compounds	Bimal Pillai	Nouveaw Exports Pvt. Ltd.

S. No	Technology Name	Innovator's Name	Company/ Institution Name
24.	Smoke, fumes & gases arrestor	Ashok Rai	Ashok K. Rai Associates
25.	Solar thermal engine	Gurmit Singh	Pranat Engineers Pvt. Ltd.
26.	Switch reluctance motor	Samsul Ekram	Crompton Greaves Ltd.
27.	Unique thermal management in outdoor type dry transformers	Arun Dattatraya Yargole	Crompton Greaves Ltd.
28.	Video tracking algorithm	Himesh Madhuranath	Deccan Signals
29.	Slow-release micronutrient fertilizers	Chandrika Varadachari	Raman Centre for Applied and Interdisciplinary Sciences
30.	Nanotechnology-based fingerprint dusting composition	G.S. Sodhi	SGTB Khalsa College

1. Technology: A method for carrying out a surface plasmon resonance measurement

Key facts:

Innovator's Name	L. Kameswara Rao
Company/Institution Name	Indian Institute of Science, Bangalore
Address	Society for Innovation and Development(SID), IP cell, IISc, Bengaluru - 560012
Company website	www.iisc.ernet.in
IP Status	Patented Process

Innovation brief

A method for carrying out a surface plasmon resonance (SPR) measurement is a process used for determining the dielectric function of a material or thin films of metals. The process can be used in studying optical properties of ultra thin metal films and absorption properties of ultra thin absorbed overlayers of samples on the metal surface. The apparatus highlights a new system architecture that allows for a simpler and low cost design. The data processing and interpretation is also based on a new analytical formula for the input-output relationship in an SPR experiment.

The process is useful in different industries, institutions as well as R&D organizations that are interested in the studying, monitoring, diagnosing and controlling the processes and physical parameters relevant to nanometer range thin films. The end users could range from specialists in biomedicine (biosensor) to semiconductor device fabrication and thin film devices and diagnostics.

2. Technology: A novel process for the fabrication of Mg-30% SiC particle reinforced composite by the casting route.

Key facts:

Innovator's Name	M.K. Surappa
Company/Institution Name	Indian Institute of Science, Bangalore
Address:	Society for Innovation and Development(SID), IP cell, IISc, Bengaluru - 560012
Company website	www.iisc.ernet.in
IP Status:	Patented Process

Innovation brief

The process, fabrication of Mg-30% SiC particle reinforced composites by casting route, is related to the field of metallurgical technology that is aimed at producing Magnesium (Mg)-based SiC (silicon carbide) reinforced composite with superior mechanical and wear resistance properties. The process eliminates sulfur-based flux gases that pollutes the atmosphere and are toxic in nature. The apparatus employs simpler and economical process and any magnesium foundry can adopt this process and produce components. Furthermore, it completely eliminates sulfur based toxic fumes used in conventional Mg casting process. The end user applications of this process range from automotive industry, wherein it could help in reducing greenhouse gas emissions from vehicles, to spacecraft ancillaries including engine parts.

The intellectual property right for this process is jointly held by Prof. M.K. Surappa, Mr. Saravanan and Indian Institute of Science, Bangalore. The institute has also been granted patent protection in India for this process. It has been developed as a successful laboratory model and is currently in active use.

3. Technology: A novel therapy for colon cancer

Key facts:

Innovat Innovator's name	V.B. Gupta
Company/Institution Name	B.R. Nahata College of Pharmacy
Address	P. B. No. 6, Mhow-Neemuch Road, Mandsaur-458001
Company Website	www.brncop.org
IP Status	Patent approval pending

Innovation brief

A novel therapy for colon cancer is a technology developed for effective treatment of colon cancer along with other colon diseases. It ensures delivering more than 80% drug to the colon, hence, making it efficacious on one hand and limiting its side effects on the other. This technology can be used in delivering virtually any drug to the colon through tablets or other oral dosage forms. The technology also has the potential of addressing unmet needs in the areas of irritable bowel syndrome, ulcerative colitis, Crohn's disease and infectious diseases. The therapy uses material which is derived from one of the widely consumed food materials and is sensitive to the enzymes of the colon's microflora. This makes the technology completely safe over the conventional method, as in the latter case, drug administering either does not work or requires very high dosage and causes high order of adverse side effects. The intellectual property right for this process is held by B.R. Nahata College of Pharmacy. The patent protection for this technology has been filed in India. It has been developed as a successful laboratory model.

4. Technology: Agmonts general-purpose adaptive autonomic system

Key facts:

Innovator's Name	Arhat Basak
Company/Institution Name	-
Address	CL104 Sector-2, Salt Lake City, Kolkata, West Bengal - 700064
Company website	-
IP Status	Copyright

Innovation brief

Agmonts general-purpose autonomic system is a system that automates large-scale wireless sensor, web networks and advanced sensor suites. The technology enables autonomous surveillance, structural health monitoring and protection of physical/telecom/IT assets against natural disasters, technical faults, harsh environmental conditions, sabotages, run-time problems, terrorist attacks and other security threats. It also enables dynamic reconfiguration of cellular and C4ISTAR networks and autonomous mobile coordination and operation of unmanned aerial vehicles (UAVs) and unmanned combat aerial vehicles (UCAVs). It also enables 360-degree feedback system that integrates existing information systems with physical assets and operating environments and provides realtime decision aids to enterprise managers and military commanders. The intellectual property right of this technology is held by Mr. Arhat Basak. It is protected by applicable software copyrights laws. The product is partly developed and several proof-of concept prototypes have been accomplished.

5. Technology: An electrochemical supercapacitor

Key facts:

Innovator's Name	N. Munichandraiah
Company/Institution Name	Indian Institute of Science
Address	Society for Innovation and Development(SID), IP cell, IISc, Bengaluru - 560012
Company website	www.iisc.ernet.in
IP Status	Patented Technology

Innovation brief

The technology is about building a supercapacitor comprising the necessary electrodes and process for preparing the same. It is used to fabricate and demonstrate high performance electrochemical redox supercapacitors, which employ conducting polymers such as polyaniline as active material. The technology provides an electrochemical supercapacitor in which a polymer is deposited on an inexpensive substrate and provides a method of fabricating such supercapacitors economically. The technology has its applications in the hybrid electric vehicles and digital communication devices industries. The intellectual property right of the technology is held by Indian Institute of Science, Bengaluru. The patent protection for this technology has been filed in India for which approval has been granted. The technology has successfully gone through the laboratory test phase.

6. Technology: An improved method and a system for ventricular defibrillation

Key facts:

Innovator's Name	Rahul Pandit
Company/Institution Name	Indian Institute of Science
Address	Society for Innovation and Development(SID), IP cell, IISc, Bengaluru - 560012
Company website	www.iisc.ernet.in
IP Status	Patented Technology

Innovation brief

An improved method and a system for ventricular defibrillation is a technology which is related to biomedical engineering. The technology is used as the treatment for ventricular fibrillation by eliminating spiral turbulence. The system is designed in such a way that it does not result in any change in the normal activity of the heart. The technology is better than the conventional methods because it uses very low amplitude shocks to provide a safe and efficient treatment of ventricular fibrillation. The intellectual property right of the technology is held by Indian Institute of Science, Bengaluru. The patent protection for this technology has been filed in India for which approval has been granted. The technology has successfully gone through the laboratory test phase.

7. Technology: ClimaGear

Key facts:

Innovator's Name	Kranthi Kiran Vistakula
Company/Institution Name	Dhama Apparel Innovations Pvt Ltd
Address	503 Legend Appts, StreetNo.7, Himayatnagar, Hyderabad - 500029
Company website	www.dhamainnovations.com
IP Status	Patent approval pending

Innovation brief

ClimaGear is an innovative, user-controlled, cooling and heating apparel. It is a light weight, easy to use jacket that keeps a user comfortable in harsh weather conditions by providing heat depending on the need of the user. This technology can be used by the outdoor workers such as military, navy, air force and construction personnel. Additionally, it has been developed to provide comfort to common man in all weather conditions. The uniqueness of this technology is the heat sink design and the way the heat sink is used to remove heat from hot side of the thermoelectric in the cooling mode. This combination makes the entire system lighter than a conventional heat sink used with thermo electrics. The technology is intended to be a standalone product. However, it can also be integrated into other apparel and accessories such as helmet and shoes.

8. Technology: Coir Atlas

Key facts:

Innovator's Name	Himanshu A. Sheth
Company/Institute Name	Coir Atlas
Address	C-34, B.S.Estate, D-Road, Anil Sur Path, Kadma, Jamshedpur- 831004
Company website	www.coiratlas.com
IP Status	Patented Product

Innovation brief

Coir Atlas is a technology which can be used by steel industry for the shipment of flat products such as sheets, plates and coils. The product provides a viable alternative for wooden logs that are traditionally used. Steel industry across the globe consumes large volume of timber for shipment of finished products. Use of wooden logs for this kind of application is a one time use only and causes rapid deforestation. Coir atlas is a comprehensively eco-friendly product and is made of natural materials such as coir, jute and bamboo. It provides much better grip to the load in transit and results into higher safety of in-transit consignments in dynamic conditions. It can be made in any cottage industry, which could generate significant employment opportunities in rural and semi-urban areas in developing economies.

The intellectual property right for this technology is held by the innovator, Mr. Himanshu A. Sheth. The patent protection for this technology has been filed in India, for which the approval has been granted. Currently, it is undergoing field testing with nearly 400 railway wagons and hundreds of truck-load of consignments tried out successfully so far. Furthermore, it has been put to extensive empirical trials by JSW Steel, Essar Steel, Tata Steel and Bokaro Steel Plant of Steel Authority of India.

9. Technology: Development of 2-MNA/PES based films for optoelectronic application

Key facts:

Innovator's Name	Yuvraj Singh Negi
Company/Institution Name	Indian Institute of Technology, Roorkee
Address	C-10, DPT, Saharanpur Campus, Paper Mill Road, Saharanpur - 247001
Company website	www.iitr.ac.in
IP Status	Patented Technology

Innovation brief

The technology is a polymer film material that consists of an organic chromophore in bulk polymer matrix, typically polyether sulphone and organic chromophores. It is useful for converting 1,064nm laser red light frequency to 532nm blue light frequency for optoelectronic device application. The technology can find its application in information technology and defense and space technology sectors. It is a stand-alone product; however, it can be an integral part of existing inorganic material based optoelectronic materials used for second harmonic generation for communication devices.

The intellectual property right of the technology is held by Dr. Yuvraj Singh Negi. The patent application of this technology has been filed. Due to lack of funding, targeted practical application devices could not be achieved, however, at lab scale stage technological know-how is ready as prototype of NLO films for optoelectronics Industries.

10. Technology: Dynamic software tools generation for new processors

Key facts:

Innovator's Name	Gopi Kumar Bulusu
Company/Institution Name	Sankhya Technologies Private Limited
Address	No. 10-1-27, IV Floor, Sampath Vinayaka Temple Road, Visakhapatnam - 530016
Company website	www.sankhya.com
IP Status	Patent approval pending

Innovation brief

The technology is a collection of tools that allow design, development, testing and verification process in the embedded systems including the applications that are proposed to be run on the system even before the hardware is ready, thereby reducing time to market and costs involved in expensive development process.

Furthermore, the tools are particularly useful in the consumer electronics space where cost and time for market entry forms an important role in determining the competitive advantage.

Sustainable advantages of this technology include model-driven tools, wherein the tool chain is not targeted at any processor, instead they are generated based on a model file and therefore simplifies the process of generating tools for newer versions within a matter of few days. Some of the products that benefit from this technology are mobile phones, hand-held devices and GPS devices. This technology can primarily be useful in the semiconductor, consumer electronics, telecom, networking and automotive industries.

11. Technology: Fruit coatings

Key facts:

Innovator's Name	H.M. Chawla
Company/Institution Name	Indian Institute of Technology, Delhi
Address	Chemistry Department, Indian Institute of Technology, Hauz Khas, Delhi - 110016
Company website	www.iitd.ac.in
IP Status	Patented Technology

Innovation brief

Fruit coatings help in extending the shelf life of fruits and vegetables by up to six weeks with retention of all natural characteristics and significant prevention of natural weight loss when they are washed in the developed emulsion without resorting to refrigeration temperature. The developed technology is based upon natural organic oligomer and is relatively free from waxes and sucrose esters. It prevents weight loss significantly and does not require refrigeration and requires only a few minutes for the fruit to be ready for dispatch or consumption. The technology can be used across various sectors including fruit processing; organizations engaged in retail or consumption of fruits and vegetables such as hotels, educational institutions and defense; orchard farm owners; cold storage owners and chemical manufacturers. The intellectual property right for this technology is jointly held by Prof. H.M. Chawla and Indian Institute of Technology, Delhi. The Indian patent application for this technology has been filed and granted. The technology has been developed as a lab-scale prototype and tested in scientific laboratories situated at New Delhi, Amritsar, Ludhiana, Ahmedabad, Mumbai and Gorakhpur. Furthermore, the efficacy of the technology was demonstrated to general public, educationists, scientists, people from defense services, agriculture produce marketing cooperatives across nine states and union territories including New Delhi, Haryana, Punjab, Himachal Pradesh, Uttarakhand, Rajasthan, Gujarat, Maharashtra and Jammu and Kashmir.

12. Technology: Integrated bio technological farm with self-sufficient energy generation

Key facts:

Innovator's Name	Ashok Shukla
Company/Institution Name	SPA Associates
Address	3282, Plot F 3, FDDI Sahkari Awas Samiti, Alok Vihar-I, Sector-50, Noida – 201302
Company website	-
IP Status	-

Innovation brief

The technology can be used to generate energy by using raw vegetables and grains and other agro products. The concept is environment friendly as it takes care of emissions to environment because it does not use any fossil fuel. The technology is applicable for the food processing and agro industry. The primary customers for this technology would be large scale farmers and FMCG manufacturers, cattle farms, residences and offices. This technology process eliminates all sort of wastages and converts them to some or the other sort of a by-products.

13. Technology: Knowledge based engineering

Key facts:

Innovator's Name	(Late) Amit Dutta Gupta
Company/Institution Name	Adroitec Information System Ltd
Address	D-194, Okhla Industrial Area, Phase I, Delhi - 110020
Company website	www.adroitecinfo.com
IP Status	-

Innovation brief

Knowledge based engineering is a proprietary process used for design and engineering of machinery. It reduces the time for design and engineering of complex machinery. It reduces material required to make the machine and enables an organization to do more design and engineering work with fewer resources. The technology is applicable to the design and engineering of any kind of machinery, where variants in design have to be customized to the user's needs. It is applicable, for instance, to power generation equipment, oil and gas industry equipment, machinery for manufacture of textiles, paper, large machine tools, special purpose machines and industrial machinery like motors, pumps, compressors, etc. It can be used as a standalone for design and engineering of specific products and can also be integrated with downstream engineering functions, manufacturing, and enterprise functions.

14. Technology: Low cost grey and waste water recycling

Key facts:

Innovator's Name	T. Raghavendra Rao
Company/Institution Name	Sustainable Technologies & Environmental Projects Pvt. Ltd.
Address	602-B, Sweet Home, SV Patel Nagar, Andheri west, Mumbai - 400053
Company website	www.stepsenergy.net
IP Status	-

Innovation brief

Low cost grey and waste water recycling provides a process for the treatment of domestic grey water, effluent water, sewers and water bodies like lakes, wells, canals and contaminated water from rivers using a simple and economic technique to recycle and re-use water at the point of origin. This technology consists of special chemical treatment that recycles waste water at domestic level and converts the same to almost potable quality with minimum chemical and power usage. The treated water removes bacteria, turbidity, colour and other contaminants, organic matter, oil and grease. After treatment, the water becomes clear and pure for reuse in domestic, horticulture or agricultural purposes. The system is capable of purifying industrial effluents to disposable quality and converts the water that is re-usable. The industrial water usage, thus, can be reduced as the industry will have the choice to clean its effluent water to reusable quality. This method does not use expensive equipments and yet controls microorganisms, which could be of help in terms of purification of contaminated rivers, wells etc. This technology is particularly suitable for high rise buildings, rural households and stagnant water bodies and revival of the dead water bodies. The technology does not require expensive filters, pumps and other equipment and therefore, the cost of recycling is very low and affordable. The technology is undergoing field testing and is ready for commercialization.

15. Technology: Method of making Al rich and AlN rich matrix composites by pressure less infiltration of molten aluminum alloys using an external getter

Key facts:

Innovator's Name	Vikram Jayaram
Company/Institution Name	Indian Institute of Science
Address	Intellectual Property Cell, SID, Indian Institute of Science, Bengaluru - 560012
Company website	www.iisc.ernet.in
IP Status	Patent approval pending

Innovation brief

The method refers to the process of making Alrich and AlN-rich matrix composite using an external getter. It provides an improved process for preparing metal rich composites with uniform matrix across the thickness. The metal fills the pore spaces of ceramic material and gives integrity to the whole structure. It is a new process that can be used to produce different classes of components with compositions. The technology has its application in the aerospace and other engineering materials industries. The intellectual property right of the technology is held by the Indian Institute of Science. The patent protection for this has been filed in India. The technology has successfully gone through the laboratory test phase. It has also been successfully tested by ISRO to validate the material for its basic properties and ability to withstand the thermal and other exposures encountered in space.

16. Technology: mPire - portlet maker

Key facts:

Innovator's Name	Ahmed Hasan
Company/Institution Name	Trans IT mPower Labs (P) Ltd.
Address	No. 42, Nandidurg Road, Bengaluru - 560052
Company website	www.transitmpowerlab.tradeget.com
IP Status	None

Innovation brief

mPire - portlet maker is a software autogeneration tool. It generates a fully functional portlet based on JSR-168 standards with a simple XML based input. This technology directly addresses the most critical problems of IT industry such as non-availability of skilled programmers, schedule and budget slippages, non-conformance to standards and extremely high development and overhead costs. Using mPire - portlet maker, a user can develop a website in less than two days. In addition, one can also develop application that has features like sorting, searching, pagination, internationalization, web-services, saving search criteria and managing lists. This technology can be used for high speed portal development, business automation and develop software products and services. The intellectual property right for this technology is held by TransIT mPower Labs. Presently, the technology has been completely developed and is in active use. It is already functional and ready for commercial use. Furthermore, the company received prospective deals for the technology from the portlet auto generators of IBM Websphere and BEA Weblogic portal servers.

17. Technology: Optical cryocooler

Key facts:

Innovator's Name	Subhash Jacob
Company/Institution Name	Indian Institute of Science
Address	Society for Innovation and Development(SID), IP cell, IISc, Bengaluru - 560012
Company website	www.iisc.ernet.in
IP Status	Patented Technology

Innovation brief

Optical cryocooler is a technology used to cool the thermal shields with the help of thermoelectric coolers and to use the generated electric energy from transmitted fluorescent radiation to drive the thermo-electric coolers. The concept comprising a combination of fluorescent cooler and thermo-electric cooler will enable more efficient cool sown from ambient to low temperature than the fluorescent cooler alone, as it would not allow thermal radiation of the cooled components which is the limitation of the present fluorescent coolers. The technology is meant for aerospace industry and defense services for sensor cooling and thermal imaging systems and for specialized experimental systems that can not have any vibration from cooling systems. The intellectual property right of the technology is held by the Indian Institute of Science. The patent protection for this was filed in India for which approval has been granted. The technology has successfully undergone laboratory test phase.

18. Technology: Pedal crank assembly

Key facts:

Innovator's Name	Manoj Kumar Mondal
Company/Institution Name	Indian Institute of Technology, Kharagpur
Address	240/1 South Side, PO-Kharagpur - 721301
Company website	www.iitkgp.ac.in
IP Status	Trade Secret

Innovation brief

The *pedal crank assembly* facilitates an increase in effective length of the crank arm. This helps to produce almost double the torque generated by a traditional pedal crank in a manually driven vehicle under the same force. It amplifies the power output under the same force using mechanical advantage and therefore, saves energy. Doubling of torque will give rise to doubling of output by all manually driven equipments from the existing level. This technology can be fitted on a bicycle, rickshaw and other equipment which are manually driven. Higher torque can be used to increase the comfort of driving, increase speed of the vehicle, increase the amount of load that can be pulled by such vehicle without any other change or any other source of power. The increased torque will give rise to many other possibilities such as vehicles for several specialized purposes such as ambulance and agricultural farming, particularly for rural areas.

19. Technology: Power over ethernet technology (POE)

Key facts:

Innovator's Name	Devesh R. Agarwal
Company/Institution Name	Infomart (India) Pvt. Ltd.
Address	99, 5th block, 5th cross, Koramangala, Bengaluru - 560034
Company website	www.infomartgroup.com
IP Status	Trade Secret

Innovation brief

Power over ethernet technology (POE) is an electrical equipment that allows electrical power to be carried on a data cable. It is a system which transmits electrical power, along with data, to network devices over a single standard Ethernet data cable, instead of a separate power and a separate data cable. Thus, it helps in increasing reliability, maintenance, safety, flexibility, time and money. This technology can be used in any ethernet device within the power norms of up to 30 watts such as VOIP phones, bluetooth access points, point of information systems, access control systems, wimax infrastructure, wireless LAN access points, point of sale systems, RFID systems and PTZ video cameras. POE is well suited for large network systems integrators, video surveillance systems integrators, and network equipment manufacturers.

20. Technology: Process for the manufacture of nitrobenzene using solid acid catalyst

Key facts:

Innovator's Name	Mohan K. Dongare
Company/Institution Name	National Chemical Laboratory
Address	Catalysis Division, National Chemical Laboratory, Pune - 411008
Company website	www.ncl-india.org
IP Status	Patented Technology

Innovation brief

The technology has been developed to manufacture nitration of benzene using solid acid catalyst. Conventionally, nitrobenzene is produced by liquid phase nitration using nitric acid/sulphuric acid as nitrating agent. The conversion of benzene is high and the recycling of diluted sulphuric acid generated is very expensive and its disposal causes environmental problems. It is therefore desirable to develop a process for nitration of benzene using solid acid catalysts. The developed technology is mesoporous catalysts with very high acidity and is very active for nitration of benzene using diluted nitric acid without any use of sulphuric acid. The intellectual property right for this technology is held by National Chemical Laboratory. The patent protection for this product has been filed and the approval for the same has been granted. The technology has been developed as a lab scale prototype and tested for product specifications.

21. Technology: Project "Surya Kiran"

Key facts:

Innovator's Name	J. J. Singh
Company/Institution Name	Surya Kiran
Address	"Sandeepa", No. 14 Asha Officers Colony, R.K.Puram, Secunderabad, Andhra Pradesh - 500056
Company website	-
IP Status	Copyright

Innovation brief

The technology has been developed to provide air conditioning without the use of conventional air conditioners with customized solutions of heat and dust for the average middle class segment of India. According to the innovator, the developed technology is capable of reducing the dust levels from 450 mgs/ cubic meter to 25 to 30 mgs/ cubic meter inside houses and temperatures can be brought down from 40 degree centigrade to 25 degree centigrade, without use of air conditioners or fans. It can also save 50% of electric power of domestic segment and provide better ambience than air conditioners. The technology can positively address the issue of global warming at macro level and can also generate significant employment opportunities. The intellectual property right for this technology is held by Lt. Col J.J. Singh. The company has filed for patent protection in India and the US, for which the approval has been granted. The technology has been completely developed and is in active use now. In November 2007, the technology was demonstrated in the Department of Scientific & Industrial research, under Ministry of Science & Technology, Delhi.

22. Technology: Recombinant protein with serological and cancer diagnostic application

Key facts:

Innovator's Name	B.M. Swamy
Company/Institution Name	Karnatak University
Address	Dept. of Biochemistry, Karnatak University, Dharwad - 580003
Company website	www.kud.ac.in
IP Status	Patented Technology

Innovation brief

Recombinant protein has serological and diagnostic application in cancer and is expressed in E Coli with good yield. It specifically binds to A1 blood group and hence can be used as blood grouping reagent. It also specifically recognizes and binds to cancer cells and can have potential application in cancer diagnostics or as drug delivery system. Also, its immunomodulary effect could have cancer therapeutic application. It is a stand-alone product and could be a very useful drug delivery agent. It is stable and has better solubility properties over wild protein. The product can be used in clinics, hospitals and pharmaceuticals/biotechnology companies. The intellectual property right for this product is jointly held by the Karnataka University, Karnataka and Unichem Laboratories Ltd, Mumbai. The patent protection for this product has been filed in India. The technology has successfully undergone the laboratory model/test.

23. Technology: Simple, cheap and eco-friendly process to polymerize silicone compounds

Key facts:

Innovator's Name	Bimal Pillai
Company/Institution Name	Nouveaw Exports Pvt. Ltd.
Address	A3/4-1, Alak CHS, Sector 19A, Nerul-E, Navimumbai - 400706
Company website	www.nouveaw.com
IP Status	Patent approval pending

Innovation brief

This technology is a chemical process which is used to polymerize less stable silicones. The process reduces the cost of production and is also environment friendly. The process can work at ambient temperature, which eliminates the process of burning fossil fuels and reduces the greenhouse gas emission. This process is simple and can be performed in very simple setup with no special infrastructure. This process can find its application in making silicone rubbers, water repellants, textile coatings, personal care products and fire extinguishing products.

24. Technology: Smoke, fumes & gases arrestor

Key facts:

Innovator's Name	Ashok Rai
Company/Institution Name	Ashok K. Rai Associates
Address	701, Ashadeep, 9-Hailey Road, Delhi - 110001
Company website	-
IP Status	Patented Technology

Innovation brief

Smoke, fumes & gases arrestor technology is highly effective in controlling the emissions of greenhouse gases from erected chimneys. It involves electro mechanical construction mounted on the top of erected chimneys having rotating frame of conical shape which is rotated by a motor fitted with a gear set-up. The bottom of the arrestor is also conical in shape having fixed turf inside and between both the cones, a sprinkling system is present which dissolves the gases. The technology has its applications in the power, chemical and fertilizer, and steel industries.

25. Technology: Solar thermal engine

Key facts:

Innovator's Name	Gurmit Singh
Company/Institution Name	PranatEngineers Pvt. Ltd.
Address	28, Rishabh Vihar, Delhi - 110092
Company website	-
IP Status	-

Innovation brief

Solar thermal engine has been developed to convert solar heat directly into mechanical energy to generate electricity for industrial and household use. It is unique as it can meet the energy needs, reduce global warming and cut carbon footprint. The solar thermal engine is cost effective and can be manufactured at low cost compared to wind turbines, photovoltaic panels and solar thermal generators. Furthermore, the technology can generate power during the night by using the heat from solar pond. The intellectual property right for this technology is held by Mr. Gurmit Singh. The technology has been successfully developed as a laboratory model.

26. Technology: Switch reluctance motor

Key facts:

Innovator's Name	Samsul Ekram
Company/Institution Name	Crompton Greaves Ltd
Address	CG Global R&D Center, AMDTC, Crompton Greaves Ltd., Kanjurmarg(East) - 400042
Company website	www.cgglobal.com
IP Status	-

Innovation brief

Switch reluctance motor is a technology which is used in mixer-grinder applications. It consists of low cost high efficiency motor cum controller compatible for the application. The required components are designed and developed optimally to reduce the manufacturing process and make the system more reliable. This reduces the electric energy utilization and also the man time/energy utilization. The technology is highly efficient and also user friendly due to complete automation features added in the electronic controller. The technology is suitable for high speed/high inertia application like mixer-grinders, power tools, hand drills, washing machines and electric vehicles.

27. Technology: Unique thermal management in outdoor type dry transformers

Key facts:

Innovator's Name	Arun Dattatraya Yargole
Company/Institution Name	Crompton Greaves Ltd
Address	CG Global R&D, Kanjur - 400042
Company website	www.cgglobal.com
IP Status	Patent approval pending

Innovation brief

Unique thermal management in outdoor type dry transformers is an alternative technology of thermal management in dry outdoor type distribution transformers. It consists of application of mechanical heat exchangers such as heat pipes and heat sinks in dry distribution transformers. The technology is designed to be used in manufacturing of dry type distribution transformers for transmission of electric power. This technology reduces operating temperatures of dry transformers to thermal class B (130°C) or lower, that helps in reduction in the material cost by about 40% or higher. Furthermore, as the t transformers operate at lower temperatures there is a reduction in the power consumed by the transformers to about 20%.

28. Technology: Video tracking algorithm

Key facts:

Innovator's Name	Himesh Madhuranath
Company/Institution Name	Deccan Signals
Address	No. 499, 13th Main, 21st Cross, BSK 2nd Stage, Bengaluru - 560070
Company website	https://sites.google.com/a/deccansignals.com/www/home
IP Status	Not Patented

Innovation brief

The *Video tracking algorithm* is a software which performs real time video tracking. The technology can be used with moving platforms like airplanes, UAVs and helicopters mounted with cameras. It can be useful in military operations, surveillance, and locating people and equipment in natural disaster zones. The intellectual property right of this technology is held by Deccan Signals. The technology has been completely developed and is in active use now.

29. Technology: Slow–release micronutrient fertilizers

Key facts:

Innovator's Name	Chandrika Varadachari
Company/Institution Name	Raman Centre for Applied and Interdisciplinary Sciences
Address	7A Judges Court Road, 4A Ratnabali Kolkata - 700008 (HO :1290 Altamead Drive, CA 94024 USA)
Company website	www.agtecinnovations.com
IP Status	Granted in 7 countries including US

Innovation brief

The micronutrient fertilizers include water insoluble, polymer ic phosphate based compounds of zinc, iron, manganese, copper, molybdenum and boron that can be produced as single nutrient as well as multi-nutrient materials. These micronutrient fertilizers can be used in agriculture. The fertilizers are designed to be suitable for any soil, crop or agro-climatic condition. The fertilizers provide highly effective sources of micronutrients that increase crop yields by 20%-40% with small applications, which are one-fourth to one-tenth of the normal dosages. They can substantially increase productivity of crops such as cereals, pulses and vegetables and thereby, improve economic conditions of the farmers. For instance, as per the test information provided by the company, the fertilizers resulted in over 30% increase in the production of rice, wheat and maize; 25% increase in gram, 25% increase in cabbage and radish; 100% increase in chillies, 50% increase in spinach, significantly higher nutrient levels in crops and increase in vitamin C content. The micronutrients can be combined with each other as well as with other NPK fertilizers. Use of such slow-release fertilizers could drastically cut down micronutrient dosages, which are at present very high because of low use-efficiency of the soluble salts. This could also lead to more favorable economic use of fertilizers and thereby encourage micronutrient usage. This fertilizer could provide an environment-friendly alternative to the traditional approach.

The intellectual property right for the products is jointly held by Dr. Chandrika Varadachari; Department of Science & Technology, Government of India (GoI); National Research & Development Corporation, GoI; and Raman Centre for Applied and Interdisciplinary Sciences. The patent protection for these products has been filed in India and the US and four Indian patents have already been granted. The company is in the process of finalizing deals with companies in India and the US and is in process for commercialization in Chile and Brazil.

30. Technology: Nanotechnology-based fingerprint dusting composition

Key facts:

Innovator's Name	G.S. Sodhi
Company/Institution Name	S.G.T.B. Khalsa College
Address	S.G.T.B. Khalsa College, University of Delhi, Delhi-110007
Company website	Sgtbkhalsadu.ac.in
IP Status	Patent

Innovation brief

Nanotechnology-based fingerprint dusting composition pertains to the synthesis and usage of a nano particle-based composition for detecting latent fingerprints at a scene of crime. It develops latent fingerprints on a wide range of surfaces, absorbent and non-absorbent; white and multi-colored; and smooth and rough. This nano particle-based composition has the ability to actively seek out oil. The novel composition, therefore, provides a more detailed, clearer and sharper picture of fingerprints. The technology can be used in crime detection and can also be used by forensic scientists and fingerprint experts in various state and central forensic science laboratories as well as by the fingerprint bureaus, faculty and research scholars at university forensic science teaching departments.

The intellectual property right for this technology is jointly held by Dr. G.S. Sodhi and Dr. J. Kaur. The Indian patent application for this technology was filed in July 2006. Furthermore, a deal for commercialization of this technology has been signed.

Technologies Selected in IIGP 2009

Technologies Selected in IIGP 2009

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	2-D Nano-positioner	Reetesh Singh	Simplifix Automation & Solutions Pvt. Ltd. (IIT Kanpur)
2.	3D Visualization solution	Neehar Karnik	Maitree Consultants
3.	Balanced split type profile forming cutters	Vinayakpandi N.	Biramha Machine Tools
4.	Beans Trade Engine	Anshuman Verma	Beans & Intellect Financial Technology Pvt. Ltd.
5.	Bio-diesel production by catalysis from Algae	T. Raghavendra Rao	Sustainable Technologies & Environmental Projects Pvt. Ltd.
6.	Clean air through universal mobile platform using Nano coating technologies	T. Raghavendra Rao	Sustainable Technologies & Environmental Projects Pvt. Ltd.
7.	Complete recycling of beverage cartons	Tushar Shah	Daman Ganga
8.	Cost effective technology for the mass production of Bacilus thuringiensis (Bt) biopesticide	M. Mohan	Directorate of Rice Research
9.	Development of new high strength low alloy (HSLA) steel sheets - BEML E500 & BEML E550	P. V. Gayatri	BEML
10.	ECM analog technology	Aroop Kumar Dutta	ExCel Matrix Biological Devices Pvt. Ltd.
11.	E-waste to the best	B K Soni	Eco Recycling Ltd
12.	Fibre reinforced concrete	N. Pannirselvam	VIT University
13.	Heart sound analyser	Goutam Saha	IIT-Kharagpur
14.	Injection stretch blow molding machine with linear indexing	Swanand Sohoni	Omicron Technologies Pvt. Ltd.
15.	Insulitte light weight insulation concrete	Sandeep Vidwans	Enercon
16.	Interfrential non invasive pacer	Narayanan Lakshmanan	SiliconLabs Pvt. Ltd.
17.	LAMP based diagnostics	Shesheer Kumar	RAS Lifesciences Pvt. Ltd.
18.	Latent metonymical analysis and indexing (LMai)	Syed Yasin	Individual
19.	Micro-wind turbine with remote online monitoring	Vinayak D Manmadkar	Suvarna Urja Windpower Pvt. Ltd.
20.	Nano polymer coatings on coronary stent systems	Sundar Manoharan	IIT-Kanpur
21.	Natural product based formulations for capccin (arthritic pain relief)	Y.S.R.Venkata Rao	Asian Herbex Limited
22.	Noddler- personalized voice based information and transaction system	Umesh Sachdev	Uniphore Software Systems Pvt. Ltd
23.	Safety device for preventing night- road-accidents, thereby saving human lives and vehicle damages	Vijay Sharatchandra Tase	Peer Techncial Services Pvt. Ltd.

S. No	Technology Name	Innovator's Name	Company/ Institution Name
24.	Sensor Array Based Wide Frame Digital Diagnostic X-Ray Imager	Karthikeyan Jawahar	Adhithiya Medical Systems
25.	V-One mobile, peer-to-peer communication session initiation in mobile devices	Gopi Kumar Bulusu	Sankhya Technologies Pvt. Ltd.
26.	WiLT	Sondur Lakshmipathi.	mYmowireless Technologies Pvt. Ltd
27.	World's first water pollution free starch/ sago plant	Natarajan Rayar	Nasel Starch Industries

1. Technology: 2-D nano-positioner

Key facts:

Innovator's Name	Reetesh Singh
Company/Institution Name	Simplifix Automation & Solutions Pvt. Ltd. (IIT Kanpur)
Address	S-1, SIDBI Innovation & Incubation Centre (SIIC), IIT Kanpur - 208016
Company website	www.iitk.ac.in
IP Status	Patented Technology

Innovation brief

2-D nano-positioner is a device which is used for studying various atomic and sub-atomic properties on nanometer length-scales. It is a compact, lightweight and low cost alternative which can be used for positioning the test samples. The technology has its applications in positioning of samples under high resolution microscopes, optical microscopes and optical fiber positioners, semiconductor and chip, and bio medicine and science. It is advantageous over the existing systems as it is compact, lightweight, lower in cost, simple in design and operation, has all degrees of freedom in 2-D, and can be used in cryogenic and high magnetic fields.

It is a patented technology at present.

2. Technology: 3D Visualization solution

Key facts:

Innovator's Name	Neehar Karnik
Company/Institution Name	Maitree Consultants
Address	PP/2/6, Sundar Nagar, Malad (west), Mumbai - 400064
Company website	-
IP Status	-

Innovation brief

Visualization of detailed 3D data using limited resources of hand held and mobile devices makes efficient use of parallel processing on cloud. The innovation or idea aims at making it economically viable to support very large number of clients or end users. This will allow interactive visualization of large 3D data such as terrain, GIS, LIDAR data and CAD in a secure and protected manner. The robotic application of this idea would involve enabling terrain awareness for smaller UAVs, thus making them more autonomous and indoor navigation where GPS signal is not available

3. Technology: Balanced split type profile forming cutters

Key facts:

Innovator's Name	Vinayakpandi N.
Company/Institution Name	Biramha Machine Tools
Address	No. 1, Bypass Road, Bethaniyapuram, Madurai - 625016
Company website	-
IP Status	-

Innovation brief

Balanced split type profile forming cutters is a forming tool for wood, steel, marble and granite.

It reduces the pay load three times compared to conventional cutters, thus reducing the power consumption. It also reduces the raw material and time required, avoids damages of wood and cutters, and more importantly, is available at a very affordable price. The technology is suitable for builders, furniture makers and other wood processing industries, carpenters and artisans.

4. Technology: Beans Trade Engine

Key facts:

Innovator's Name	Anshuman Verma
Company/Institution Name	Beans & Intellect Financial Technology Pvt. Ltd.
Address	363, Powai Plaza, Hiranandani Gardens, Hiranandani, Mumbai - 400086
Company website	www.beansindia.com
IP Status	-

Innovation brief

The innovative technology processes derivatives across asset class, does geek analysis, portfolio management, VaR analysis MTM of the portfolio, reporting etc. It is targeted at a wide area of treasury innovations. It has been designed to help treasuries and financial institutions accelerate their research, enhance their modeling capabilities and perform quantitative and statistical analysis. The technology is built upon the concept of "financial objects" where all the components of the product provides user, the ability to choose, plug n play from multiple market - tested analytical and mathematical models.

5. Technology: Bio-diesel production by catalysis from algae

Key facts:

Innovator's Name	T. Raghavendra Rao
Company/Institution Name	Sustainable Technologies & Environmental Projects Pvt. Ltd.
Address	602-B, Sweet Home, SV Patel Nagar, Andheri west, Mumbai - 400058
Company website	www.stepsenergy.net
IP Status	-

Innovation brief

The technology uses innovative approach to convert the algae grown in ponds, lakes, oceans and other water bodies into diesel fuel. In the industrialized world where the demand for fuel and energy is constantly resulting in depletion of fossil fuel reserves, this technology is a notable approach. Industries like automobiles, railways, ships, industrial generators and furnaces can now replace fossil fuels with the fuel derived from algae. Lakes and other water bodies are facing environmental problem on account of growth of algae and other biomass like water hyacinth. The technology overcomes the dual menace of fuel shortage and the contamination of water bodies by algae.

6. Technology: Clean air through universal mobile platform using nano coating technologies

Key facts:

Innovator's Name	T. Raghavendra Rao
Company/Institution Name	Sustainable Technologies & Environmental Projects Pvt. Ltd.
Address	602-B, Sweet Home, SV Patel Nagar, Andheri west, Mumbai- 400058
Company website	www.stepsenergy.net
IP Status	-

Innovation brief

The technology is an application of nano science for the cleaning of atmospheric pollution. The nano particles when coated on vehicles, act as a mobile pollution control device reducing the air borne pollutants as the vehicles move from place to place. The coatings can also be applied to stationery objects and clean the air and remove pollutants. It is beneficial to all the industries that release NO (Nitrogen oxides), SO (Sulphur oxides) emissions etc.

7. Technology: Complete recycling of beverage cartons

Key facts:

Innovator's Name	Tushar Shah
Company/Institution Name	Daman-Ganga Group
Address	256 GIDC, Vapi - 396191
Company website	www.damanganga.com
IP Status	-

Innovation brief

Complete recycling of beverage cartons is an innovation that recycles and recovers the basic materials used in the initial production process of a beverage carton including pulp, paper, plastics, oil and aluminium. This technology can be used by various industries engaged in recycling, packaging, landfill mining and environmental solutions for composites. The significance of this technology is that it recycles the challenging multiple product laminate, that could be used in making useful products out of post-consumer waste.

8. Technology: Cost effective technology for the mass production of bacillus thuringiensis (Bt) biopesticide

Key facts:

Innovator's Name	M. Mohan
Company/Institution Name	Directorate of Rice Research (ICAR)
Address	Entomology section, Directorate of Rice Research, Rajendranagar, Hyderabad - 500030
Company website	www.drricar.org
IP Status	Grant awaited

Innovation brief

The technology is a cost-effective production of insecticidal spore-crystal proteins, which are toxic to insects, from Bacillus thuringiensis (Bt) bacterium, for the management of a targeted Lepidopteran group of Agricultural insect pests, which mostly includes caterpillars. It is one of the insect orders with the most species, encompassing moths and the three super families of butterflies, skipper butterflies, and moth butterflies. The potential benefits of the technology are:

a) the product has proven to be 20-30% more effective than conventional formulations;

b) The technology can reduce the production cost by 204 fold as compared to conventional means of production;

c) Bt strain does not produce human pathogenic ß-exotoxin

d) Bt products are found to be safe for use in the environment and with mammals.

e) EPA (Environmental Protection Agency) has not found any human health hazards related to using Bt strains.

The final formulation is expected to be ready in six to nine months. Three field tests have been performed to test the virulence of the pesticide on important agricultural insects. The patent application has been filed and the grant is awaited.

9. Technology: Development of new high strength low alloy (HSLA) steel sheets - BEML E500 & BEML E550

Key facts:

Innovator's Name	P.V. Gayatri
Company/Institution Name	BEML Limited
Address	BEML Soudha, 23/1, 4th Main, SR Nagar, Bengaluru - 560027
Company website	www.bemlindia.com
IP Status	-

Innovation brief

Development of new high strength low alloy (HSLA) steel sheets focuses on manufacturing high strength steel sheets to keep the weight of the floating bridge to a minimum and at the same time be able to carry high load. The fabrication of the mid and shore pontoons requires structural steel sheets of very high strength with yield strength of 500 - 550 MPa and thickness of 2 mm & 3 mm and this technology addresses the problem. These can be used for transport of vehicles, equipments and personnel across the water obstacles and marshy grounds.

The steel sheet is a standalone product in the market as it uses the thermo mechanical controller processing (TMCP) approach that is not used by any other HSLA manufacturers. This is because of the presence of the microalloying elements in these steels which make it amenable to thermo mechanical processing. The product is expected to prove beneficial for the army and defense, mining & construction equipment manufacturing companies. Moreover, these sheets have greater resistance against atmospheric corrosion, toughness against low temperatures, and can be welded easily.

10. Technology: ECM analog technology

Key facts:

Innovator's Name	Aroop Kumar Dutta
Company/Institution Name	ExCel Matrix Biological Devices Pvt. Ltd.
Address	12-5-149/16-2, Vijaya Puri, Opposite NIN, Hyderabad - 500017
Company website	www.excellmatrix.com

Innovation brief

ECM analog technology is a cell-interactive biomaterial for regenerative medicine/tissue engineering to culture mammalian cells in natural tissue like condition and create artificial living tissues of human and animal origin. It is a collection of methods used to create a 3D scaffold or a cell scaffold construct which includes a gel like substance, providing the structural support needed as an environment for 3D cell growth. The technology offers biomaterial platform option for tissue engineering and stem cell technology for clinical and diagnostic solution development. It can be used for rapid prototyping and manufacturing of live tissues for research, diagnostic and therapeutic applications. The technology follows innovative approach of fusion of cell interactivity properties with engineering properties to meet the requirements of tissue engineering.

11. Technology: E-waste to the best

Key facts:

Innovator's Name	B. K. Soni
Company/Institution Name	Eco Recycling Ltd.
Address	205 Center Point, 2nd Floor, Andheri Kurla Road, Andheri (East), Mumbai-400059
Company website	www.ecoreco.com
IP Status	-

Innovation brief

E-waste to the best is a technology developed as a data destruction solution. This data disposal shredder can process up to 100 disks in an hour with secured processing of data. The technology process is a combination of steps that include manual separation of electronics (like a computer) into sub-components, shredding of parts and then automated separation of materials such as metal through magnets and other processes. The technology could be utilized wherever computing and communicating devices are being used. The present methodologies adopted by unorganized recyclers are degrading the environment, health and ecological balance. Disposal through this technology is safe, environment friendly and protects loss of commodities with zero landfill.

12. Technology: Fibre reinforced concrete

Key facts:

Innovator's Name	N. Pannirselvam
Company/Institution Name	VIT University
Address	VIT University, Vellore Campus, Vellore - 632 0
Company website	www.vit.ac.in
IP Status	-

Innovation brief

Fibre reinforced concrete (FRC) is a concrete material that contains fibrous material which increases structural integrity. It is used in concrete to provide strength, durability and ductility to the structure. It was primarily innovated to be used in construction business to improve strength of beams that could facilitate extra load. Its usability extends from earthquake prone regions to rehabilitating a bridge. The technology was innovated to be used when the beam wasn't able to carry the desired load due to poor workmanship. Furthermore, the technology helps in rehabilitating a structure rather than demolishing it and building a new one. Also, the structures built using the FRC are more durable and ductile than the one built without it because of its corrosion free property.

13. Technology: Heart sound analyser

Key facts:

Innovator's Name	Goutam Saha
Company/Institution Name	Indian Institute of Technology Kharagpur
Address	Department of Electronics & ECE, IIT Kharagpur - 721302
Company website	www.iitkgp.ac.in
IP Status	-

Innovation brief

The indigenously developed Heart Sound Analyzer at Indian Institute of Technology (IIT), Kharagpur is an integrated system that makes traditional stethoscope useful for analyzing heart valve related disorders through advanced signal processing and decision theory. The system comprises of four subsystems. The data acquisition subsystem involves a low cost hardware connected to a simple stethoscope that does appropriate signal conditioning for digital data capture. The data compression and decompression subsystem is used for compressing and encrypting the data to reduce storage space and maintain privacy of the data. The recording and display subsystem records the data in real time and also handles online/offline displays, zooming, playback of selected part, playback in loop, patient database management, report generation and printing. The decision making subsystem characterizes the recorded data online/offline in manual mode for 33 different pathological cases through visual comparison of three distinct features, in addition to specific audio clues. The auto assistant mode works for 9 commonly occurring diseases through a system generated suggestion. This subsystem can also make feature wise comparison of patient's previously recorded data with the current one and help analyzing the progression of disease. The heart sound analyzer can also be used as an auscultation training device for a medical professional.

An extremely low cost, easy to use, non-invasive, objective tool like the Heart Sound Analyzer can prove to be very useful in bringing people closer to a healthcare service to ensure quality healthcare.

14. Technology: Injection stretch blow molding machine with linear indexing

Key facts:

Innovator's Name	Swanand Sohoni
Company/Institution Name	Omicron Technologies Pvt. Ltd.
Address	A-2, Udyog Sadan No.1, MIDC, Andheri, East Mumbai - 400069
Company website	www.omicrontech.co.in
IP Status	-

Innovation brief

Injection stretch blow molding machine (ISBM) with linear indexing is a molding machine for manufacturing polymer bottles like polyethylene terephthalate, polypropylene, and polycarbonate. The ISBM has three stations including Injection Station, Blow Station and Ejection Station arranged along a linear path. The technology involves injection molding of preforms as an intermediate product at the Injection Station, transferring the aforesaid preform in a semimolten condition (wherein only the neck portion is solidified) to the blow mould mounted at the Blow Station, and then mechanically stretching and blowing the preform by means of pressurized air to obtain bottles of desired size and geometry. The bottles are transferred to and ejected at the Ejection Station. The transfer of the bottles between the various stations of the machine is done by linear indexing. The bottles produced on the ISBM machine would have end-user applications for packaging products in industries like pharmaceuticals, foods and beverages, pesticides, cosmetics, etc.

The technology has undergone pilot production trials and has been developed as full-scale prototype.

15. Technology: Insulitte light weight insulation concrete

Key facts:

Innovator's Name	Sandeep Vidwans
Company/Institution Name	Enercon
Address	A/408, Neelkanth Palace, 100 ft Road, Satellite, Ahmedabad-380015
Company website	www.gbcindia.org
IP Status	Applied

Innovation brief

Insulitte light weight insulation concrete is a unique formula composed of naturally occurring puffed siliceous material, blended with fibrous polymer liquid and air entraining agents, engineered for light weight aggregates. it is a lightweight concrete used for over deck/heat insulation as a replacement of brickbats. It uses agro waste like rice and wheat husk ash as principal ingredients and thereby aids in reducing carbon emission. This technology is well suited for the construction industry.

The patent protection for this technology has been applied in India. The technology has been commercialized, and it has been put to use in large scale projects by Adani, Hyatt Hotels, IFCI Bhavan, etc.

16. Technology: Interferential non-invasive pacer

Key facts:

Innovator's Name	Narayanan Lakshmanan
Company/Institution Name	SiliconLabs Pvt. Limited
Address	21, Kambar Street, East Tambaram, Chennai - 600059
Company website	www.siliconlabs.org
IP Status	-

Innovation brief

Interferential non-invasive pacer is a medical device designed as an improvement to existing temporary pacers. This technology improves cardiac output, thus eliminating the discomfort that is normally present when using temporary pacing. One of the most important aspects of this device is that it stimulates the myocardium in isolation; hence, it is a novel technique for pacing the heart non invasively. The intellectual property right for this technology is held by Mr. Narayanan Lakshmanan. The patent protection for this technology has been filed in India and the US.

17. Technology: LAMP based diagnostics

Key facts:

Innovator's Name	Shesheer Kumar
Company/Institution Name	RAS Lifesciences Pvt. Ltd.
Address	2-2-7/5/B, 2nd Floor, Shiva sai complex, Shivam Road, Hyderabad - 500044
Company website	www.raslifesciences.com
IP Status	-

Innovation brief

LAMP based diagnostics is a reagent and instrument for measuring molecular diagnostics. It provides cost effective confirmatory molecular tests for infections, cancer and genetic diseases in animals, plants and humans. The technology is used in the confirmation of clinical, veterinary and plant diseases by testing presence of specific DNA or RNA pertaining to that specific causative agent. This technology uses low cost devices both for carrying out reactions and detection of results. It is very useful method in blood banking systems where tests are conducted based on indirect method named ELISA, which many a times do not detect infection.

The technology has been developed as a successful laboratory model.

18. Technology: Latent metonymical analysis and indexing (LMai)

Key facts:

Innovator's Name	Syed Yasin
Company/Institution Name	-
Address	No. 33 SRS House, Hanes Road, Central Street, Frazer Town, Bengaluru - 560005
Company website	-
IP Status	Applied

Innovation brief

Latent metonymical analysis and indexing (LMai) is a software tool that can be used to help largescale text search engines produce better results on searches. The tool is not a search engine itself, but an algorithm to supplement existing search engines. This technology uses a mathematical approach to identify the relationships between words in a set of given documents (unstructured data). The algorithm examines the natural documents provided to it, automatically makes decisions on clustering related words together, and performs the classification. The technology is designed to be used in search engines, data mining, semantic web and building contextual dictionaries automatically.

The intellectual property right for this technology is co-owned by Mr. Syed Yasin and his company. The inventors have applied for a Patent Cooperation Treaty (PCT) application for their invention in 2007. The technology has been fully developed and tested in conjunction with web search engines like Microsoft Live Search and Google, and enterprise solutions like IBM's OmniFind engine. Currently, the inventors are in process of collaborating LMai with IBM's Enterprise Search Product, IBM OmniFind (ES).

19. Technology: Micro-wind turbine with remote online monitoring

Key facts:

Innovator's Name	Vinayak D. Manmadkar
Company/Institution Name	Suvarna Urja Windpower Pvt. Ltd.
Address	CTS N-371,3rd Floor, Morya Commercial Complex, Chafekar Chowk Chinchwad, Pune - 411 033
Company website	www.suvarnaurja.com
IP Status	-

Innovation brief

Micro-wind turbine with remote online monitoring is a wind technology that seeks to resolve problem of acute power shortage in rural and semi-urban areas. The main features of this technology are: it is an energy converter which harnesses clean source of energy (wind); it is designed for dual function i.e., electrical power system and direct electrical water pumping system; it creates a smart local power system which minimizes load on grid and State Electricity Boards; it provides novel safety and protection systems; and it can be scaled to meet the needs of end-users.

20. Technology: Nano polymer coatings on coronary stent systems

Key facts:

Innovator's Name	Sundar Manoharan
Company/Institution Name	Indian Institute of Technology - Kanpur
Address	Indian Institute of Technology, Kanpur - 208016
Company website	www.iitk.ac.in
IP Status	-

Innovation brief

Nano polymer coating on coronary stent systems is a technology developed to form an alternative to drug coated stents and to prevent some of the clinical issues such as thrombosis and restenosis, encountered in patients with stent. The coated stent provides an inert surface for arterial walls to heal, and prevents the occurrence of thrombosis (clotting) and restenosis (renarrowing) of the artery. This is a cost-effective method and can provide the patient, improved recovery time with minimal use of drugs.

The intellectual property right for this technology is jointly held by Prof. Manoharan, Dr. T.R. Muralidharan, and Sri Ramachandra Medical center, Chennai. It has been developed as a successful laboratory model. The sample stents have been processed using a Pulsed Electron Deposition (PED) method.

21. Technology: Natural product based formulations for aseptic

Key facts:

Innovator's Name	Y.S.R. Venkata Rao
Company/Institution Name	Asian Herbex Limited
Address	No. 5, Prembagh, 3-4-490/A, Barkatpura, Hyderabad - 500027
Company website	www.asianherbex.biz
IP Status	Applied

Innovation brief

Natural product based formulations for aseptic is based on a natural ingredient called curcumin, a bio active from turmeric used externally as antiseptic, wound healing and anti-acne. It prevents bacterial growth, heals cuts and minor wounds. It can also be used in the case of minor burns. The product minimizes the toxic effects on the skin when applied topically, and also serves as an alternative to synthetic drugs.

The intellectual property right for this technology is held by Mr. Y.S.R. Venkata Rao. The patent protection for this technology has been filed in India. The technology has been completely developed and is in use now.

22. Technology: Noddler-personalized voice based information and transaction system

Key facts:

Innovator's Name	Umesh Sachdev
Company/Institution Name	Uniphore Software Systems Pvt. Ltd.
Address	Unit 5, 1st Floor, IIT Madras Research Park, Kanagam Road, Taramani, Chennai - 600113
Company website	www.uniphore.com
IP Status	Applied

Innovation brief

Noddler- personalized voice based information and transaction system is a voice application platform. It enables access to information and web services through a multi lingual voice based interface using mobile phones as the access channel. The Noddler platform is a personalized information and transaction system. It is designed to bridge the information division that currently exists for the vast rural population of India. It enables access to information and lets users carry out transactions by using mobile phones as the access channel and voice as the medium. It also lets businesses and organizations create multi lingual voice based services using programming interfaces, hence eliminating the need to share data with the telecom service providers.

The intellectual property right of the technology is jointly held by Uniphore Software Systems Pvt. Ltd. and IIT Madras's Rural Technology and Business Incubator (RTBI). The patent protection for this technology has been filed in India. It is currently undergoing field testing.

23. Technology: Safety device for preventing night-road-accidents, thereby saving human lives and vehicle damages

Key facts:

Innovator's Name	Vijay Sharatchandra Tase
Company/Institution Name	Peer Technical Services Private Limited
Address	J-3, Nav-Prabhat Society, Hanuman Road, Near Pitale Wadi, Vile – Parle (E), Mumbai - 400057
Company website	www.peertechnical.net
IP Status	-

Innovation brief

Safety device for preventing night-road-accidents, thereby saving human lives and vehicle damages is an innovation that helps in avoiding or minimizing the temporary blinding effect at night for vehicle-drivers and pedestrians, caused by high-beam light rays from bright head-lights of oncoming vehicles. This technology is very cost effective, easy to manufacture, very effective in reducing temporarily - blinding effect of dazzling headlights, and provides enough visibility to the driver, to prevent any possibility of night road accidents. Primarily, it is a stand-alone product, but can be made an integral part of the vehicle itself.

24. Technology: Sensor array based wide frame digital diagnostic X-ray imager

Key facts:

Innovator's Name	Karthikeyan Jawahar
Company/Institution Name	Adhithiya Medical Systems (Earlier) / Karma Innovations & Solutions Pvt Ltd (Now)
Address	46, Arasamara Street, Avarampalayam, Coimbatore – 641006
Company website	www.karmainnovations.com
IP Status	-

Innovation brief

The innovation is a set of hardware and software that will convert x-rays into digital images. The current application is for detection of defects in manufactured components (Aluminium, Steel, Electrical) and for processed food (mango, sooji, spices, etc). The USP of Karma is the expertise to customize the machine to suit any of the end users'/ products' needs. We are also the first in India to manufacture such equipments.

25. Technology: V-One Mobile, peer-to-peer communication session initiation in mobile devices

Key facts:

Innovator's Name	Gopi Kumar Bulusu
Company/Institution Name	Sankhya Technologies Private Limited
Address	No.10-1-27, IV Floor, Sampath Vinayaka Temple Road, Visakhapatnam - 530001
Company website	www.sankhya.com
IP Status	-

Innovation brief

V-One mobile, peer-to-peer communication session initiation in mobile devices is a middleware platform for enterprise applications that can scale from a single server to hundreds or thousands of servers. V-One platform would route the request to the federated application servers based on the requested URL and requests would be handled appropriately. The technology could be utilized by users of enterprise applications (like document management system, CRM applications, federated applications, industry automations, data warehousing, transaction processing, etc.) that involve huge number of computations and/or data management. V-One includes key services that are essential for building secure, scalable, federated multi-client application portals for one, ten or a million clients. The technology can process (order of) millions of requests and thousands of business operations per minute without any performance deterioration.

26. Technology: WiLT

Key facts:

Innovator's Name	Sondur Lakshmipathi
Company/Institution Name	MYMO wireless Technologies Pvt. Ltd
Address	1st Floor, Entrepreneurship Building, SID, Indian Institute of Science, Bengaluru - 560012
Company website	www.mymowireless.com
IP Status	Applied

Innovation brief

WiLT is a technology that combines different radio standards like cellular, worldwide interoperability for microwave access (WiMAX) and wireless LAN (WiFi) into a single chip in place of multiple chips. This will address the integration of different emerging radio standards into single radio with speed exceeding 100Mbps. It also provides the ability for carriers to migrate to 4G networks in a more controlled and cost-effective way. The intellectual property right for this technology is held by MYMO Wireless Technology Pvt. Ltd.

The patent protection for this technology has been filed in India. It has been developed as a concept only and has been reviewed and approved by Indian Institute of Science, Bengaluru.

27. Technology: Water pollution free starch/sago plant

Key facts:

Innovator's Name	Natarajan Rayar
Company/Institution Name	M/s. Nasel Starch Industries
Address	North – Irumbulikurichy – Po,Sendurai – TK, Perambalur District- 621 804
Company website	-
IP Status	Patented

Innovation brief

Water pollution free starch/sago plant is a machine that can grind starchy food items such as tapioca and turmeric without the usage of water for grinding. This newly developed operation can reduce the level of pollution as it does not use water for grinding; consequently, this process also reduces power consumption. The invented model requires nine units of power to crush one ton of raw materials, as compared to the present equipment which consumes 31 units of power and 5.5 tons of water.

The patent protection for this technology has been filed in India, for which the approval has been granted. The plant is completely developed and operational.

Technologies Selected in IIGP 2010

Technologies Selected in IIGP 2010

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	Asthma cure, a herbal product for curing Asthma and Bronchitis/allergy	Harendra Prasad Singh	Regain Herbal Remedies
2.	A new method for detecting diabetic neuropathy and predicting foot ulcer development	C. Jairaj Kumar	Kyatha Abhijith Pharma & Healthcare Systems Pvt. Ltd
3.	Active current conditioner	Shwetank Jain	P2 Power Solutions Pvt. Ltd.
4.	Advanced oxidation process using photochemical oxidation	T. Chandran	Wytewater Technologies
5.	Automatic video description	Pulkit Gaur	Gridbots Technologies
6.	Biological neutralization of alkaline waste water	Rita Kumar	Institute of Genomics and Integrative Biology (CSIR)
7.	BOD Biosensor	Rita Kumar	Institute of Genomics and Integrative Biology (CSIR)
8.	BODBEADS - Instant reference seeding material for BOD analysis	Rita Kumar	Institute of Genomics and Integrative Biology (CSIR)
9.	Cellulose based porous membrane for bioseparation, bioconversion	H. V. Adikane	National Chemical Laboratory
10.	Clever texting	Abhijit Bhattacharjee	Luna Ergonomics Pvt. Ltd.
11.	Development of holographic solar concentrator modules for higher efficiency solar energy conversion	P. T. Ajith Kumar	Light Logics Holography and Optics
12.	Development of nano-materials for efficient removal of bacteria and viruses from water	P. Ramnaik	Indian Institute of Technology, Kharagpur
13.	Energy cakes	Anil Kumar Singh	Energy Research Applications
14.	Extraction of ethanol from de-oiled rice bran – BRANETOH	Sanjay Singh	Bran Engineering Pvt. Ltd.
15.	Handheld digital retinal imaging system	Anand Sivaraman	Remidio Innovative Solutions Pvt. Ltd.
16.	High purity & fine grained alpha- alumina at low temperature	P. K. Panda	National Aerospace Laboratories (NAL)
17.	Man portable autonomous unmanned aerial vehicles	Ashish Bhat	ideaForge Technology Pvt. Ltd.
18.	Micro-blast wave assisted applications in bio-technology	Jagadeesh	Indian Institute of Science
19.	"MozziQuit"- multi-purpose mosquito trap	Ignatius Orwin Noronha	Leowin Solutions Pvt. Ltd.
20.	MPPT solar power converters	Vikram	Solar Power India
21.	Natural formulation for chronic wound healing	Manu Chaudhary	Venus Remedies Ltd.
22.	Next generation holographic weapon sight	P.T. Ajith Kumar	Light Logics Holography and Optics

S. No	Technology Name	Innovator's Name	Company/ Institution Name
23.	Oral sustained release nano-drug for treatment of tuberculosis	Jitendra N Verma	Lifecare Innovations Pvt. Ltd.
24.	Process for manufacture of sweetening catalyst Thoxcat ES	M.O. Garg	Indian Institute of Petroleum
25.	Shock wave treatment for bamboo	Jagadeesh	Indian Institute of Science
26.	Smart coating hypersonic technology	Jagadeesh	Indian Institute of Science
27.	Social business works – social computing network for businesses	Anand Raj	InXero Technologies Pvt. Ltd.
28.	Spray Continuous Pan (SCP)	Vipin Gupta/ Mr. Vivek Verma	Spray Engineering Devices Limited
29.	Titanium based wonder gels for separation and degradation of organic dyes from aqueous solution	Mohan K. Dongare / Shubhangi Umbarkar	National Chemical Laboratory
30.	Video communications for masses	Hardik Sanghvi	VMukti Solutions Pvt. Ltd.
31.	Wastewater treatment reactor that generates electricity in the process	Manoj Kumar Mandelia	Locus Systems - IIT Kharagpur

1. Technology: Asthma cure, a herbal product for curing asthma and bronchitis/ allergy

Key facts:

Innovator's Name	Harendra Prasad Singh
Company/Institution Name	Regain Herbal Remedies
Address	DT/2032, HEC Township, Ranchi - 834004
Company website	-
IP status	-

Innovation brief

The Asthma cure is aimed at curing allergies and other respiratory diseases including asthma and bronchitis completely, over a course of six months. The herbal extracts used in the formulation of drug cause no side effects. The drug will prove to be an economical alternative to several other treatment methods for such ailments. Although there are several methodologies of treatment available in the market for asthma and bronchitis, most of them provide only a temporary respite from the ailments. Additionally, most of the alternative medications available today are usually expensive and are out of reach for large sections of the population particularly in the third world countries.

2. Technology: A new method for detecting diabetic neuropathy and predicting foot ulcer development

Key facts:

Innovator's Name	C. Jairaj Kumar
Company/Institution Name	Kyatha Abhijith Pharma & Healthcare Systems Pvt. Ltd.
Address	Nithyananda Nagar, Mangalore - 575018
Company website	www.khyatha.com
IP status	Patented

Innovation brief

The technology is a medical device for measuring the progression of neuropathy (any neuropathy not limited to diabetes) and predicting foot ulcer development. It detects nerve damage and helps in assessing the efficacy of medication using the traditional chaos theory, according to which, small differences in initial conditions yield widely diverging outcomes. The technology could be used by medical doctors, hospitals and medical researchers. The advantage of this technology is that it is non-invasive (advantage over nerve conduction study which is an invasive procedure); has the ability to analyze nerve activity of the entire feet at more than 200-300 points in less than five minutes (advantage over biothesiometer, where doctors take lot of time to assess just one point); and detects nerve and blood vessel damages at very microscopic level (advantage over Doppler, it detects macroscopic blood vessel damage).

3. Technology: Active current conditioner

Key facts:

Innovator's Name	Shwetank Jain
Company/Institution Name	P2 Power Solutions Pvt. Ltd.
Address	18 New Mohan Puri, Meerut - 250001
Company website	www.p2power.com
IP status	-

Innovation brief

Active current conditioner is a technology that involves an insulated gate bipolar transistor (IGBT) based inverter as a building block for active current conditioner to achieve power quality enhancement and energy efficiency in facilities.

The technology provides solutions to all current related power quality issues in a facility. It makes the overall system energy efficient by reducing the losses at all levels. It is a user friendly digital device which is programmable according to the user requirements. The technology could be used in power intensive industries like printing press, steel plants and rolling mills, cement units, textile mills, spinning mills, wind mills and railways. In addition, it has major applications in sophisticated industries like data centers, medical, R&D units, process industries, defense applications, tech-parks and industrial automation. Commercial complexes and hotels also could be potential customers due to increasing energy costs.

The technology is beneficial as it is compatible with all sources like generators; real time sensing of the load requirements makes the product very consistent in its performance and virtually maintenance free. Furthermore, it uses non-intrusive shunt type active filter configuration, which makes it easy to use without affecting the system even in case of failure and saves energy by up to 15%.

4. Technology: Advanced oxidation process using photochemical oxidation

Key facts:

Innovator's Name	T. Chandran
Company/Institution Name	Wytewater Technologies Pvt. Ltd
Address	401-404, Pawan Apartments, Pashan-Sus Road, Pashan, Pune – 411021
Company website	www.wytewater.com
IP Status	Indian Patents filed. 3 are registered for patents & yet to be published

Innovation brief

Advanced oxidation process using photo chemical oxidation is a physio-chemical process to treat contaminated water that contains toxic and non-biodegradable pollutants. The process involves oxidizing non-biodegradable toxic pollutants to carbon dioxide and water. The technology has proven capability to destroy majority of the non-biodegradable organic pollutants, and bring down the chemical oxygen demand (COD) by 80 - 95 % in the treated waste water.

Existing biological treatment processes have failed in treating non-biodegradable contamination, which result in high levels of COD residue in treated waste water. The new technology will be a useful tool in protecting freshwater bodies like rivers and lakes that are regularly contaminated by industrial and other wastes. Unlike the biological processes, this technology involves physiochemical principles, which enable effective photo chemical oxidation. Having characterized several effluents generated from different industries, photo chemical oxidation has emerged as a viable and efficient technology for elimination of organics from water and wastewater streams.

Mr. T. Chandran and the company, Wytewater Technologies, hold the IP rights for this technology, patent for which is pending in India. The technology has been developed on a lab scale and has undergone pilot plant trials. Currently, the technology faces competition from similar technologies like evaporation and catalytic converters that yield similar results. However, with increased funding and research, this technology may be developed for various specific areas of application.

5. Technology: Automatic video description

Key facts:

Innovator's Name	Pulkit Gaur
Company/Institution Name	Gridbots Technologies
Address	Office I2 -First Floor -CIIE Building, IIM Ahmedabad new campus-Vastrapur, Ahmedabad - 380015
Company website	www.gridbots.com
IP status	Patented

Innovation brief

Automatic video description is video processing software that can automatically interpret video and find objects and places in the video. The technology has been developed with a specific focus on applications like smart robotic navigation, assistance for blind people, and military & defense applications. The technology aids precise localization without markers, automatic homing for robots, assists blind people, and includes real time simultaneous localization and mapping (SLAM).

6. Technology: Biological neutralization of alkaline waste water

Key facts:

Innovator's Name	Rita Kumar
Company/Institution Name	Institute of Genomics and Integrative Biology- CSIR
Address	Mall Road, Near North Delhi University Campus, New Delhi – 110007
Company website	www.igib.res.in
IP status	Patented

Innovation brief

Biological neutralization of alkaline waste water is a biological process for the treatment of alkaline water from textile industrial waste water. Textile waste water is highly alkaline and acid is used to neutralize the waste water to have a neutral pH. The acid, when neutralized, increases the load of total dissolved solids and is unsafe for workers who neutralize the waste water. To address the above mentioned problems, this technology eliminates the use of acid and exploits the use of bacteria for the treatment of alkaline water, within the permissible limits set by the Central Pollution Control Board (CPCB), in lesser time. Since the traditional approach involved in neutralization includes chemicals, the new process is a biotechnological endeavour to combat industrial pollution, which ensures environmental sustainability and worker's safety.

7. Technology: BOD Biosensor

Key facts:

Innovator's Name	Rita Kumar
Company/Institution Name	Institute of Genomics and Integrative Biology- CSIR
Address	Mall Road, Near North Delhi University Campus, New Delhi - 110007
Company website	www.igib.res.in
IP status	Patented

Innovation brief

BOD Biosensor is a device that provides a quick estimation of biochemical oxygen demand (BOD)/ pollution load of all kinds of waste water. The technology is a biological product, which serves as a specific seeding material to be used especially in the BOD analysis of pulp and paper waste water. The pulp and paper industry is a major contributor to water pollution and contains 'difficult to degrade' pollutants. This technology employs specific bacteria, which is capable of exerting an appropriate BOD for pulp and paper industrial wastewater and sense pollutants/ organic compounds present in such waste water.

While other devices presently available take nearly three days to determine the BOD of waste water, the BOD Biosensor does the same in two hours' time. By determining the BOD in such a short time span, the device helps industrial authorities to monitor and regulate the quality of waste water before discharging it into water bodies. The technology has been tested extensively on all industrial effluents and has a validation from Central Pollution Control Board of India.

The technology has been developed at the Institute of Genomics and Integrative Biology (CSIR), and is IP protected in India, the US, and South Africa.

8. Technology: BODBEADS – instant reference seeding material for BOD analysis

Key facts:

Innovator's Name	Rita Kumar
Company/Institution Name	Institute of Genomics and Integrative Biology- CSIR
Address	Mall Road, Near North Delhi University Campus, New Delhi – 110007
Company website	www.igib.res.in
IP status	Patented

Innovation brief

BODBEADS is a technology developed at the Institute of Genomics & Integrative Biology, a Council of Scientific and Industrial Research (CSIR) laboratory to serve as a ready-to-use reference seeding material in BOD analysis. The technology offers a standard seeding mixture that is not only clean, economical, and ready to use, but also gives reproducible results every time it is used for BOD testing.

BOD analysis conventionally involves collecting sewage that contains microorganisms. However, not every sample of sewage contains the same number and types of microorganisms every time it is collected. This results in erroneous BOD results, which cannot be reproduced.

Furthermore, the entire process of collecting the sewage also delays the analysis process. In such a case, the BODBEADS technology reduces the potential for error and makes the analysis an easy, clean, and convenient lab test. The technology will also ensure consistency in BOD results at both the pollution control and industrial ends. The BODBEADS technology is capable of coping with a wide range of substrates in synthetic samples as well as in industrial effluents.

Although similar technologies of lower versions exist in the US and the UK currently, the BODBEADS technology, available in the form of immobilized beads, is the improved version in the global market. This is due to several of its unique properties like reusability for five times with the same efficacy and ability to yield results instantly without the need to collect sewage samples much before the analysis. A lower version of the BODBEADS technology has been accorded validation from Central Pollution Control Board and has been included in Bureau of Indian Standards.

9. Technology: Cellulose based porous membrane for bioseperation, bioconversion

Key facts:

Innovator's Name	HV Adikane
Company/Institution Name	National Chemical laboratory
Address	Chemical Engineering Division, National Chemical Laboratory, Dr. Homi Bhaba Road, Pune – 411 008, India.
Company website	www.ncl-india.org
IP status	Patent Pending Approval

Innovation brief

Cellulose based porous membrane for bioseparation, bioconversion is a process for the preparation of cellulose-based porous membrane sui table for bioseparation, bioconversion or related operations of biotech industries. The cellulose based porous membranes developed through this technology possess various advantages including high flux, efficient hydrophilicity, film-forming ability, effective mechanical properties and high chemical reactivity. All these properties aid in better bioseparation, bioconversion or related operations in biotech industries. The technology aids in developing cellulose based porous membranes that are charged and can be used without any further amplification of the number of active groups in various biotech applications. It is specifically developed to make several biotech operations, such as bioseparation and bioconversion more economical and environment friendly.

Several currently available membranes experience fouling of polymeric membrane, causing reduced productivity and increased maintenance and operating costs. The present invention overcomes all these issues and has been developed with properties, such as high pore size, chemical and mechanical stability and bio-degradability. Another feature that makes the cellulose based porous membrane unique is that the technology is easily customizable to meet the specific demands of the end user and can fit easily into an existing product or process.

10. Technology: Clever Texting

Key facts:

Innovator's Name	Abhijit Bhattacharjee
Company/Institution Name	Luna Ergonomics Pvt. LTD.
Address	#3, JSSATE Step, C-20/1, Sector 62, Noida- 201309
Company website	www.paninikeypad.com
IP status	Patent Pending Approval

Innovation brief

CleverTexting is a limited keypad usability technology that allows people to type in all major languages of the world on the existing phone or existing keypad in a faster, simpler, and more ergonomic manner. With this technology, people can type in all languages of India and the world on the existing basic phone, without a printed keypad at good speed, ease, and comfort. CleverTexting employs technology where characters are predicted and placed at positions most ergonomic to the texting thumb to type in. However, unlike the dictionary-based predictive text system, CleverTexting is based on the statistical occurrence of groupings of letters in each language, and hence works as well for proper nouns as it does for dictionary words. The technology makes texting easier and faster with single keystroke as well as offers SMS compression before transmission, to allow more text into the message. With handheld devices becoming universal phenomena today, the technology has a strong commercial potential for various stakeholders including mobile handset manufacturers, other limited keypad device manufacturers, and telecom operators to offer it as a value-added service application.

Currently, the technology is developed to run on Java Nokia phones and needs to be developed for other platforms. More research work on specific areas like other languages, phrase prediction, and speech prediction technologies is underway. The technology has been deployed on two product families : an Indian language product called the Panini Keypad, which supports nine major Indian languages; and the global languages product family called CleverTexting, which has been developed for 13 major global languages.

11. Technology: Development of holographic solar concentrator modules for higher efficiency solar conversion

Key facts:

Innovator's Name	P.T. Ajith Kumar
Company/Institution Name	Light Logics Holography and Optics
Address	Cresecent Hill, Thinavila, Thiruvallom - 695027
Company website	www.lightlogics.in
IP status	None

Innovation brief

The technology involves developing holographic solar modules for use in high efficiency solar energy conversion. The technology comprises a hologram with fringe structures, which diffract light into a desired angle. Conventional solar cells have an efficiency of about 15%. However, when cool concentrated light is coupled with new generation multijunction cells, the efficiency can reach up to 40%. The present technology uses two of the latest developments – high efficiency multi-junction solar cells and high efficiency holographic material that together yield almost 100% diffraction efficiency.

Holographic optical elements (HOEs) have advantages over the conventional refracting type optical elements such as lenses and mirrors as they offer multiple functions such as light concentration and wavelength selection. In the current technology, the developed holographic element concentrates, spectrally splits, and directs light radiation so that energy is coupled effectively to high efficiency multi-junction solar cell. The HOE diffracts away the heat radiation in the solar spectrum, allowing for concentrated cool radiation to be tuned to the spectral response of the multi-junction cell yielding maximum efficiency.

The technology has a potential to double up the yield of present day solar modules, with no additional cost. Commercial production of the proposed solar modules is expected to improve the efficiency of solar energy conversion by about two times. The enhanced yield will help in popularizing solar energy use and thereby helping in reducing carbon footprint.

Potential primary customers of this technology are households, small scale industries, and governments.

12. Technology: Development of nano-materials for efficient removal of bacteria and viruses from water

Key facts:

Innovator's Name	P Ramnaik
Company/Institution Name	IIT Kharagpur
Address	Department of Chemistry , IIT Kharagpur - 721302
Company website	www.iitkgp.ac.in
IP status	-

Innovation brief

This technology offers a magnetic absorbing material for processing potable water from bacteria and virus. The material absorbs virus and bacteria and can be used for water purification at a domestic level. It provides a more effective alternative to the usually slow and tedious process of removing microbes and virus from bulk water.

The material used in the technology is economical, and is an efficient absorber. Furthermore, the new technology is easier to operate and offers simpler separation of absorber from treated water. Due to these advantages, the technology can be used for bulk purification of water for both domestic and industrial uses.

The material has been developed as a lab-scale prototype and has been tested and demonstrated amongst the research group.

13. Technology: Energy cakes

Key facts:

Innovator's Name	Anil Kumar Singh
Company/Institution Name	Energy Research Applications
Address	Energy House, Plot no.-294, Sector-39, Gurgaon-122001
Company website	-
IP status	Patented

Innovation brief

Energy cakes is a renewable energy technology that transforms industrial waste or biomass into cleaner fuel called "Energy Cakes". This cleaner and low cost fuel can be utilized by households and low income cottage and small scale industries such as distilleries, food processing units, glass, brass, textiles etc. This technology is cost effective as "Energy Cakes" from industrial wastes are cheaper than subsidized liquefied petroleum gas (LPG), coal, fuel wood and subsidized kerosene. It is also a better fuel in terms of carbon dioxide (CO2) emissions with respect to coal, wood, kerosene and dung cake, respectively.

The intellectual property right for this technology is jointly held by Energy Research Applications and Department of Science and Technology (DST), Government of India. The patent protection for this technology has been granted approval in India. The innovation has undergone rigorous field testing at every stage of its development to reach the final stage. This was duly supported by DST to adapt this technology to various socio-economic conditions. Currently, the market for this technology is being explored by involving women groups in 12 states of India with the support of Global Environment Facility, United Nations Development Program, Small Grants Programme (GEF-UNDP-SGP) and DST, Government of India. The technology has been received well and the organization has received enquiries for commercial deals from many individuals, institutions and private companies.

14. Technology: Extraction of ethanol from de-oiled rice bran- BRANETOH

Key facts:

Innovator's Name	Sanjay Singh
Company/Institution Name	Bran Engineering Pvt. Ltd.
Address	401-402, Fortune, Baner Road, Aundh, Pune - 411 027.
Company website	www.bran.co.in
IP status	-

Innovation brief

BRANETOH offers a new process to extract ethanol, sugar syrup and high protein feed out of de-oiled bran (DOB), which is otherwise used for cattle feed, at a much lower cost. The technology is aimed to transform the utilization of DOB and consequently increase the output of rice bran oil solvent extraction industry. The innovation, which is completely developed and is currently in use, is applicable to any rice bran processing industries worldwide.

15. Technology: Handheld digital retinal imaging system

Key facts:

Innovator's Name	Anand Sivaraman
Company/Institution Name	Remidio Innovative Solutions Pvt. Ltd.
Address	No. 2206, Nandi Park, Gottigere, Bannerghatta Road, Bangalore - 560076
Company website	www.remidio.com
IP status	Patented

Innovation brief

Handheld digital retinal imaging system is a medical device that consists of an illumination module, a camera module, a software module, a personal computer (PC) interface and an infant interface module. The device enables digital imaging of the retina, in a simple to use, handheld format that can also be easily used in rural areas by minimally skilled personnel. This device can be used for screening pre-term babies for a condition called retinopathy of prematurity (ROP); for screening adults for diabetic retinopathy in diabetic clinics; and for routine examination of the eye by ophthalmologists and ocular oncologists.

It uses a novel, infant interface that minimizes the need for skilled personnel for using the instrument with pre-term babies. Furthermore, it is compact, battery operated retinal imaging device that enables the recording of images for use with medical record systems.

16. Technology: High Purity & fine grained alpha – alumina at low temperature

Key facts:

Innovator's Name	P. K. Panda
Company/Institution Name	National Aerospace Laboratories (NAL)
Address	Materials Science Division, National Aerospace Laboratories, Kodihalli, Bangalore-560 017
Company website	www.nal.res.in
IP status	Patented

Innovation brief

The technology is concerned with the preparation of high purity and fine grained alpha-alumina at low temperatures, ranging between 450–550° C. Pure alpha-alumina, which is a widely used ceramic raw material, possesses unique properties such as high melting point, high strength at high temperature, easy to form composites, resistance to acids and alkalis, and good dielectric properties. It is used for fabrication of high alumina refractories and lab wares, dielectric materials, chips for computers, grinding media, abrasion resistant linings in coal industries, as chemical resistant linings, as high temperature and high strength material, for preparation of composites, textile thread guides, etc. Through this technology, highly pure form of alumina powder can be obtained in a cost effective manner due to the use of cost effective raw materials.

Although high purity grade alpha-alumina can be prepared through chemical routes such as by solgel and spray pyrolysis, which typically require temperature ranges of 1400-1700° C, they have proved to be expensive methods. The current technology offers a cost effective alternative to such methods at very low temperatures.

17. Technology: Man portable autonomous unmanned aerial vehicles

Key facts:

Innovator's Name	Ashish Bhat
Company/Institution Name	ideaForge Technology Pvt. Ltd.
Address	Office No. 4, 4th Floor KReSIT Business Incubator, IIT Bombay, Powai - 400076
Company website	www.ideaforge.co.in
IP status	Patent protection –trade secret

Innovation brief

Man portable autonomous Unmanned Aerial Vehicles (UAVs) is used for aerial surveillance and reconnaissance. The technology is useful in antiterrorist operations, counter-insurgency in forested areas, hostage situations, border infiltration monitoring, local law enforcement operations, search and rescue operations, disaster management and aerial imagery and photography. The technology was developed to enable law enforcement agencies/paramilitary forces/defense forces to gain additional information of operation site so as to make informed decision for tackling an emergency situation. According to the innovator, the technology requires comparatively minimal training time. It is easy to use and has a higher flight endurance time.

The intellectual property right for this technology is held by ideaForge Technology Pvt. Ltd., and is protected as a trade secret. The technology has successfully completed field tests and is being used by Defence Research and Development Organisation (DRDO), National Aerospace Laboratories (NAL), Aeronautical Development Establishment (ADE), and Research & Development Establishment (R&DE). Furthermore, the company has also received commercial orders from other government organizations. Another advantage of the technology is that it can be used for brand building in a crowded area or showing the bird's view of a particular area to attract customers. A foreign institute has already placed an order for the product to show prior information on snow conditions so that they can inform their employees on the ground once the avalanche begins.

18. Technology: Micro-blast wave assisted applications in bio- technology

Key facts:

Innovator's Name	Jagdeesh
Company/Institution Name	Indian Institute of Science
Address	Dept. of Aerospace Engineering, Indian Institute of Science, Bangalore - 560 012
Company website	www.iisc.ernet.in
IP status	Patent approval pending

Innovation brief

The technology is a new micro-blast wave assisted non-invasive drug (liquid, solid, or suspensions) delivery device. The new device offers an effective form of drug delivery system without using needles. The device can be of specific use in injecting desired DNA into live cells. Additionally, it can also be used in conjunction with additional attachments to introduce desired macro-molecules like DNA into cells for genetic manipulations. The primary aim of the new device is to offer an alternative to the conventional modes of drug delivery like needle and syringe, which are too blunt to deliver new-generation drugs and vaccines to richly abundant key skin cells that reside within a tightly-defined location below the skin surface.

19. Technology: "MozziQuit" - multi-purpose mosquito trap

Key facts:

Innovator's Name	Ignatius Orwin Noronha
Company/Institution Name	Leowin Solutions Pvt. Ltd.
Address	Suvarna Building, 3-34,Behind Express Bus Stop, Padukodi, Kuloor, Mangalore -505013
Company website	www.mozziquit.com
IP Status	Patented Technology

Innovation brief

"MozziQuit" multi-purpose mosquito trap is a device that traps and instantly kills the female mosquitoes. The technology also helps in eliminating invisible dust particles found in the atmosphere. This device is designed to eradicate mosquito population in the defined area of its use such as residential buildings, commercial buildings, restaurants, hotels, hospitals, military installations, etc. Presently, mosquito repellents are available that only repel the mosquitoes for temporary period and not kill them. The repelled mosquitoes could lay more than 300 eggs before they die. Furthermore, such mosquito repellents are made out of harmful chemicals which could lead to asthma and other diseases in infants and senior citizens, especially if they are used for prolonged periods. The presently available ionizers are also very expensive and consume a lot of electric power. "MozziQuit" multi-purpose mosquito trap not only kills the female mosquitoes without use of any chemicals but also has comparatively lower operating cost.

The intellectual property right for this technology is held by Mr. Ignatius Orwin Noronha. The patent protection for this technology has been filed in India and the US. The device has been tested and approved by the National Institute of Malaria Research, Bengaluru for commercial use.

20. Technology: MPPT Solar Power converters

Key facts:

Innovator's Name	Vikram
Company/Institution Name	Solar Power India
Address	Coratina way, Rancho Cordova, California - 95742
Company website	-
IP status	-

Innovation brief

The technology, *Maximum Power Point Tracking (MPPT)* solar power converters, has been developed to address the huge energy demand in India. The technology comprises converters based on maximum power point tracking and can extract energy from cheap and high yield thin film panels of varying specifications. The converters are specifically designed for South East Asian regions, where there is an ample availability of solar resources and huge demand for energy. In comparison to the existing polycrystalline based solar power systems, the MPPT solar power converters yield nearly 40% more energy/price and cost only about one-third of other converters available in market.

21. Technology: Natural Formulation for chronic wound healing

Key facts:

Innovator's Name	Manu Chaudhary
Company/Institution Name	Venus Remedies Research Ltd.
Address	Venus Industrial Complex, Hill Top Industrial Estate, Near Jharmajri, E.P.I.P., Phase-I, (Extension) Village BhatoliKalan, Baddi - 173205
Company website	www.vmrcindia.com
IP status	Patent Pending

Innovation brief

The technology includes a poly-herbal product used for treatment of chronic non-healing wounds in a natural way. The product is a concentrate mix of aqueous and oil extracts of ingredients of natural origin. It has the capability to reduce pain and swelling, eliminate pus by killing bacteria and fungal spores, remove toxins, and supply nutrition for faster recovery. Termed as Ampucare, the product heals the wound from base and prevents it from drying (scab formation) so that skin is regenerated faster and complete healing is achieved. Due to its multiple efficacies, the product is especially beneficial in preventing amputation in diabetic foot ulcer patients and can cure wounds of almost any kind, without any side effects.

The formulation has extended applications and is applicable to cases ranging from minor cuts to chronic non-healing wound, bed sores, burns and prevention of amputation in diabetic foot ulcers. The product has been used in over 500,000 cases with near 100% effectiveness in healing wounds from a variety of sources including; diabetic ulcers, amputee candidates (gangrene related), bedsores of varying levels and massive burn issues. The product is in active use in India and in many other countries. The technology is also eco-friendly and cost-effective. The intellectual property right for this technology is held by Sunev Pharma Solutions Limited. The Indian patent application for this technology was filed in December 2006. The technology has been completely developed and many companies from different parts of the world (especially in the US, Middle East and Africa) have tested the efficacy of this technology with positive results.

22. Technology: Next generation holographic weapon sight

Key facts:

Innovator's Name	P.T.Ajith Kumar
Company/Institution Name	Light Logics Holography and optics
Address	Cresecent Hill, Thinavila, Thiruvallom - 695027
Company website	www.lightlogics.in
IP status	-

Innovation brief

Next generation holographic weapon sight helps in improved aim sights for weapons. It has field level applications in defense wherein shooting arms need easy and sharp aiming, clear field of view, etc. The proposed sight element improves all the above parameters and aims at improved stability, sharpness, transparency and high diffraction efficiency (near 98%). Presently, the technology is in the concept stage of development.

The company has already started supplying first generation elements to defense establishments in India. It has also received enquiries from few Asian countries as well

23. Technology: Oral sustained release nano-drug for treatment of tuberculosis

Key facts:

Innovator's Name	Jitendra N Verma
Company/Institution Name	Lifecare Innovations Pvt. Ltd.
Address	B-589, Sushant Lok-I, Gurgaon - 122002
Company website	www.lifecareinnovations.com
IP status	Patent pending

Innovation brief

This nano-drug is a long duration slow drug release technology for the treatment of tuberculosis including multiple drug resistant (MDR), extremely drug resistant (XDR) and tuberculosis (TB). It helps in reducing the dosage from nine months of daily dose to only twice or thrice a month dose for nine months or less. The drug could be used by the drug development R&D groups working in academic institutions and the pharmaceuticals industry. The technology can be out licensed or employed for other drug developments through collaborative arrangements. The benefit of this approach is that the formulation would allow oral administration and depending on the design would help maintain therapeutic levels of the drug in the body/blood from seven to 15 days.

The intellectual property right for this technology is held by Lifecare Innovations Pvt. Ltd. The patent protection for this technology has been filed in India and the US. Other countries where patent for this technology has been filed are China, Brazil, Europe, Australia, Russia and South Africa. The pre-clinical/toxicity studies in animals for this technology have been completed and Phase I clinical trial has been approved for three of the four anti-TB drugs. A consortium of South African institutions led by CSIR South Africa has signed Memorandum of Understanding (MoU) for collaborative clinical trials so that when the product is ready it can be introduced early for the benefit of the population afflicted with tuberculosis in the African continent. The Federal University of Rio Grande Do Sul (UFGRS), Brazil has also signed an MoU for employing the technology for development of long duration sustained release anti-HIV drugs.

24. Technology: Process for manufacture of sweetening catalyst Thoxcat ES

Key facts:

Innovator's Name	M.O.Garg
Company/Institution Name	Indian Institute of Petroleum
Address	Indian Institute of Petroleum , Dehradun – 248 005
Company website	www.iip.res.in
IP status	Patented

Innovation brief

Catalyst Thoxcat ES is useful in extractive sweetening of LPG and liquid-liquid sweetening of lighter petroleum fractions, namely, light straight run naphtha (LSRN) and light thermally/catalytically cracked gasoline. Thoxcat ES catalyst produced by this technology is in liquid form containing catalyst active matter in dilute aqueous alkaline solution. This catalyzes the oxidation of bad smelling mercaptans present in lighter petroleum fractions to less deleterious disulfides. This is superior to commercial catalyst being used globally in terms of activity and catalyst consumption rate. The technology can be utilized in petroleum refineries worldwide. The main advantages of this innovation are: cobalt phthalocyanine sulphonamide shows enhanced catalytic activity for extractive sweetening of LPG than conventional cobalt phthalocyanine disulphonate catalyst; and unlike conventional catalyst, cobalt phthalocyanine sulphonamide catalyst is not dusty and does not create handling problem. Furthermore, the consumption of this catalyst is less than conventional LPG extractive sweetening catalyst for similar conversion; the catalyst slurry is extremely stable and does not get thick or form gel after long storage. Moreover, as cobalt phthalocyanine sulphonamide is insoluble in acidic medium its isolation is easier than cobalt phthalocyanines sulphonate.

The patent for this technology is approved in India, the US, France, Germany and the UK. The technology has been completely developed and has been tested in commercial plants of BPCL Mumbai, RIL Jamnagar, IOCL Haldia and MRPL Mangalore.

25. Technology: Shock wave treatment for bamboo

Key facts:

Innovator's Name	Jagdeesh
Company/Institution Name	Indian Institute of Science
Address	Dept. of Aerospace Engineering, Indian Institute of Science, Bangalore - 560 012
Company website	www.iisc.ernet.in
IP status	Patented

Innovation brief

This technology has been developed to impregnate preservatives into bamboo (green/dry). It uses shock waves generated in a reactor that ensures much faster and more efficient entry of preservative solution into bamboo wood samples. The technology can be useful for wood industry involved with preservative treatment of different species of wood. In the conventional method, the treatment of bamboos with the existing technology is very difficult, time consuming and less efficient. This technology overcomes these problems. The treated bamboos could be used to construct houses in the rural areas (North-eastern India) and thus be useful for the poverty alleviation programmes in rural India.

The institution has filed for patent protection in India, for which the approval has been granted. The technology has been developed as a lab-scale prototype, and is expected to be completely developed in the coming months.

26. Technology: Smart coating hypersonic technology

Key facts:

Innovator's Name	Jagdeesh
Company/Institution Name	Indian Institute of Science
Address	Dept. of Aerospace Engineering, Indian Institute of Science, Bangalore - 560 012
Company website	www.iisc.ernet.in
IP status	Patented

Innovation brief

Smart coating hypersonic is a technology, which when applied on the body of high-speed flying objects like bullets, can alter the aerodynamic features. This smart coating selectively releases heat at appropriate speeds there by altering the aerodynamic flow features and consequently reducing the aerodynamic drag force. The technology finds specific use in enhancing the performance of a wide range of space vehicles by allowing them to traverse longer distance using the same fuel. This new smart coating is a passive technique, which does not consume any energy during flight.

Other methods available in the market, including spikes, jets or concentrated energy ahead of the space vehicle, consume huge energies and have a lot of practical problems. In contrast, the smart coating method allows for a novel aerodynamic flow control, which enables utilizing a wider range of missiles with the same fuel consumption.

27. Technology: Social business works-social computing network for businesses

Key facts:

Innovator's Name	Anand Raj
Company/Institution Name	InXero Technologies Pvt Ltd.
Address	B-505 Royal Tower C 54 A, Sector 61, Noida - 201301
Company website	www.inxero.com
IP status	None

Innovation brief

InXero's Social business works technology is built for highly scalable cloud based computing. It consists of innovative and disruptive social computing grid and uses latest frameworks such as RoR, Erlang, Flex, and C for lower memory footprint. The latest technology helps companies to optimize and transform their "Business Information Sharing Network" (BISNet) across employees, customers, and partners and accelerate revenues and product innovations while reducing costs. The technology is specifically focused on the marketing, sales, and IT processes of small and medium scale businesses. The technology is offered in three "software as a service" (SaaS) cloud based solutions for businesses: private company network, business partner network, and open customer experience network.

On the buyer side, it will have a positive impact on how buyers make their purchasing decisions and involve peers to build consensus and take control on how they interact with the companies they do business with. The technology is designed to address the problem of inefficient information distribution amongst employees, customers and partners by making information available to individuals that allows them to make informed decisions and take control of their lives. It is focused on healthcare, education, high-tech, and energy industries.

28. Technology: Spray Continuous Pan (SCP)

Key facts:

Innovator's Name	Vipin Gupta / Vivek Verma
Company/Institution Name	Spray engineering devices limited
Address	Spray house, C- 82, Phase -7, Industrial area, Mohali - 160071
Company website	www.sedl.in
IP Status	Patented

Innovation brief

The technology is an apparatus for continuous evaporative crystallization of sugar solutions. The technology provides an energy efficient and economical apparatus to produce homogeneous crystal sugar. It finds use in the cane and beet sugar industries in evaporative crystallization of sugar solutions.

The equipment is developed for installation in the boiling house/crystallization section of sugar solutions (mainly cane or beet) processing plant. The apparatus comprises of 69 superimposed chambers of nearly identical design in the form of a tower. The chambers are erected in approximately same height of around 3,235 meters. Through this design, a significant improvement in product quality without wide crystal size distribution and throughput is achieved due to higher heating surface and net volume for an apparatus of similar dimensions. The latest apparatus also eliminates the need for erecting two upright standing towers thereby increasing the overall performance and efficiency of the system/process. This technology not only reduces steam (energy) consumption in a sugar factory, but also improves the process and the end product.

The project for development and commercialization of this technology, funded by Technology Development Board, Govt. of India, has been successfully commissioned at one of the sugar plants in India. One plant has also been installed in Poland, Europe. In future, the innovators plan to develop a completely modular model of this technology.

29. Technology: Titanium based wonder gels for separation and degradation of organic dyes from aqueous solution

Key facts:

Innovator's Name	Mohan K. Dongare / Shubangi Umbarkar
Company/Institution Name	National Chemical Laboratory
Address	Dr. Homi Bhabha Road, Pashan, Pune - 411008
Company website	www.ncl-india.org
IP Status	Patent approval pending

Innovation brief

The technology is a new titanium based gel adsorbent and photo catalyst for the separation of organic dyes from aqueous solution and its further photo catalytic degradation using solar light. The gel adsorbs the organic dyes from aqueous solution and when exposed to solar radiation, the adsorbed dye gets degraded. The technology is especially helpful in the removal of organic dyes and colored materials from effluents originating from textile and other industries that generate colored aqueous effluent. Alternative solutions present currently in the market use adsorbents like activated charcoal, which cause secondary pollution and need further treatment. In contrast, the latest innovation enables an adsorbed dye to be degraded by photo catalytic degradation, which does not need further treatment. The adsorption capacity of the latest technology is much higher (nearly 20-30 times of its weight) compared to conventional adsorbents. Additionally, the new titanium based gel adsorbent can be prepared at a low cost at the site. The adsorbent leaves crystal clear water that can be reused, once the organic dyes are removed. The adsorbed dye can be further photo catalytically degraded and reused.

The technology has been developed as a lab scale prototype and has been tested on industry effluents in both batch process as well as continuous processes (5 litres). Semi pilot scale experiments of the prototype were (successful as claimed by the innovators), and the industry is willing to undertake pilot plant trials.

30. Technology: Video Communications for masses

Key facts:

Innovator's Name	Hardik Sanghvi
Company/Institution Name	VMukti Solutions Pvt. Ltd.
Address	7 CIIE IIMA New Campus, Vastrapur, Ahmedabad- 380015
Company website	www.vmukti.com
IP Status	None

Innovation brief

Video communications for masses is a video communications cloud software platform that enables the convergence of voice, video and content over IP through a distributed peer-to-peer (P2P) platform. The technology is convergence of Web, P2P, Session Initiation Protocol (SIP), Video, Cloud, and devices. It supports pre-built features of video streaming, conferencing and video telephony in the areas of interactive streaming, web conferencing, Video and Voice over Internet Protocol (VVoIP), call center operation, distance education and E-Governance among others. This technology is currently utilized by educational Institutes, government, corporate and rural economy, primarily for mass distance education segment. The technology addresses the issues of digital divide by enabling video communications for masses and could also save users over 80% costs in bandwidth and infrastructure besides providing scalability and high definition quality.

The intellectual property right for this technology is held by VMukti Solutions Pvt. Ltd. The company holds copyright and trademark of the technology. It is also protected by strong open source license GPL 3.0. The technology has been tested and is certified by Intel. It has been completely developed and is in active use. The company has received commercial deals for this technology worth $0.7 million (INR35 million) from three customers.

31. Technology: Wastewater treatment reactor that generates electricity in the process

Key facts:

Innovator's Name	Manoj Kumar Mandelia
Company/Institution Name	Locus Systems – IIT Kharagpur
Address	C-326, LLR Hall, IIT Kharagpur - 721302
Company website	-
IP Status	None

Innovation brief

The technology is a product that treats wastewater and generates electricity in the process. The product makes use of the science of microbial fuel cell to provide clean water. The bacterial metabolism trapped in an engineering design enables to trap energy as electricity. The technology is designed to immediately address the problems of non-treatment of wastewater generated, depleting ground water resources, green energy and climate change mitigation effects. The product is an environmentally, socially and economically sustainable. The new product generates an annual 277 Certified Emission Reductions (CER) for a size of 50,000 litre plant annually and has the capacity to reduce greenhouse gas production up to 70%.

It removes toxins and chemicals from the environment at very low installation costs. The product also reduces demand for non-renewable resources by providing an economical renewable alternative. Municipalities, industries like the pulp and paper industry, sugar industry, tannery plants, industries that release chemicals and power plants are the immediate beneficiaries of this technology.

The pulp and paper industry in Varanasi and Thermax India have indicated interest in the technology by offering to help in scaling up and sharing knowledge base.

Technologies Selected in IIGP 2011

Technologies Selected in IIGP 2011

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	3nethra - an intelligent pre-screening ophthalmology device	Shyam Vasudeva Rao	Forus Health Pvt. Ltd.
2.	A biological method for rapid treatment of municipal waste water	Rita Kumar	Institute of Genomics and Integrative Biology- CSIR
3.	A photonic smart card	P.T. Ajith Kumar	Light Logics Holography and Optics
4.	Adsorbent for used frying oil	Padma S. Vankar	Facility for Ecological and Analytical Testing ,IIT Kanpur
5.	Agent oriented dynamic information system (MasterKube Software)	Antony Alappatt	Technologies and Services Limited
6.	An apparatus for automating pathological procedures	Sushant Gupta	MicroMed
7.	Artificial intelligence based power management system	Nelvin Joseph	Artin Dynamics
8.	Automatic dental X-ray processor	Vaibhav Tidke	Science for Society Techno Services Pvt. Ltd.
9.	BCMS - Business Continuity Management System	Sundar Raman	Perpetuiti Technologies
10.	Content verification	Ashish Anand	SecureSpin Systems
11.	Diabetes complication diagnosis and guidance	Nitin Jobanputra	Advance Dia-Bese Care Pvt. Ltd.
12.	DSP based adaptive control algorithm for aerospace & defense	Praveen S. Jambholkar	Cybermotion Technologies Pvt. Ltd.
13.	EasySecured password less online authentication	Gurudatt Shenoy	Easy Secured Software
14.	Education tool for fiber optic communication	Hitesh Mehta	Fiber Optika Technologies Pvt. Ltd.
15.	Electrohydraulic assisted cycle rickshaw	Sunil Jha	IIT Delhi
16.	Enhancement of oral bioavailability of ester prodrug	Shamrez Ali	M. KLE University
17.	Enterprise energy management using wireless sensor networking technologies	Jay Krishnan	Wifinity
18.	Grid based micro air-conditioners	Sanjay Deshpande	UNIKEN
19.	Hairminator	Mrinmayee Bhushan	Mindfarm Novatech Pvt. Ltd.
20.	Holistic biotreatment of pulp and paper waste water	Rita Kumar	Institute of Genomics and Integrative Biology- CSIR
21.	Innovative & cost effective knee-ankle-foot-orthosis	Mayank Pareek	Rehabilitation Research, Design & Development Laboratory, IIT, Madras
22.	Intuitive programmable device for control/ automation applications	Sandeep Senan	EvoBi TechnoCentre LLP
23.	Ipintentio Web-based IC design platform	Arijit Dutta	DSipher Design Solutions Pvt. Ltd.
24.	Large scale production of bio fungicide spores using citrus peel waste.	Pushpendra Awadhiya	Jagsonpal Pharmaceuticals
25.	Low consumption "Air Conditioning / Refrigeration system" in AutoLPG Vehicles 26 Making natural sugar diabetic	Aninda Sircar	IIT Kanpur
26.	Making natural sugar diabetic friendly	Nandagopalan	C.K. Revolution

S. No	Technology Name	Innovator's Name	Company/ Institution Name
27.	MEMS sensor	Jamil Akhtar	CEERI, Pilani (CSIR)
28.	Mobile banking	Abhishek Sinha	Eko India Financial Services Pvt. Ltd.
29.	Multiple zone well completion for enhanced oil recovery	Chanchal Dass	Dass Oilfield Technologies Pvt. Ltd.
30.	Nano Ganesh	Santosh Ostwal	Ossian Agro Automation Pvt. Ltd.
31.	Non-humid air cooler	Altaf A. Tinwala	Energia Drying & Cooling Equipment Pvt. Ltd.
32.	Novel herbal formulation for arthritis and related condition	Manu Chaudhary	Venus Remedies Limited
33.	Novel topical micro emulsion formulations for the treatment of rheumatic disorders and related infection	Manu Chaudhary	Venus Remedies Limited
34.	Organic silica SiO	Vasudev Nair	Rudra Herbal Remedies
35.	Patented copy protection & monetization technology for video	Aniruddha R. Gupte	K.E.E.N. Pvt. Ltd.
36.	Photoactive scratch resistant TiO coating	K. K. Saini	National Physical Laboratory
37.	Quaternized peptide for cosmetic industries	Jibananda Mukherjee	Memorial Laboratory
38.	Sanjeevani disaster management package	Rajendra Vithal Ladkat	Sanjeevani Disaster Research and Development Center
39.	Simple software program on web to help manage Indian SME business	Sharath Chander	Narmax Consultants Pvt. Ltd.
40.	Solar tracker and concentrator	Rajarshi Banerjee	Sollector Systems
41.	Steel drums	Balbir Onkar Singh	Java Engineering(I) Ltd.
42.	System, method and computer program for providing mobile access to financial data	Rohit Bhargava	BOMTech
43.	Thermal plasma process for production of TiO2 rich slag	P.S. Mukherjee	Institute of Minerals & Materials Technology (CSIR)
44.	TMail	Vishal Shah	Synersoft Technologies Pvt. Ltd.
45.	Urine Albukit	Sarabjeet Singh	Johar Kanpur Test House
46.	Vertical wind power generator	J. Jayasudha	Biswakarma Bricks & Blocks
47.	Vidyut - Context Sensitive, over the cloud, energy efficiency solutions for SmartGrid, Smart Meters	S. Uma Mahesh	Indrion Technologies India Pvt. Ltd
48.	Washing cum exercising machine/washing machine without electricity	Remya Jose	National Innovation Foundation
49.	XAPP – Cross Platform Executable Application	Anand Raj	InXero Technologies Pvt. Ltd.
50.	Silent Observer /A tool to check sex determination tests and helps in effective law enforcement	Narendra K. Saini	Sukrut Systems

1. Technology: 3nethra – an intelligent pre-screening ophthalmology device

Key facts:

Innovator's Name	Shyam Vasudev Rao
Company/Institution Name	Forus Health Pvt.Ltd
Address	4085-A, II Floor, K.R.Road, Banashankari II Stage, Bangalore - 560070
Company website	www.forushealth.com
IP status	-

Innovation brief

3nethra - an intelligent pre-screening ophthalmology device is a low cost and noninvasive ophthalmology device with image processing used for automated identification of eye problems such as cataract, diabetic retina, glaucoma, and cornea issues. It also provides accurate refractive index measurements. According to the innovator, the technology can be operated by minimally trained technicians in a rural environment and the automated prescreening report combined with telemedicine can have a multiplier effect on the ability to identify an eye problem much earlier, thus, enabling proper and timely treatment. The technology has been developed to overcome the limitations of current solutions in terms of portability, cost and user-friendliness.

2. Technology: A biological method for rapid treatment of municipal waste water

Key facts:

Innovator's Name	Rita Kumar
Company/Institution Name	Institute of Genomics and Integrative Biology- CSIR
Address	Mall Road, Near North Delhi University Campus, New Delhi – 110007
Company website	www.igib.res.in
IP status	-

Innovation brief

A biological method for rapid treatment of municipal waste water is a biological process used to treat contaminants of sewage water. This process was created to treat the waste water within permissible limits in lesser time. According to the innovator, the process brings the pollution (Biochemical Oxygen Demand - BOD) limits up to 8-10 mg/l in one-fourth time as compared to conventional methods, generates less sludge (75%), and reduces energy usage by 75%. The process caters to municipalities, sewage treatment plants, and waste water treatment companies.

The intellectual property of the process is owned by Council of Scientific and Industrial Research (CSIR) and the process has been developed as a lab-scale prototype.

3. Technology: A photonic smart card

Key facts:

Innovator's Name	P.T. Ajith Kumar
Company/Institution Name	Light Logics Holography and Optics
Address	Crescent Hill, Thinavila, Thiruvallom, Trivandrum-695 027
Company website	www.lightlogics.in
IP status	Patent approval pending

Innovation brief

Photonic smart card is a smart card that has holographic storage and data retrieval capabilities. The technology stores data optically, by using holography and the entire card acts as an identification or switching device that operates based on photonics, rather than electronics. It helps to identify a person or function as a device for authentic data switching. The technology address the limitations faced by conventional smart cards which are prone to widespread forgery. The photonic smart card is fully holographic and fully metallic with a holographic data chip that holds several levels of data security, thereby making it a more reliable technology.

The intellectual property right to this technology is held by the innovator, Dr. P.T. Ajith Kumar. The patent for this technology has been applied, for which approval is pending. The smart card has been developed as a full scale prototype card.

4. Technology: Adsorbent for used frying oil

Key facts:

Innovator's Name	Padma S. Vankar
Company/Institution Name	Facility for Ecological and Analytical Testing, IIT Kanpur
Address	204 - A Southern Block, FEAT Lab, IIT Kanpur - 208016
Company website	www.iitk.ac.in
IP status	Patented

Innovation brief

Adsorbent for used frying oil is an adsorbent called *Rampad* for purification and re-use of used edible oil. Edible oil properties change when the oil is heated at high temperature for frying food containing water. The changes could be found in both physical and chemical properties of the oil. One apparent change would be polymerization causing high viscosity. In addition, oil characteristics especially flavour, odor and colour also changes when oil is used for frying several times. This directly affects food characteristics and quality of the used frying oil. The technology enables a two stage system for purification of the used edible oil. The frying oil samples were treated with the adsorbent Rampad which is a binary blend of Rampad A and Rampad B. According to the innovator, the adsorbent was found to be an efficient regenerator and improved the overall quality of the used oil. Rampad A consists of five components, whereas Rampad B consists of two components in a fixed ratio. The mixture was evaluated for its efficiency in regenerating the used oils in terms of their effects on the physico-chemical parameters such as density, viscosity, color, free fatty acids (FFA), carbonyl value (CV), iodine value and acid value.

The intellectual property right to this technology is held by the innovator, Dr. Padma S. Vankar. The patent for this technology has been granted in India. It has been developed as a full scale prototype and is currently in use.

5. Technology: Agent oriented dynamic information system (MasterKube)

Key facts:

Innovator's Name	Antony Alappatt
Company/Institution Name	MasterKube Software Products and Services Private Limited
Address	Second Floor S1, 13 Kamaraj Avenue 1st street, Adyar, Chennai - 600020
Company website	www.masterkube.com
IP status	Patent approval pending

Innovation brief

Agent oriented dynamic information system is an agent based software technology. It does not work on algorithms, rather it works on interactions. In contrast to all computer concepts now based on functions, the technology is based on new mathematical paradigm process calculi or pi calculus. This software platform is utility based and is charged on the number of interactions. It can integrate with any REST (Representational State Transfer) enabled surround system with no programming. The technology caters to all organizations which have need for IT with limited budgets. This can also cater to the IT needs of small as well as big corporations. It has been developed as a standalone product but can be integrated with any existing IT systems with no programming, as long as those systems are available on an open protocol.

The intellectual property right to this technology is held by the company, MasterKube Software Solutions and Services. The software technology has been completely developed and in use by a BPO company in India and a small start-up company in medical tourism. The patent for this technology has been applied in India and the US, for which approval is pending.

6. Technology: An apparatus for automating pathological procedures

Key facts:

Innovator's Name	Sushant Gupta
Company/Institution Name	MicroMed
Address	C-114, Azad Hall, IIT, Kharagpur - 721302
Company website	-
IP status	Patent approval pending

Innovation brief

An apparatus for automating pathological procedures is a micro-fluidics based diagnostics tool for pathological laboratories that requires minimal human intervention and reduces costs. The technology replaces the conventional technique of conducting tests using bulky retorts, tubes, flasks, etc. The device is based on application of a combination of forces on a rotating platform to exercise control over fluid motion. The setup transports and manipulates fluidic samples in a rapid, efficient and controlled manner. This replaces the manual laboratory procedures. The setup has widespread applications in clinical pathological laboratories in urban and rural India. It can be operated in low-cost stand-alone diagnostic kiosks operated by unskilled labor in rural India. The colorimetric visual data can also be transmitted to remotely located practicing pathologists.

The intellectual property right to this technology is held by the innovators: Mr. Debapriya Chakraborty, Mr. Sushant Gupta and Dr. Suman Chakraborty. The technology has been developed as a lab-scale prototype and a patent for this technology has been applied in India, for which approval is pending.

7. Technology: Artificial intelligence based power management system

Key facts:

Innovator's Name	Nelvin Joseph
Company/Institution Name	Artin Dynamics
Address	4th Floor, Nila Building, Technopark Campus, Trivandrum- 695581
Company website	www.artindynamics.com
IP status	Patent approval pending

Innovation brief

Artificial intelligence based power management system is a hardware cum software bundle which is capable of saving power from electronic and electrical devices using artificial intelligence (AI) based algorithms. The algorithm embedded in the product studies how the user(s) uses the device and then uses this data to create specific power management plans for the device.

According to the innovator, the device saved power consumption between 24% - 47% during a third party testing of the device. The technology can be used in all electronic and electrical devices including computers, peripherals, photostat machines, coolers, heaters, air conditioners, etc. The AI algorithms can also be used in other segments by changing its power management capability to other forms.

The technology is currently undergoing field testing. In addition, the patents for this technology have been applied in India and the US, for which approval is pending.

8. Technology: Automatic dental X-ray processor

Key facts:

Innovator's Name	Vaibhav Tidke, Swapnil Kokate, Sheetal Somani, Aditya Kulkarni
Company/Institution Name	Science for Society Techno Services Pvt. Ltd.
Address	Room No. 72, Old Hostel, UDCT, Matunga, Mumbai - 400019
Company website	-
IP status	Patent Approval Pending

Innovation brief

The technology, *Automatic dental X-ray processor,* is a machine that carries out series of chemical reactions with an X-ray film to get a finished X-ray film. It is applicable to dental industry wherein X-rays form important diagnostic tool for the dentists. Typical procedure involves use of X-ray film of 3cmx4cm, which is made of photosensitive materials. This X-ray film has to be processed later with chemicals and finally dried. Automatic dental Xray processor does all the four steps of chemical processing and drying automatically. According to the innovator, the technology is cost effective and saves 70% of chemicals consumption.

The technology has been developed as a full scale prototype and is in active use currently. In addition, the patents for this technology have been applied in India, for which approval is pending.

9. Technology: BCMS - Business continuity management systems

Key facts:

Innovator's Name	Sundar Raman
Company/Institution Name	Perpetuiti Technologies
Address	501 Shah and Nahar Worli Industrial Estate, Mumbai - 400018
Company website	www.perpetuiti.com
IP status	Approval pending

Innovation brief

BCMS is an algorithm and software to monitor, track and automate disaster recovery (DR) infrastructure used by banking, financial services and insurance (BFSI), telecom and public utility companies. It monitors heterogeneous environments which include different databases such as Oracle, MySQL, SQLServer, DB2, and storage servers. It can also monitor other replication systems and has an inbuilt replicator.

A DR site is not completely in sync with primary site. Also, DR maintenance and switchover is subject to services and manual processes rendering the DR investment hostage to person dependent risks. According to the innovator, BCMS monitor heterogeneous IT systems, manage the tasks and automates the switchover to a large extent.

The intellectual property right to this technology is held by the company, Perpetuiti Technologies. The technology has been developed as a lab scale prototype and has been tested against live platforms in real-life customer situations. In addition, the patent for this technology has been applied in the US, for which approval is pending.

10. Technology: Content verification

Key facts:

Innovator's Name	Ashish Anand
Company/Institution Name	LinkSmart Technologies Private Limited
Address	Level 2 Prestige omega, No. 104 EPIP Zone, Whitefield, Bangalore - 560066
Company website	www.securespin.in
IP status	Patent approval pending

Innovation brief

Content Verification is an integrated solution which enables consumers in item counting and/or originality attestation of their high value shipment without opening it, for detection of concealed loss and thus ensuring secure transit operations in logistics supply chain. It generates legally admissible evidences in case any intrusion is caused by act of insiders. Unlike hard-token, soft-token, RFID tags, password, biometrics, smart-card, it remains non-replicable even by solution provider and credentials cannot be leaked by insiders under connivance and threat. The technology is applicable in different environments such as: general logistics operations for high-value items to detect concealed loss; specialized logistics (currency printing press) owning their logistics operations; and monitoring concealed loss/ verification of tampering of the items.

The intellectual property right to this technology is held by the company, LinkSmart Technologies (formerly SecureSpin Systems). The technology has been developed as a lab scale prototype and has been validated at GE John F Welch Technology Centre for various cases under a collaborative engagement. In addition, the patents for this technology have been applied in India, for which approval is spending.

11. Technology: Diabetes complication diagnosis and guidance

Key facts:

Innovator's Name	Nitin Jobanputra
Company/Institution Name	Advance Dia-Bese Care Pvt. Ltd.
Address	93 - B Park Plaza, New Yari Road, Versova, Andheri (W), Mumbai - 400061
Company website	www.diabese.biz
IP status	Patented

Innovation brief

Diabetes complication diagnosis and guidance is an algorithm based program that links a Diagnostic Chair (imported from Israel) and pathology results machine to give dynamically adjusted patient centric guidance on diet, exercise and lifestyle adjustments. The technology is applicable in healthcare industry and fitness centers, schools, etc.

The technology has been completely developed and is in active use currently. It has been tested on 1,000 patients on a pilot basis. In addition, the patents for this technology have been granted in India.

12. Technology: DSP based adaptive control algorithm for aerospace & defense

Key facts:

Innovator's Name	Praveen S. Jambholkar
Company/Institution Name	Cybermotion Technologies Pvt. Ltd
Address	Plot No. 234, Road No.14, Banjara Hills, Hyderabad - 500034
Company website	www.cybermotionind.com
IP status	-

Innovation brief

DSP based adaptive control system algorithm for aerospace and defense works with electric motor based Electro Mechanical Actuators (EMA) and power drives used in aerospace and defense projects. According to the innovator, this technology enhances the speed of tracking a target by a defense weapon system as well as improving the accuracy of hitting the target without changing the associated hardware, as compared to a classic analog or digital control. The target is tracked by a missile through the positioning of the four fins or the jet nozzle. The technology ensures that the fins reach their desired positions faster and without undue noise. These fin positions are commanded by the main computer of the missile (on-board computer). The DSP based adaptive algorithm receives these commanded positions and controls the fins to the desired positions rapidly.

This technology has been primarily developed for aerospace and defense industries. Some of the applications include control and actuation for missiles, laser guided bombs, Unmanned Aeril Vehicles (UAVs), torpedoes, gun turrets, gimbals, radar antennas, etc.

The intellectual property right to this technology is held by the innovator, Mr. Praveen S. Jambholkar. The technology has been developed as a full-scale prototype and functional testing on the same has been carried out.

13. Technology: EasySecured password less online authentication

Key facts:

Innovator's Name	Gurudatt Shenoy
Company/Institution Name	EasySecured Software & Services Ltd.
Address	5/31 A, Shrinath Building, 103/105 Old Hanuman Lane, Kalbadevi, Mumbai - 400002
Company website	www.easysecured.com
IP status	-

Innovation brief

Easy Secured password less online authentication is an online security software application for websites and online users. The software protects websites, their content, their users and applications from unauthorized access and identity theft. The technology can be used by online users, websites, banks, defense, and other online software applications. Most current solutions require using a proprietary device such as a security token which adds to overall costs. EasySecured enables the users to use a device they already own as a security device.

The intellectual property right to this technology is held by the innovator, Mr. Gurudatt Shenoy, whereas the marketing and development rights are held by the company, EasySecured Software & Services Ltd. The technology has been completely developed and deployed on websites developed in-house as well as tested by third party clients. Currently the technology is under patent filing which is expected to be completed by the second half of 2011.

14. Technology: Education tool for fiber optic communication

Key facts:

Innovator's Name	Hitesh Mehta
Company/Institution Name	Fiber Optika Technologies Pvt. Ltd.
Address	No. 6 & 7, 2nd Floor, W.O.C Road, Industrial Town, Rajajinagar - 560044
Company website	www.fiberoptika.com
IP status	Patent pending approval

Innovation brief

Education tool for fiber optic communication -'Light Runner' is a hardware tool that provides students from engineering and science background along with professionals from telecommunications industry, to learn fiber optic fundamentals and advanced concepts in optical communication in an easy and interactive manner, while working on real industrial grade components. The product is designed to enable self-learning to students and to get theoretical as well as practical concepts of real life situations while handling fiber optic network.

The intellectual property of the technology is held by Fiber Optika Technologies Pvt. Ltd. The technology has been completely developed and has been supplied to some institutions, where it is working successfully. The company has applied for patents in India and the US, for which theapprovals are pending.

15. Technology: Electrohydraulic assisted cycle rickshaw

Key facts:

Innovator's Name	Sunil Jha
Company/Institution Name	IIT Delhi
Address	Room No. 351, Block III, Department of Mechanical Engineering, IIT, New Delhi- 110016
Company website	www.iitd.ac.in
IP status	-

Innovation brief

Electrohydraulic assisted cycle rickshaw combines manual power by rickshaw puller with electric power from battery to give longer period of travel before recharge. The developed system will be retrofitted on existing cycle rickshaw with certain modifications. According to the innovator, the technology improves performance by 50% to 75% on road. The technology would help rickshaw pullers economically and also act as a pollution free local conveyance alternative.

The intellectual property of the technology is held by IIT, Delhi and the technology has been successfully developed as a laboratory model.

16. Technology: Enhancement of oral bioavailability of ester prodrug

Key facts:

Innovator's Name	C. K. Nandagopalan
Company/Institution Name	Pharmaceuticals and Healthcare
Address	NMC Campus,Nehru Nagar, Belagavi - 590010
Company website	www.kleuniversity.edu.in
IP status	Patent Approval Pending

Innovation brief

Enhancement of Oral Bioavailability of Ester Prodrug is a process for the preparation of a pharmaceutical composition for enhancing the oral bioavailability of a prodrug ester. This is achieved by formulating the ester as a non-aqueous formulation with medium chain triglycerides (MCTs). Non-aqueous formulations include solids, tablets, capsules, lozenges, suspensions, elixirs and solutions. The process will help in reducing medication error and improve the patient's condition.

The intellectual property of the process is held by the innovator, Dr. Shamrez Ali M. It has been developed as a full-scale prototype and has been tested during animal and human trials. The innovator has applied for patents in India and the US, for which the approvals are pending.

17. Technology: Enterprise energy management using wireless sensor networking technologies

Key facts:

Innovator's Name	Jay Krishnan
Company/Institution Name	Wifinity Technology Pvt. Ltd.
Address	30, NSRCEL, IIM Bangalore, Bannerghatta Road, Bangalore - 560076
Company website	www.wifinitytech.com
IP status	Patent Approval Pending

Innovation brief

Enterprise energy management using wireless sensor networking technologies is a technology that enables smart energy monitoring and control, physical security management and industrial automation for the enterprise sector. The technology is applicable in small and medium enterprises (SMEs), manufacturing plants and data centers of the organizations. The technology could be used to reduce energy consumption and carbon footprint. Its security management solution enables remote monitoring of enterprise assets and premises. The solution could also be applied in industrial automation and manufacturing execution systems. In addition, the technology eliminates the need for wired installations and offers a seamless wireless environment.

The intellectual property of the process is held by the parent company of Wifinity Technology Pvt. Ltd. and is undergoing field testing. The company has applied for patents in India and the US, for which the approvals are pending.

18. Technology: Grid based micro air-conditioners

Key facts:

Innovator's Name	Sanjay Deshpande
Company/Institution Name	Uniken Inc.
Address	Shrileela Plaza, 1st floor, Survey No.115, Baner Road, Pune - 411045
Company website	www.uniken.com
IP status	Patent Approval Pending

Innovation brief

Grid based micro air-conditioners uses a new aircooling technology which is eco-friendly and reduces power consumption. The current air conditioners consume tremendous energy / power and are designed to achieve temperatures that are normally not required for comfortable living conditions. The new technology is an array / grid of very small air-conditioners (of the size of 15x10x5 centimeters) fixed on the wall that collectively achieves room temperatures which is comfortable, and are operated on solar power during the day, thus further reducing the overall power consumption. It consists of multiple 'micro-air-coolers/heaters' in a grid framework instead of one large air-conditioner, and these units coordinate to turn themselves on and off depending on the intended room temperature.

The patent of this technology has been applied in India, for which the approval is pending. It has been developed successfully as a laboratory model and is undergoing extensive tests under various temperature and enclosure conditions.

19. Technology: Hairminator

Key facts:

Innovator's Name	Mrinmayee Bhushan
Company/Institution Name	Mindfarm Novatech Pvt. Ltd.
Address	`Vishwa-Pushpa`, 992/93/14, Rajendra Nagar, Pune - 411030
Company website	www.mindfarm.org
IP status	Patented product

Innovation brief

Hairminator is a plant derived material that helps in arresting unwanted hair growth. The unwanted hair is removed using WEPT methods (Waxing, Epilation, Plucking, and Threading). According to the innovator, the innovation, available as a cream or lotion, when applied to the skin enters the follicle, reaches hair root and stops hair from growing back. The innovation is cost-effective and easy to use as compared to conventional methods. The innovation is applicable to pharmaceutical companies, FMC G companies, glamour and entertainment industry, and leather goods companies.

The intellectual property of the innovation is held by the innovator, Ms. Mrinmayee Bhushan. It has been developed as a lab-scale prototype and has completed animal trials; human trials for cosmetic formulation are being planned, although not mandatory. The innovator has applied for patents in India, UK, Australia, South Africa and the US, for which the approvals have been granted, with the exception of the US where approval is pending.

20. Technology: Holistic biotreatment of pulp and paper waste water

Key facts:

Innovator's Name	Rita Kumar
Company/Institution Name	Institute of Genomics and Integrative Biology- Council of Scientific and Industrial Research (CSIR)
Address	Mall Road, Near North Delhi University Campus, New Delhi – 110007
Company website	www.igib.res.in
IP status	Patent Approval Pending

Innovation brief

Holistic biotreatment of pulp and paper waste water is a technology to treat waste water from pulp and paper industry. The conventional methods of treatment employs more than 300 organisms present in activated sludge and it takes more time to treat the contaminants in waste water. Huge amount of sludge is also produced and it becomes difficult to them dispose through conventional methods. In addition, conventional methods are time consuming process to treat waste water and still the permissible limits of its usability are not reached. According to the innovator, the treatment is done by specific bacteria in a short span of time, saves sludge generation by 75%, and also saves energy (60%).

The intellectual property of the process is owned by Council of Scientific and Industrial Research (CSIR) and is being demonstrated on field scale at a paper mill in north India. The patent for this technology has been applied in India and the US, for which the approval is pending India and granted in the US.

21. Technology: Innovative & cost effective knee-ankle-foot-orthosis

Key facts:

Innovator's Name	Mayank Pareek
Company/Institution Name	Rehabilitation Research, Design & Development Laboratory, Indian Institute of Technology Madras, India
Address	10-H-7 Mahaveer Nagar III, Paarijaat Scheme, Kota - 324010
Company website	www.iitm.ac.in
IP status	-

Innovation brief

Innovative & cost effective knee-ankle-footorthosis provides adjustability to orthopaedic device, and reduces the development time and inventory cost. The technology was developed to address the problem of non-adjustability, in the currently available knee-ankle-foot-orthosis, faced by patients having poliomyelitis, cerebral palsy or trauma. According to the innovator, the technology achieved reduced development/fitment time of 45 minutes (ready to use design concept) as compared to the lead time of 24 hours taken by the existing development/fitment process in the industry.

The intellectual property of the technology is jointly held by the innovator, Mr. Mayank Pareek and co-innovator, Dr. Sujatha Srinivasan. The technology has successfully undergone laboratory testing at Indian Institute of Technology (IIT) Madras, and also cleared first round of field testing at Bhagwan Mahaveer Viklang Sahayata Samiti (BMVSS) – founding organization of Jaipur Foot. BMVSS is a nongovernment organization for helping the physically challenged by providing artificial limbs, calipers, crutches, ambulatory and other aids free of charge. The technology has been developed at IIT Madras, and is now in the process of commercializing.

22. Technology: Intuitive programmable device for control/automation applications

Key facts:

Innovator's Name	Sandeep Senan
Company/Institution Name	Evobi TechnoCentre LLP
Address	No. 510, 5th floor, PESSE Campus, Hosur Road, Bengaluru - 560100
Company website	www.evobi.in
IP status	Patent approval pending

Innovation brief

Intuitive programmable device for control/automation applications is a visual flow chart based programmable device which allows people with minimal skills in programming and electronics to automate, control and build various electronic gadgets and technology applications easily. According to the innovator, the device also helps engineers to do rapid prototyping and help students learn the concept s of physics, mathematics, engineering and computers by building applications. The technology is cost-effective and can be modified as per the end user needs.

The intellectual property of the technology is owned by the innovator, Mr. Sandeep Senan. It has been completely developed and is in active use. The patent for this technology has been applied in India, for which the approval is pending.

23. Technology: IPintentio - Web-based IC design platform

Key facts:

Innovator's Name	Arijit Dutta
Company/Institution Name	DSipher Design Solutions Pvt. Ltd.
Address	Golden Square Business Centre, 53/A, 16th C Main, 4th Block, Bengaluru-560034
Company website	www.dsipherdesign.com
IP status	-

Innovation brief

IPintentio: Web-based Integrated Circuit (IC) design platform is a combination of web-based platform and services that enables effective Very Large Scale Integration (VLSI) design flow implementation and management, education, training and online digital IP creation. The platform is accessed through a web browser that provides computing infrastructure independence for the end-user. It is customizable to cater to specific customer needs and comprises efficient collaborative mechanisms. According to the innovator, the technology caters to three distinct sets of customers: academia (provides effective, hands-on industry-relevant education and training in VLSI design); VLSI design (industry, helps in implementing, executing, managing and monitoring of design flows seamlessly); and (individuals giving access to a readymade online platform for digital IP prototype creation).

The intellectual property right for this technology is owned by the company, DSipher Design Solutions Pvt. Ltd. The technology has been completely developed and tested to work with available Open Source EDA software.

24. Technology: Large scale production of biofungicide spores using citrus peel waste

Key facts:

Innovator's Name	Pushpendra Awadhiya
Company/Institution Name	Jagsonpal Pharmaceuticals
Address	Flat No 205, Omgurukripa Apartment, 4 Visnupuri Main, Indore - 452001
Company website	www.jagsonpal.com
IP status	-

Innovation brief

Large scale production of bio-fungicide spores using citrus peel waste is an innovation used for the production of a biocontrol agent to kill/control pathogenic fungi on plants, by using a substrate which is regarded as waste. According to the innovator, the non-toxic alternative to chemicals is cost-effective and environment friendly, and can protect all types of crop plants.

The intellectual property right for this technology is owned by the innovator, Mr. Pushpendra Awadhiya. The innovation has been developed as a full-scale prototype and was tested at agricultural fields in Nimar and Malwa regions of Madhya Pradesh.

25. Technology: Low consumption "air conditioning/refrigeration system" in AutoLPG vehicles

Key facts:

Innovator's Name	Aninda Sircar
Company/Institution Name	IIT Kanpur
Address	91/26, Jadunath Sanyal Road, Lucknow - 226019
Company website	www.iitk.ac.in
IP status	Patented

Innovation brief

Low consumption "air conditioning/refrigeration system" in AutoLPG vehicles provides a device which utilizes the untapped captive energy available in compressed AutoLPG fuel. According to the innovator, the technology provides AutoLPG vehicle end users with a mini refrigeration unit that can freeze 10 litres of water and a mini air conditioning unit that provides efficient cooling solutions, with negligible fuel consumption. The technology is cost-effective and environment friendly as compared to the conventional cooling technologies.

The intellectual property right for this technology is jointly held by, Mr. Aninda Sircar and Ms. Suparna Sircar. The technology has been successfully developed as a laboratory model and is protected by a patent in India.

26. Technology: Making natural sugar diabetic friendly

Key facts:

Innovator's Name	C. K. Nandagopalan
Company/Institution Name	Revolution
Address	Old no:29, New no:65, 3rd Main Road, Gandhi Nagar, Adyar, Chennai – 600020.
Company website	www.ckrevolutions.com
IP status	-

Innovation brief

Making natural sugar diabetic friendly is a unique Indian herbal formulation used to make natural sugar diabetic friendly. The formulation uses 15 ingredients extracted from the plants. Calcium, sodium, potassium and other high value anti-oxidants are extracted from these components. The extracted formulation is then amalgamated together to produce herbal additive. 40 ml of this liquid herbal additive is used to wet the sugar which is then kept for drying for 12 hours. This herbal enriched natural sugar is diabetic friendly. According to the innovator, the formulation can be used by all diabetic patients of all age group including children in their daily life at par with other normal individuals. The technology has been successfully developed and is in active use.

The innovation is to ease out Diabetic individuals to live a normal life at par with normal individuals.

27. Technology: MEMS sensor

Key facts:

Innovator's Name	Jamil Akhtar
Company/Institution Name	CEERI, Pilani (CSIR)
Address	SNTG, CEERI, Pilani - 333031
Company website	www.ceeri.ernet.in
IP status	Patent Pending approval

Innovation brief

MEMS sensor is a device used for fabrication of silicon wafers in a batch of thousands of chips, and also helps in their packaging, bonding and housing for required application. The technology can be used for automation of systems. According to the innovator, the technology is cost-effective and small in size as compared to conventional systems, with improved resolution and stability.

The technology has been developed as a fullscale prototype and is ready to be used. The patent for this technology has been applied in India, for which the approval is pending.

28. Technology: Mobile banking

Key facts:

Innovator's Name	Abhishek Sinha
Company/Institution Name	Eko India Financial Services Pvt. Ltd.
Address	547, Mandakini Enclave, Alaknanda, New Delhi - 110016
Company website	www.eko.co.in
IP status	Patent approval pending

Innovation brief

Mobile banking - Simplibank is a low-cost technology for banks that enables them to extend financial services to the unbanked customers especially in the rural areas and make it economically viable to serve them. The 'Simplibank' platform connects the telecom infrastructure to the bank's Core Banking System (CBS) and leverages user's cell-number as a unique identifier to map the bank-account number to it. The technology has wide range of applications that include banking, micro finance institutions, cash collections, remittance (domestic & international), utility payments, premium payments, credit card payments and micro insurance. According to the innovator, more than half of Indian population (600+ million) is under-banked owing to high cost of small value transactions with current infrastructure and business models. The developed technology delivers banking services through mobile via retail outlets and brings down the cost substantially for the bank to serve the population at lower income levels to ensure affordability and make it a viable business opportunity.

The intellectual property right for this technology is owned by the company, Eko India Financial Services. The technology has been completely developed and is in active use. The company is the technology service provider and business correspondent to State bank of India (SBI) and ICICI Bank. The patent for this technology has been applied in India and the US, for which the approval is pending in the respective countries.

29. Technology: Multiple zone well completion for enhanced oil recovery

Key facts:

Innovator's Name	Chanchal Dass
Company/Institution Name	Dass Oilfield Technologies Pvt .Ltd.
Address	F 201 Parth venue, Chandkheda, Ahmedabad - 382424
Company website	-
IP status	Patent approval pending

Innovation brief

Multiple zone well completion for enhanced oil recovery is a new process of oil and gas production from multi-layered oil/gas fields. The 'DASS 'technology will help in allowing production from all the oil and gas zones available in a well and do so through one well, thereby saving significant drilling costs. According to the innovator, this process will help in accelerating production and improve recovery with reduced costs. The technology will also help in the efficient production, separation, handling and transportation of oil, gas and water in the upstream sector of the oil and gas industry. The present technologies for multiple zone well completion has created huge bottleneck in terms of productivity and recovery of oil and gas. The new technology seeks to address the bottleneck and make the process simple and cheap.

The intellectual property right for this technology is owned by the innovator, Mr. Chanchal Dass. The technology has been developed as a successful laboratory model and the model design and fabrication is complete. The patent for this technology has been applied in India and the US, for which the approval is pending in the respective countries.

30. Technology: Nano Ganesh

Key facts:

Innovator's Name	Santosh Ostwal
Company/Institution Name	Ossian Agro Automation Private Limited
Address	305, M unisuvrat Avenue, 3rd floor, 1089 Shukrawar, Pune - 411002
Company website	www.nanoganesh.com
IP status	-

Innovation brief

Nano Ganesh is a mobile based remote control system for agricultural water pumps and diesel generator sets. With this technology, a user can control and monitor the pumps/DG sets with the help of a mobile phone from any place. The technology could be used in rural and urban water supply schemes where water pumps are operated. It can also be used for commercial buildings, farmhouses, fountains, agriculture, etc.

The intellectual property right for this technology is owned by the innovator, Mr. Santosh Ostwal. The technology has been completely developed and is in active use.

31. Technology: Non-humid air cooler

Key facts:

Innovator's Name	Altaf A. Tinwala
Company/Institution Name	Energia Drying & Cooling Equipment Pvt. Ltd.
Address	GIDC Vatva, Ahmedabad - 382445
Company website	www.ckrevolutions.com
IP status	Patented

Innovation brief

Non-humid air-cooler is a technology that provides air cooling solutions. According to the innovator, the technology generates 60% less moisture and 40% more cooling as compared to conventional air coolers, thereby giving comfort comparable to an air-conditioner. In addition, the technology is claimed to be cost-effective by the innovator, with expected savings of about 80% power consumption as compared to an air conditioner.

The intellectual property right for this technology is owned by the innovator, Mr. Altaf A. Tinwala and is protected by patents in India. The technology has been developed as a prototype and a trial unit is being installed at IIM, Ahmedabad.

32. Technology: Novel herbal formulation for arthritis and related condition

Key facts:

Innovator's Name	Manu Chaudhary
Company/Institution Name	Venus Remedies Limited
Address	51-52, Industrial Area, Phase I, Panchkula - 134102
Company website	www.venusremedies.com
IP status	Patent pending approval

Innovation brief

Novel herbal formulation for arthritis and related condition is a drug developed as an integrated medicine, wherein the designed drug has faster penetration through skin, has multiple benefits over standard care and is a boon for patients suffering from arthritis and related disease conditions. In integrated medicine, products of natural origin are formulated using latest technologies such as nano technology, to deliver drug more effectively. According to the innovator, osteoarthritis is a common rheumatological condition in the community and affects 1% of the population in India. The presently available drugs have severe side effects and most of them are cytotoxic. The innovation can address the mentioned issues effectively and has comparatively lesser side effects. The formulation comprise of a mixture of Wintergreen oil, Cinnamomum Camphora oil, and Eucalyptus Globulus oil.

The intellectual property right for this technology is owned by the company, Venus Remedies. The patent for this drug has been applied in India, for which the approval is pending. The drug formulation has been completely developed and is undergoing clinical trials.

33. Technology: Novel topical micro emulsion formulations for the treatment of rheumatic disorders and related infection

Key facts:

Innovator's Name	Manu Chaudhary
Company/Institution Name	Venus Remedies Limited
Address	51-52, Industrial Area, Phase I, Panchkula - 134102
Company website	www.venusremedies.com
IP status	Patent approval pending

Innovation brief

Novel topical micro emulsion formulations for the treatment of rheumatic disorders and related infection is a drug developed as an integrated medicine, wherein the designed drug has faster penetration through skin, has multiple benefits over standard care and is a boon for patients suffering from arthritis and related disease conditions. In integrated medicine, products of natural origin are formulated using latest technologies such as nano technology, to deliver drug more effectively. The innovation has comparatively lesser side effects. The drug formulation has been completely developed and is undergoing controlled comparative clinical trials. A pilot study on 50 adults suffering from arthritis was completed successfully.

The intellectual property right for this technology is owned by the company, Venus Remedies. The patent for this drug has been applied in India, for which the approval is pending.

34. Technology: Organic silica SiO2

Key facts:

Innovator's Name	Vasudev Nair
Company/Institution Name	Rudra Herbal Remedies
Address	A/1, Rathod Pride, 154, Yeshwant Nagar, Talegaon Dabhade, Pune - 410506
Company website	-
IP status	-

Innovation brief

Organic silica SiO2 is a technology used to produce element 'Silica' in organic form for agricultural purpose. According to the innovator, the organic silica provides better nutrition uptake and enhances the immunity of the plants which increases the yield. Although chemically prepared silica and its derivatives are available presently, the innovation has been developed through biological process which is environment friendly.

The intellectual property right for this technology is owned by the innovator, Mr. Vasudev Nair. The technology has been completely developed and is in active use.

35. Technology: Patented copy protection & monetization technology for video

Key facts:

Innovator's Name	Aniruddha R. Gupte
Company/Institution Name	K.E.E.N incorporated
Address	A2/502 Windosor Avenue, Wanawadi, Pune - 411 040.
Company website	www.keeninc.net
IP status	Patented

Innovation brief

Patented copy protection & monetization technology for video is software based on a platform that allows video content-owners to copy-protect their content and quickly distribute it worldwide while controlling price and other parameters. According to the innovator, the video content-owners can combat piracy of their content, variably price it across different geographies and allow many different forms of payment through this technology. It also allows for a single format across all platforms (internet, DTH, cable, mobile, DVD etc.) The platform does not require streaming or other infrastructure intensive resources. The technology addresses issues such as piracy of content, expenses of distribution and time taken to distribute content globally in different distribution formats.

The intellectual property right for this technology is owned by the innovator, Mr. Aniruddha R. Gupte. The technology is protected by patents in India and the US and is currently undergoing field testing.

36. Technology: Photoactive scratch resistant TiO_2 coating

Key facts:

Innovator's Name	K.K. Saini
Company/Institution Name	National Physical Laboratory
Address	Dr. K. S. Krishnan Road, New Delhi - 110012
Company website	www.nplindia.org
IP status	None

Innovation brief

Photoactive scratch resistant TiO_2 coating is synergistic mixture of chemicals and a process that cleans glass surface and windowpanes. The windowpanes processed with this technology can be cleaned with simple water shower without using harsh chemicals which are the source of environmental pollution. It helps in maintaining clear vision during rainy and winter seasons. According to the innovator, the coated material is non-toxic and are scratch resistant that can withstand harsh environments. This glass if used as a solar panel glass retains the efficiency of solar cells for longer duration.

The intellectual property right for this technology is held by National Physical Laboratory and has been developed successfully as a laboratory model.

37. Technology : Quaternized peptide for cosmetic industries

Key facts:

Innovator's Name	Jibananda Mukherjee
Company/Institution Name	Dr. Subhas Mukherjee Memorial Laboratory
Address	31 Jogendra Nath Ghoshal Road, Ariadaha, Kolkata-700057
Company website	www.drsubhasmukherjee.com
IP status	Patent Approval Pending

Innovation brief

Quaternized peptide for cosmetic industries is a compound related to chemical/enzymatic synthesis of quaternized peptide. According to the innovator, the compound when used in hair wash shampoo helps in improving the hair shine, and provides nourishment to the hair. In facial creams, the compound also helps retain moisture. The technology has applications in cosmetic industries. The peptide mixes well with commonly used detergents used in hair shampoo. It is self-preserved and does not support growth of bacteria/moulds. Hence, the compound is not spoiled when used in cosmetic formulations.

The intellectual property right for this technology is held by the innovator, Mr. Jibananda Mukherjee and has been developed as a lab-scale prototype. The patent for this technology has been applied in India, for which the approval is pending.

38. Technology: Sanjeevani disaster management package

Key facts:

Innovator's Name	Rajendra Vithal Ladkat
Company/Institution Name	Sanjeevani Disaster Research and Development Center
Address	Shop 1 & 2 Akash, 396 Kasba Peth, Pune-411011
Company website	www.rajendraladkat.com
IP status	Patented

Innovation brief

Sanjeevani disaster management package is multipurpose emergency equipment that can be used as floating stretcher and rescue kit/first aid kit. According to the innovator, the equipment is useful in any type of emergency for rescue operations before victim gets hospitalized. It consists of two products: Sanjeevani stretcher and Sanjeevani rescue/first aid kit. Sanjeevani stretcher can be used during flood situations as it can float. Sanjeevani rescue kit is an emergency kit which can be used in cases such as heart attack, snake bite, drowning, neck injury, etc. The product caters to individuals and organizations including the government & private sector, armed forces, disaster management cell, residential societies, schools & colleges, highway emergency services, trekking group, government & commercial marine vessels & airline services, railways, etc.

The intellectual property right for this technology is owned by the innovator, Mr. Rajendra Vithal Ladkat and is protected by patent in India. The technology has been completely developed and is in active use.

39. Technology: Simple software program on web to help manage Indian SME business

Key facts:

Innovator's Name	Sharath Chander
Company/Institution Name	Naramax Consultants Pvt. Ltd.
Address	5303, Block 5, Nandi Deepa Apartments, 124, Bengaluru - 560076
Company website	-
IP status	-

Innovation brief

Simple software program on web to help manage Indian SME business is a software program to automate the functional business areas of SMEs. The program manages customer orders, bills, deliveries, inventory, outstanding and other daily tasks. The technology was developed as a cost-effective solution to SAP, Oracle and other ERP solutions.

The intellectual property right for this technology is held by the innovator, Mr. Sharath Chander and is currently undergoing field testing. Recently, 27 branches of a 100% FMCG export unit agreed to use this technology.

40. Technology: Solar tracker and concentrator

Key facts:

Innovator's Name	Rajarshi Banerjee
Company/Institution Name	Sollector Systems
Address	4441 Lanes End Ct, San Jose, CA - 95121
Company website	www.sollecsys.com
IP status	Patent approval pending

Innovation brief

Solar tracker and concentrator is a device that tracks motion of the sun and concentrates solar radiation. According to the innovator, the device is a novel tracking and concentrating platform of solar radiation that makes more efficient use of land area, produces a stationary hot spot and generates high temperatures at a very low cost. The technology could be used for electric power generation and process heat applications. Conventional large area solar concentrating systems suffer from optical losses (shadowing and blocking losses). The smaller dish type concentrators can overcome these issues only at high costs and produce either a diffused or moving hotspot which limits practical applications. The innovative technology, as per the innovator, overcomes the complexity, unreliability and high costs associated with conventional solar tracking and concentration systems.

The intellectual property rights for this technology are owned jointly by the innovators, Dr. Rajarshi Banerjee (one patent) and Dr. S. Banerjee (three patents). The technology has been developed as a lab-scale prototype. The patents for this technology have been applied in India and the US, for which the approval is pending.

41. Technology: Steel drums

Key facts:

Innovator's Name	Balbir Onkar Singh
Company/Institution Name	Javs Enginering (India) Ltd.
Address	221, Swastik Chambers, C.S.T. Road, Chembur, Mumbai - 400071
Company website	-
IP status	Patented

Innovation brief

Steel drums technology was developed to compete with plastic drums, which are comparatively cheaper than present steel drums of single steel sheet construction. The manufacturing process uses two thin cold rolled sheets of steel to encase a plastic laminate while using the same principle as the aerospace construction industry. The process allows for the reduction in overall weight while maintaining structural integrity of the drums. Various steel drum sizes of different strengths can be manufactured using this process. The drums can be incorporated into existing supply chain with minimal disruption. According to the innovator, the technology can reduce the cost of the steel drums by up to 30% as compared to the present steel drums manufactured as per ISI specifications.

The intellectual property right for this technology is owned by the innovator, Mr. Balbir Onkar Singh and is protected by patent in India. The technology has been developed successfully as a laboratory model and has been validated at a Hindustan Petroleum Corporation Ltd. refinery in Mumbai, Maharashtra.

42. Technology: System, method and computer program for providing mobile access to financial data

Key facts:

Innovator's Name	Rohit Bhargava
Company/Institution Name	BOM Tech Inc
Address	6A Marble Arch, 52 Pedder Road, Mumbai - 400026
Company website	www.bankingonmobile.com
IP status	Patent Pending approval

Innovation brief

System, method and computer program for providing mobile access to financial data is a process for remote update of records instantly, based on SMS technology platform that does not require phones or data plans. The technology is applicable in financial services industry wherein the application converts mobile phones into electronic passbook (statement) that updates itself as the master account is transacted. According to the innovator, the technology provides a full suite of functionalities that is provided by internet banking through the SMS (texting) platform of mobile phones.

The intellectual property right for this technology is owned by the innovator, Mr. Rohit Bhargava. The technology is currently undergoing field testing on a bank's system for carrying out live transactions. The patent for this technology has been applied in India, for which the approval is pending.

43. Technology: Thermal plasma process for production of TiO_2 rich slag

Key facts:

Innovator's Name	P.S. Mukherjee
Company/Institution Name	Institute of Minerals and Materials Technology (CSIR)
Address	IMMT, CSIR, Bhubaneswar - 751013
Company website	www.immt.res.in
IP status	Patented

Innovation brief

Thermal plasma process for production of TiO_2 rich slag is clean technology for the production of titania rich slag and iron metal. Conventional chemical routes are not environmental friendly and have lower throughput. According to the innovator, the developed technology is a unique process with high throughput that facilitates in carrying out experiments at oxidized/ neutral atmosphere. The production of titania rich slag from ilmenite by thermal plasma is used for making the upgraded feed stock (titaniam rich slag) as an input for making titanium dioxide pigment. Thermal plasma process thus not only solves the problem of effluent production in chemical routes, but also consorts the associated iron oxide to pure iron. The slag obtained is claimed to be enriched with TiO_2 content. The technology has been developed as a lab-scale prototype and is protected by patents in India and the US.

44. Technology: TMail

Key facts:

Innovator's Name	Vishal Shah
Company/Institution Name	Synersoft Technologies Private Limited
Address	B/304, Wall Street -2, Opp: Orient club, Ellis bridge,Ahmedabad-380006
Company website	www.synersfot.in
IP status	None

Innovation brief

TMail is an enterprise software solution that enhances task oriented coordination, maximizes IT adoption instead of email adoption, rationalizes storage and bandwidth usage, and minimizes IT and licensing costs. According to the innovator, the technology saves bandwidth usage and reduces data storage requirements by 80%, and saves cost of server operating system licenses and client access licenses. The technology, developed on Java platform, is expected to benefit large number of micro, small and medium enterprises. TMail-BLACKbox is hardware cum software device which serves as Task Manager, Document Manager, Firewall, Mail Server, Storage Device, Backup System, Endpoint Security and Domain Controller. Simplicity and cost effectiveness is its USP.

The device is currently undergoing field testing and is in use on trial basis at two major hospitals. The product is also undergoing CE certification at TUV Rheinland, Bengaluru.

45. Technology: Urine Albukit

Key facts:

Innovator's Name	Sarabjeet Singh Johar
Company/Institution Name	Kanpur Test House
Address	118/23, Nazirabad, Gumti No. 5, Kanpur - 208012
Company website	-
IP status	Patent approval pending

Innovation brief

Urine Albukit is a testing kit for that instantly identifies the presence or absence of the protein albumin in urine. The presence of the albumin in urine can lead to dangerous consequences that can eventually lead to total kidney failure. Hence, its timely detection is of great significance. The testing protocol involves taking the sample of urine in a semi-micro test tube, and mixing it successively with the two specialty reagents contained in two separate drop bottles. The reaction of the reagents with urine causes an instantaneous colour change in the urine sample which indicates the presence or absence of albumin.

The intellectual property right for this technology is jointly held by innovators Mr. Sarabjeet Singh Johar, Dr. G.S. Johar and Manpreet S. Johar. The technology has been fully developed as a prototype model and is ready for demonstration purpose. The patent for this technology has been applied in India, for which the approval is pending.

46. Technology: Vertical wind power generator

Key facts:

Innovator's Name	J. Jayasudha
Company/Institution Name	Biswakarma Bricks & Blocks
Address	1191/1927, Nayapalli, Bhubaneswar - 751015
Company website	-
IP status	-

Innovation brief

Vertical wind power generator is a technology that utilizes wind speed from any direction to generate power for small houses. According to the innovator, the developed technology addresses issues of conventional windmills that usually need a fixed angle of wind, and a good wind speed to generate electricity. The conventional windmills also need to have strong foundation and structure to withstand the forces of inertia to cope up with the wind direction change. The technology is applicable in the rural areas where basic electrification is not available. It has been developed as a full-scale prototype.

47. Technology: Vidyut - context sensitive, over the cloud, energy efficiency solutions for SmartGrid, Smart Meters

Key facts:

Innovator's Name	S. Uma Mahesh
Company/Institution Name	Indrion Technologies India Private Limited
Address	145. 4th Cross, 7th Main, JP Nagar, 3rd Phase, Bengaluru–560 078
Company website	www.indrion.co.in
IP status	Patent approval pending

Innovation brief

Vidyut is a technology that embeds communication and over-the-cloud (web enabled) monitoring capabilities to all electricity consumption points which include standard plugs, adaptors, power strips/spike busters, smart energy meters and sub-meters, and electric/electronic gadgets. According to the innovator, the technology transforms the electric network ecosystem into a smart grid enabled system which helps in time based billing, minimization of electricity wastage, and prevents pilferage. The end users of this technology range from enterprises, industries, commercial and residential buildings to consumer gadgets, utility companies, smart grid, automatic metering infrastructure, etc.

The intellectual property right for this technology is owned by the company, Indrion Technologies India Pvt. Ltd. The technology is undergoing field testing and has been integrated into electricity consumption and deployment points. The patents for this technology have been applied in India and the US, for which the approvals are pending.

48. Technology: Washing cum exercising machine/washing machine without electricity

Key facts:

Innovator's Name	Remya Jose
Company/Institution Name	National Innovation Foundation
Address	Satellite Complex, Jodhpur Tekra, Near Mansi crossroad. Ahmedabad, Gujarat, India. Pin: 380015
Company website	www.nif.org.in
IP status	Patented

Innovation brief

Washing cum exercising machine/washing machine without electricity is a device that is operated by pedals without the need of electric power. According to the innovator, the technology gives five times greater cleaning capacity than the existing machines available in the market. The device can also be utilized as an exercise machine. The technology has been completely developed and is in active use, and patent protected in India.

49. Technology: XAPP cross platform executable application

Key facts:

Innovator's Name	Anand Raj
Company/Institution Name	InXero Technologies Pvt. Ltd
Address	JSSATE Science & Technology Park, C-20/1, Sector 62, Noida - 201301
Company website	www.inxero.com
IP status	Patent Approval Pending

Innovation brief

XAPP is a technology platform built for highly scalable cloud based computing and consists of media management engine, BusinessLive open business protocol, content distribution engine, presentation engine for any device, and analytics engine. It is developed on native web 2.0 cloud-based infrastructure. According to the innovator, the technology assists small and medium businesses reach and engage with customers and partners across all digital channels, including web, mobile, smart TV, radio and social networks. It uses multimedia content and live conversations to accelerate social commerce anywhere.

The intellectual property right for this technology is owned by the company, InXero Technologies. The technology is undergoing field testing and the private beta version of the technology has been released to the company's customers including Dell, Kalypso, etc. The patent for this technology has been applied in the US, for which the approval is spending.

Technologies Selected in IIGP 2012

Technologies Selected in IIGP 2012

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	2 in1` Self-Secured Orthodontic Spring Separator for Dental Patients	Sudhanshu Kansal	Kansal's Care and Cure
2.	Additive Manufacturing Machine/ 3D Part Printer	Jeldi Bala Anand	JB Design Technologies
3.	Automatic Chlorine Dispenser	Suprio Das	ZIMBA
4.	Biojet Fuel	M O Garg	Indian Institute of Petroleum
5.	Bionic Arm	Nitesh Kumar Jangir	Electro system associates (Bionims)
6.	BounzD - Online public- business cloud telephony system	Bushairusalam AP	Waybeo Technology Solutions
7.	Branchless Banking Technology Solution Combined with Extensive Distribution Channel	Seema Prem	FIA Global
8.	Cloud Content Delivery Platform	Chandra Kotaru	Gaian Solutions India Pvt. Ltd.
9.	Defluoridation of Water and Removal of Arsenic from groundwater	Pawan L/ Subhash Andey/ S R Wate	CSIR- National Environmental Engineering. Research Institute (CSIR-NEERI)
10.	Design and Development of a Proton Exchange Membrane Fuel Cell Stack	Dharmalingam Sangeetha	Anna University
11.	Development of Bioplastics from Agricultural Waste	M S Shankara Prasad	SPC Biotech P Limited
12.	Drug Discovery / Drug target Identification	Chaitanya Saxena	Shantani Proteome Analytics Pvt. Ltd.
13.	Ear, Nose and Throat Multiscope and Recorder	Sapna Behar	Icarus Design Pvt. Ltd.
14.	Eco- Pots	Vijayan	NEUECOTECHS
15.	Efficient High throughput Human Cell-based Screen for detection of DNA-Damaging Agent	Sunil Kumar	Anthem Biosciences Pvt. Ltd.
16.	Energy-Efficient Compressor	Vijay Jain	Partnership Concern
17.	First Ever File Format for Security (PawaaFILE)	Prakash Baskaran	Pawaa Software
18.	From Waste to Wealth Through Recycled Tungsten Carbide Alloy Powders and Products	A. Jayakannan	Aeyyes Tungsten
19.	Geothermal Energy based temperature control device	Raj Vijay Rohlania	Rohlania Innovators
20.	GoCoop- platform for Co-ops	Siva Devireddy	GoCoop Solutions & Services Pvt Ltd
21.	HyCator Cavitation Reactor	Anjan Mukherjee	HyCa Technologies Pvt. Ltd.
22.	Hydrogen-fueled Engine	Lalit Mohan Das	Indian Institute of Technology, Delhi
23.	Incense Stick Making Machine	Paresh Panchal	National Innovation Foundation
24.	Low-Cost Photo Bioreactor System for Cultivation of Micro Algae	Srinivas Gogineni	Green Cell Biotech Private Limited
25.	Low Power Bio Medical Transmitter	Jayanta Mukherjee	Indian Institute of Technology, Bombay
26.	Man portable unmanned ground vehicle robot for defense surveillance and bomb disposal	Aakash Sinha	Omnipresent Robot Technologies Pvt. Ltd.

S. No	Technology Name	Innovator's Name	Company/ Institution Name
27.	Milking Machine	Raghav Gowda	National Innovation Foundation
28.	Mobile Based Heart Disease and Stroke Detection System	Prodyut Dhar	NIT DURGAPUR
29.	Motorcycle Operated Multipurpose	Mansukbhai Jagani	National Innovation Farm Implement
30.	Novel Strategy of Botanical Biocides to Control Eriophyid Mite in Coconuts to Improve Productivity	P. S. Mukherjee	IIMT Bhubaneswar
31.	PC Plug-In 12 Lead ECG	Ravi Mehrotra	National Physical Laboratory, CSIR
32.	PENPAL - Electronic Pen Aiding Visually Impaired in Reading and Understanding Textual Contents	Joshi Kumar A V	Sri Sairam Engineering College
33.	Plastic Bio-chip based Disposable Electrochemical Immunosensor	Priyanka Sharma	Institute of Microbial Technologies
34.	Process of Making Lifestyle Wellness Garments	Rajiv Rai Sachdev	Advantage Organic Naturals Technologies Pvt. Ltd.
35.	Production of germanium nano wires encapsulated by MWCNT	A. Pandurangan	Department of Chemistry
36.	Pyka/ Automatic wakeup call for train passengers	Bala Sundara Raman	Ideophone technosol Pvt. Ltd.
37.	Rainrunner	Karan Randhawa	Roof for Two
38.	Recycling recalcitrant coconut leaves to vermicompost to sustain coconut ecosystem services	Murali Gopal	Central Plantation Crops Research Institute
39.	REDiTorQ, Automatic open and spanner	Kesava Prasad	Redinvent Technologies
40.	Remote controlled system for power controller	Prajwal V Kumar	Mangalore Robautonics Private limited
41.	Safety Medical Device (MecSafe Safety I.V. Cannula)	Manoj Kumar Maan	Mecmann
42.	Solar Mosquito Destroyer	Mathews K Mathew	National Innovation Foundation
43.	Solar Photo Voltaic Water Pumping	Parveen Jambholkar	Cybermotion Technologies Pvt. Ltd.
44.	Solar Powered Constant Move Pivot Irrigator	Padmakar Kelkar	Bright Stars Electronics
45.	Soleckshaw a pedal operated, motor assisted, zero carbon emission, urban transport vehicle	Amit Jyoti Banerjee	CSIR-Central Mechnical Engineering Research Institute
46.	Solidification Simulation of Metal Casting (AutoCAST-X)	B Ravi	Indian Institute of Technology, Bombay
47.	System and Method for Price Forecasting	V S K Murthy Balijepalli	Indian Institute of Technology Bombay
48.	User-Wearable Portable Communication Device (Vesag Watch)	Rajendra P Sadh	Vyzin Electronics Private Limited
49.	ViTranSP — Virtual Transaction Service Provider	Ramesh Baswa	BASIX Sub-K IT iTransactions limited
50.	Zed Magic Water-Solar Powered Air to Water Generator	Chandrasekhar Hariharan	Biodiversity Conservation India Pvt. Ltd.
51.	Zed Sun-zyme Foliar Spray	Chandrasekhar Hariharan	Biodiversity Conservation India Pvt. Ltd.

1. Technology: 2 in1` Self-Secured Orthodontic Spring Separator for Dental Patients

Key facts:

Innovator's Name	Sudhanshu Kansal
Company/Institution Name	Kansal's Care and Cure
Address	E-9/23, Vasant Vihar, New Delhi - 110057
Company website	-
IP status	India-Filed, pending for approval, PCT filed including US, Europe, China

Innovation brief

This orthodontic separator results in predictable, efficient and safe treatment in dental patients with crooked/ malaligned teeth. The prototype is used in orthodontic (braces) treatment for predictable and cost effective Separation of teeth for successful banding procedure. The Separation procedure is a standard & primary clinical step performed worldwide which is achieved by device called orthodontic separator. Application: This dental device has a worldwide application in treatment of any patient with misaligned crooked teeth who requires fixed orthodontic treatment

2. Technology: Additive Manufacturing Machine/3D Part Printer

Key facts:

Innovator's Name	Jeldi Bala Anand
Company/Institution Name	JB Design Technologies
Address	Plot No. 37A, Phase V, IDA, Cherlapalley, Hyderabad - 501301
Company website	www.jbdesigntech.com
IP status	Patent Pending for approval

Innovation brief

The technology helps in realization of new designs at a click of a button. Engineers, artists, dentists need not wait long for getting the parts needed for building new machinery or dental caps or jewelry. The design in 3D cad format has to be given as input file to the machine software and choose the material and, within couple of hours, the functional parts are ready to use either in metal or plastic. The unique grid pattern technique of the printing process increases the production process by 3-8 times current machines. The unique optical positioning process helps the machine to build faster & very accurate parts and also helps in larger part manufacturing.

3. Technology: Automatic Chlorine Dispenser

Key facts:

Innovator's Name	Suprio Das
Company/Institution Name	ZIMBA
Address	P2, Block B, Lake Town, Kolkata - 700048
Company website	-
IP status	Patent Pending for approval

Innovation brief

This device adds a preset volume of chlorine to flowing water of inconsistent flow rate. It works without electricity and has no moving parts. It is capable of handling large volumes of water and suitable for community water sources. No such device exists that dispenses liquid chlorine to water of inconsistent and intermittent flow rate and have no moving parts.

4. Technology: Biojet fuel

Key facts:

Innovator's Name	M O Garg
Company/Institution Name	Indian Institute of Petroleum
Address	P.O. Mohkampur, Dehradun, Uttarakhand - 248005
Company website	www.iip.res.in
IP status	-

Innovation brief

The Indian Institute of Petroleum has developed a catalyst as well as a process for conversion of plant oils directly to aviation fuels (drop-in type fuels). About 150 litres of high-quality biojet fuel from Jatropha curcas oil for an aircraft engine manufacturer has been produced by the Institute. This fuel has been tested by both the Indian Oil Corporation Ltd. (IOCL) and the Hindustan Petroleum Corporation Ltd. (HPCL) and has been found to meet all specifications as per ASTM D 1655 and ASTM D7566 for Jet A-1 fuel (ATF). A large pilot plant with the production capacity of 20 litres/day of bio-Jet is in operation, a quantity enough for conducting tests in aircraft engines. Summarily, the entire process involves pre-treatment of plant-oil followed by hydro-deoxygenation, hydrocracking, hydroisomerization and aromatization.

5. Technology: Bionic Arm

Key facts:

Innovator's Name	Nitesh Kumar Jangir
Company/Institution Name	Electro System Associates (Bionims)
Address	4215, J.K.Complex, First Main Road, Subramanyanagar, Bangalore - 560 021
Company website	-

Innovation brief

Bionic devices, including bionic arms, have been in the realm of science fiction for quite some time. Replacement of a lost limb should be possible and as easily accessible as a cough treatment. The technology focuses on reconstruction of human limb not by any biological mean but by using simple robotic technology available. It can be attached to body without any surgery. It is more cost effective than the product available in market.

6. Technology: BounzD - Online public- business cloud telephony system

Key facts:

Innovator's Name	Bushairusalam AP
Company/Institution Name	Waybeo Technology Solutions
Address	Thejaswini Building, Technopark, Tivandrum, Kerala - 695581
Company website	www.waybeo.com
IP status	-

Innovation brief

BounzD Technology helps the customers to contact business (say hotels, banks, airline companies) from any part of the world through online and get voice support from the enterprises. Any organization with a web oriented online sales strategy can be the beneficiaries of this technology. Some industries or segments where this technology may be applied are hotels, builders, online retailers and travel companies.

7. Technology: Branchless Banking Technology Solution Combined with Extensive Distribution Channel

Key facts:

Innovator's Name	Seema Prem
Company/Institution Name	FIA Global
Address	550 Kailash Towers 3, East of Kailash, Delhi – 110065
Company website	www.fiaglobal.com
IP status	Patented

Innovation brief

This technology consists of software, firmware, and hardware that allows for real-time access and interaction with a core banking system from satellite locations in retail outlets. The technology allows undocumented and unbanked individuals to acquire bank accounts through mobile phone registration and kiosk interfaces at selected retail outlets within the bank system's distribution channel and business model. Once registered, the client can perform mobile transactional activities such as submit payments on-demand, cash transfers to other customers in the system, account information retrieval, etc. within 3 clicks of a button. The technology greatly reduces the cost to the banks eliminating the paperwork associated with the account and transactions.

8. Technology: Cloud Content Delivery Platform

Key facts:

Innovator's Name	Chandra Kotaru
Company/Institution Name	Gaian Solutions India Pvt. Ltd
Address	7-8-22 RK Mission Rd, Waltair Ward, Near RK Beach, Vishakhapatnam - 530003
Company website	www.gaiansolutions.com
IP status	-

Innovation brief

This technology eliminates the capex need of content providers to operate a content delivery service and reduces cost of operating such a service for the operator. Further it enables a richer and more monetizable delivery service, richer vertical solutions, pre-built eco system, innovation in terms of analytics and user behavior analysis.

9. Technology: Defluoridation of Water and Removal of Arsenic from Groundwater

Key facts:

Innovator's Name	Pawan L/ Subhash Andey/ S R Wate
Company/Institution Name	Water Technology and Management Division – NEERI
Address	Neeri Colony, Nehru Nagar, Nagpur, Maharashtra – 440020
Company website	www.neeri.res.in
IP status	Patent pending

Innovation brief

The technology is a drinking water treatment plant which operates on the basis of electricity as well as solar power and aims at removing the fluoride contamination along with other impurities like bacteria and possibly arsenic, present in the drinking water. The innovator has already set up and installed the plant at a couple of places with the help of UNICEF funding and otherwise as well. These plants have been set up and installed in the states of Maharashtra, Madhya Pradesh, Chhattisgarh; which are severely affected in terms of the contamination of drinking water.

10. Technology: Design and Development of a Proton Exchange Membrane Fuel Cell Stack

Key facts:

Innovator's Name	Dharmalingam Sangeetha
Company/Institution Name	Anna University
Address	Sardar Patel Road, Chennai – 600026
Company website	www.annauniv.edu
IP status	Patent Pending for approval

Innovation brief

The main focus of the invention is to fabricate a stack containing ten fuel cells arranged in horizontal fashion with graphite plates for the flow of the fuel and oxidant gases and a serpentine flow pattern for the fuel gas and forced air breathe for the cathode. As per the information provided by the innovator, it is cost effective and the stack is easy to fabricate to produce desired power according to the need.

11. Technology: Development of Bioplastics from Agricultural Waste

Key facts:

Innovator's Name	M S Shankara Prasad
Company/Institution Name	SPC Biotech P Limited
Address	C 409 Pasha Court Somajiguda, Hyderabad - 500082
Company website	www.greenplastics.org
IP status	Patent Pending for approval

Innovation brief

This technology is an innovative manufacturing process for the production of polylactic acid based bioplastics from agricultural waste such as the inedible parts of plants, such as seeds, husks, bagasse, grasses, etc. Polylactic Acid (PLA) is created from fermenting and polymerizing sugars harvested from plants. PLA bioplastics biodegrade into the soil after they have been utilized and disposed of as waste.

12. Technology: Drug Discovery / Drug target Identification

Key facts:

Innovator's Name	Chaitanya Saxena
Company/Institution Name	Shantani Proteome Analytics Pvt. Ltd.
Address	100 NCL Innovation Park, Dr. Homi Bhabha Road, Pune - 411008
Company website	www.shantani.com
IP status	India-IP protection has been granted

Innovation brief

This technology assists in the identification of drug targets, which are the locations in tissues and cells in the body where medicines act. The drug-target capture tools developed have following characteristics: (1) They can be tested for their functional activities (2) They work in intact biological systems (3) They capture the drug-targets in sub-cellular location specific manners (4) Their interaction with a given target can be quantified (5) They are not limited by capturing only a particular class of drug-targets.

This technology claims to reduce 50 – 70% of the cost and time involved with the current technologies. The target is identified in six to nine months which is 12+ months less than conventional methods.

13. Technology: Ear, Nose and Throat Multiscope and Recorder

Key facts:

Innovator's Name	Sapna Behar
Company/Institution Name	Icarus Design Pvt. Ltd.
Address	Icarus Design Pvt Ltd, No 7 Rogers Road, Richards town, Bangalore – 560005
Company website	www.icarus.co.in
IP status	Patent Pending for approval

Innovation brief

The technology is a low cost battery-operated portable ENT endoscope for smaller clinics that still utilize diagnostic devices such as otoscopes, tongue depressors and head lights. The portable ENT endoscope device will provide better visual access to the problem area in the ear, nose and throat versus the traditional rudimentary diagnostic tools. At an estimated sales price of $1000-$1500, the device is less expensive than a traditional endoscope. The portable ENT endoscope can record and store diagnostic high definition video images for future reference by the doctor or patient.

14. Technology: Eco- Pots

Key facts:

Innovator's Name	Vijayan
Company/Institution Name	NEUECOTECHS
Address	19, 1st.Parthasarathy Nagar, Chennai - 600088
Company website	www.neuecotechs.com
IP status	Patent pending for approval

Innovation brief

This technology is a device and method to convert organic waste into compost that will feed and grow plants within the same container. The pots are inexpensive and recyclable, and one foot in diameter, so they can be arranged on a patio, a balcony, the rooftop or even indoors.

15. Technology: Efficient High throughput Human Cell-based Screen for detection of DNA-Damaging Agent

Key facts:

Innovator's Name	Sunil Kumar
Company/Institution Name	Anthem Biosciences Pvt. Ltd.
Address	#49, Canara Bank Road, Bommasandra Industrial Area Phase I, Bommasandra, Hosur Road, Bangalore - 560030
Company website	www.anthembio.com
IP status	India-Filed pending for approval

Innovation brief

Anthem's proprietary genotox platform involves a simple human cell based tool that provides vital information that is critical to human health care. The alarming increase in organ toxicity following exposure to DNA-damaging agents (Genotoxins) from several industries such as cosmetics, textiles, food, chemical and pharmaceutical industries warrants urgent measures to detect and subsequently remove these agents. Anthem has successfully designed, established and validated a simple, high throughput- compatible Human cell based genotox platform. Three well established sensors of genotoxicity are coupled to simple luminescent reporter genes such that the cell would emit luminescence only when the cell is exposed to a genotoxic chemical or stimuli. Signals are then detected by a simple luminometer. Overall, the screen can drastically reduce time associated with screening for genotoxins, reduce or completely remove animal testing and provide consistent data critical to human health.

16. Technology: Energy-Efficient Compressor

Key facts:

Innovator's Name	Vijay Jain
Company/Institution Name	-
Address	603, Block-1/Magic Ray, Suncity Apartments Opp Sarjapur Crossing, Bangalore - 560037
Company website	-
IP status	Patent Pending for approval

Innovation brief

This technology is designed for a reciprocating compressor, used in air-conditioning units specially installed in high temperature loads & continuous running, to improve energy efficiency which enables operating cost reduction. Integrating & modifying the compressor with our technology delivers equitable performance with a cooling system.

17. Technology: First Ever File Format for Security (PawaaFILE)

Key facts:

Innovator's Name	Prakash Baskaran
Company/Institution Name	Pawaa Software
Address	1133 Anand Embassy, 100 Ft Road, Indira Nagar, Bangalore - 560038
Company website	www.pawaa.com
IP status	Patent Pending for approval

Innovation brief

pawaaFILE is an Information Rights Management software technology. The primary claimed benefits of pawaaFILE are reducing the complexity of key management, improving data leak protection and providing an audit trail for compliance. The software adds four layers of encryption to any file format. It allows the owner to determine the permissions and amount of time a file is accessible by anyone it is shared with. Pawaa FILE is a base technology to the pawaa STUDIO suite of security tools. It works in conjunction with products from other companies including SAP, Oracle, Microsoft and Adobe.

18. Technology: From Waste to Wealth Through Recycled Tungsten Carbide Alloy Powders and Products

Key facts:

Innovator's Name	A. Jayakannan
Company/Institution Name	Aeyyes Tungsten
Address	11,36, Cholapuram Extension, Nochi Vayal Pudur, Tiruverumbur, Trichy - 620013
Company website	www.aeyyescarbides.com
IP status	India - Filed, pending for approval US-Filed, pending for approval Patent Cooperation Treaty (PCT) member countries – Filed, pending for approval

Innovation brief

The technology is a method for recycling tungsten carbide. Tungsten is a very hard metal, only diamond is known to be harder, and tungsten carbide alloy steel is used in a variety of drilling and machining industries. The technology uses thermo-mechanical techniques to breakdown the tungsten from drill bits and machine parts, and produces a high grade powder that can be readily used in manufacturing.

19. Technology: Geothermal Energy based temperature control device

Key facts:

Innovator's Name	Raj Vijay Rohlania
Company/Institution Name	Rohlania Innovators
Address	C-2616, Shushant Lok-1, Gurgaon - 122002
Company website	www.rohlania.com
IP status	Pending for approval

Innovation brief

This device and the process to harness geothermal energy for maintaining constant temperature in enclosed space is free from any artificial refrigerants, hence in sync with nature. Compared with current technologies on same subject, it costs one tenth and is simple to use, scale up and dynamic. Some of the areas of its applications are individual homes, commercial complexes , green houses ,manufacturing facilities, etc.

20. Technology: GoCoop- platform for Co-ops

Key facts:

Innovator's Name	Siva Devireddy
Company/Institution Name	GoCoop Solutions and Services Private Limited
Address	CA Site No:1, HAL 3rd Stage, Kodihalli, Bangalore - 560008
Company website	www.gocoop.com
IP status	-

Innovation brief

GoCoop provides collaboration, marketing and basic member management capabilities for co-operative organizations through an integrated platform. Through GoCoop, co-operatives can improve their identity and awareness, reach out to new regional and global markets and also improve their member relationships. Application: The platform is designed for co-operative organizations with an initial focus on Agriculture, Dairy, Handloom and Handicraft sectors.

21. Technology: HyCator Cavitation Reactor

Key facts:

Innovator's Name	Anjan Mukherjee
Company/Institution Name	HyCa Technologies Pvt. Ltd
Address	176, Udyog Bhavan, Sonawala Road, Goregaon (E), Mumbai - 4000063
Company website	www.hycator.com
IP status	Pending for approval

Innovation brief

The HyCator Cavitation Reactor is a device that creates and uses cavitation bubbles to destroy microbes in applications ranging from water cooling towers to water treatment and biofouling prevention in an environmentally friendly and cost effective way. Its uses may include using the cavitation reactor to perform mixing in nanotechnology and biofuel applications.

22. Technology: Hydrogen-fueled Engine

Key facts:

Innovator's Name	Lalit Mohan Das
Company/Institution Name	Indian Institute of Technology, Delhi
Address	Hauz Khas, Delhi - 110016
Company website	www.iitd.ac.in
IP status	-

Innovation brief

The technology is a hydrogen-powered internal combustion engine. The engine was designed for use on small urban transport vehicles such as auto-rickshaws. The primary objective of the engine designers was to significantly reduce or eliminate the pollution associated with 3- wheelers, and to create a clean-burning alternative power plant to propel these extremely popular and useful vehicles.

23. Technology: Incense Stick Making Machine

Key facts:

Innovator's Name	Paresh Panchal
Company/Institution Name	National Innovation Foundation
Address	Satellite Complex, Premchand Nagar, Ahmedabad - 380015
Company website	www.nifindia.org
IP status	Pending for Approval

Innovation brief

Bamboo Stick Making Machine, is a mechanical system that uses a simple design to split bamboo into thin sticks which can be readily used to make incense sticks. It gives an immense advantage over an otherwise manual process of splitting bamboo for this purpose. The technology does this in a two-step process. One machine is used to slice the Bamboo into thin strips and then another is used to split the strips into thin sticks for making Incense sticks.

24. Technology: Low-Cost Photo Bioreactor System for Cultivation of Micro Algae Key facts:

Key facts:

Innovator's Name	Srinivas Gogineni
Company/Institution Name	Green Cell Biotech Private Limited
Address	D.No 40-9/11-7, Jhansi Building 2nd floor, M.E. Colony, Vijayawada – 520010
Company website	www.gcbglobal.com
IP status	-

Innovation brief

This technology is a photo bioreactor for the cultivation of microalgae. The photo bioreactor is fully automated, low power and very low cost to manufacture. The automated monitoring of the Green Cell Biotech photo bioreactors gives the operator better control over biocultural conditions, such as pH, light intensity, CO2 and temperature. The Green Cel l Biotech photo bioreactor produces algae for different applications: 1) High grade algae is used in nutraceuticals, natural supplements or as biofuel, 2) Lower grade algae is used as animal feed and fertilizer, and 3) then the algae rich water containing traces of algae is used for the bioremediation of soils.

25. Technology: Low Power Bio Medical Transmitter

Key facts:

Innovator's Name	Jayanta Mukherjee
Company/Institution Name	Indian Institute of Technology, Bombay
Address	IIT Bombay, Powai, Maharashtra - 400076
Company website	www.iitb.ac.in
IP status	Pending for Approval

Innovation brief

The device provides information to doctors sitting at a distance from the person whose heart signals are being monitored. In rural areas of India, getting quality healthcare is difficult. This device provides a low cost solution by cutting the power required for operation and using a low cost chip fabrication technology. The reason the device is able to do so is because, the device is specifically designed for transmitting low frequency heart signals using a novel design in a low cost chip design technology. The product is targeted towards the healthcare device manufacturing industry.

26. Technology: Man portable unmanned ground vehicle robot for defense surveillance and bomb disposal

Key facts:

Innovator's Name	Aakash Sinha
Company/Institution Name	Omnipresent Robot Technologies Pvt. Ltd.
Address	20 Supreme Enclave, Mayur Vihar-I, New Delhi - 110091
Company website	www.omnipresenttech.com
IP status	-

Innovation brief

The technology is a robotic, remotely-operated vehicle (ROV), designed for use in the Indian armed forces and para-military services. The primary uses for the robot are military surveillance, reconnaissance and explosive ordinance disposal. The unit is capable of operating across all terrain surfaces and can climb stairs. It is equipped with cameras, sensors and a robotic arm, which all operate via remote controls from up to 1 kilometer away.

The remote arm is capable of lifting a-30 pound payload. The robot is lightweight and is man portable. The robot's indigenous design is intended to offer a highly capable ROV that costs approximately 50% of similar, currently-available models.

27. Technology: Milking Machine

Key facts:

Innovator's Name	Raghav Gowda
Company/Institution Name	National Innovation Foundation
Address	Satellite Complex, Premchand Nagar, Ahmedabad – 380015
Company website	www.nif.org.in
IP status	-

Innovation brief

The Milk Master technology is a cattle milking machine targeted at smaller farmers across India. The biggest advantage of this machine is that it gives the same quality of performance (accurate pulsating effect) as larger and costlier versions in the market while being small enough to be affordable for smaller farmer who have 2- 10 cattle stock. The primary advantage of this device is the fact that it provides the right kind of pulsating effect for the teats of cattle and also results in a faster output of milk through a single cow.

28. Technology: Mobile Based Heart Disease and Stroke Detection System

Key facts:

Innovator's Name	Prodyut Dhar
Company/Institution Name	NIT DURGAPUR
Address	Room No 381, NIT Durgapur - 713209
Company website	www.nitdgp.ac.in
IP status	Pending for approval

Innovation brief

HRIDAY- a mobile based heart detection devices continuously monitors the ECG which predicts the STROKE like environment /conditions in heart. Hriday have several devices Oximetry, skin impedance and blood pressure sensors attached with the body. Taking into context the different irregularities in heart based to abnormal ECG waves and change in blood pressure and skin impedance an algorithm has been devised which efficiently alerts the patient and sends SMS or MMS to doctor, when STROKE like condition is detected. HRIDAY, has the capability to send the ECG signal, blood pressure data`s, amount of oxygen in blood and skin impedance values to the Doctor/web based server which helps in early real time diagnosis of affected patients in emergency conditions. It can be used in the health-care industry, and by heart patients for real time application.

29. Technology: Motorcycle Operated Multipurpose

Key facts:

Innovator's Name	Mansukbhai Jagani
Company/Institution Name	National Innovation Foundation
Address	Satellite Complex, Premchand Nagar, Ahmedabad - 380015
Company website	www.nif.org.in
IP status	Patented

Innovation brief

The technology is an innovative farming machine that is much smaller than the tillers and tractors but stronger than the bullocks and other farming animals and is useful for performing numerous agricultural operations. The product is essentially a mechanical system that can easily be attached to the rear of a motorcycle by replacing the rear wheel. The mechanical system can have various kinds of tools and implements attached to it (like small harrow, seed drill, and sprayer kits) for various farming operations like ploughing, sowing seeds, and cultivation.

30. Technology: Novel Strategy of Botanical Biocides to Control Eriophyid Mite in Coconuts to Improve Productivity

Key facts:

Innovator's Name	P. S. Mukherjee
Company/Institution Name	IIMT Bhubaneswar
Address	Old no:29, New no:65, 3rd Main Road, Gandhi Nagar, Adyar, Chennai – 600020.
Company website	-
IP status	Patent Pending for approval

Innovation brief

The technology involves a novel formulation of bio pesticides (biocides) which can easily be applied in coconut plantations to control the eriophyid mite. The eriophyid mite is a serious pest which has been affecting coconut plantations for the last three decades and is known to decrease the productivity of coconut plants by over 30%. The formulation is composed of a mixture of essential oils obtained from naturally occurring medicinal and aromatic plants. A distillation technology is used to derive these essential oils and then compost them along with cow dung and coir pith, the spongy material located inside coconut husks.

31. Technology: PC Plug-In 12 Lead ECG

Key facts:

Innovator's Name	Ravi Mehrotra
Company/Institution Name	National Physical Laboratory, CSIR
Address	National Physical Laboratory, Dr. K. S. Krishnan Rd., Delhi 110012
Company website	www.nplindia.org
IP status	Patent pending approval

Innovation brief

This technology provides low-cost ECG recordings which can be viewed on a PC and printed on a standard A4 sized printer. It picks up the ECG signals from the human body via standard ECG electrodes and leads. These low voltage signals are amplified, processed for noise removal, digitized and transferred to a PC/laptop via standard USB or wireless Bluetooth. After further noise filtering on the PC, a real time display of the ECG signals is shown.

The recording can be saved in a database for later retrieval. The recordings are analyzed to extract important ECG parameters. The device is easy to use and portable and uses patented (pending) noise filtering for high quality ECG recordings.

32. Technology: PENPAL - Electronic Pen Aiding Visually Impaired in Reading and Understanding Textual Contents

Key facts:

Innovator's Name	Joshi Kumar A V
Company/Institution Name	Sri Sairam Engineering College
Address	Sai Leo Nagar, West Tambaram, Chennai - 600045
Company website	www.sairam.edu.in
IP status	-

Innovation brief

This aiding technology will help the blind people to read any documents like books, newspapers or any hand written papers. It first scans the paper with OCR which converts the editable text present in that image into word file. This word file contains lot of errors, which is now matched with words present in a word repository for enhancing the word inaccuracies. Further, if the visually impaired wishes to know particular meaning of any specific word, he can get from this process. This modified text document is now converted to a speech signal, so that the blind people are able to hear the whole textual document through a device.

33. Technology: Plastic Bio-chip based Disposable Electrochemical Immunosensor

Key facts:

Innovator's Name	Priyanka Sharma
Company/Institution Name	Institute of Microbial Technologies
Address	Biosensor Lab, Institute of Microbial Technology, Sector 39-A, Chandigarh – 160045
Company website	www.imtech.res.in
IP status	Pending for Approval

Innovation brief

The technology is a biochip that can detect pesticides. The technology uses low cost laser abatement techniques to apply gold coatings to a polystyrene substrate in the sensor. This enables the technology to be highly accurate and low cost. The technology has two parts: the disposable biosensors used for testing, and a hardware controller. This test can be performed in laboratory or field conditions with a high degree of accuracy and provide near real time results.

34. Technology: Process of Making Lifestyle Wellness Garments

Key facts:

Innovator's Name	Rajiv Rai Sachdev
Company/Institution Name	Advantage Organic Naturals Technologies Pvt. Ltd.
Address	B-5, 2nd Floor, East of Kailash, Delhi – 110065
Company website	www.advantagenature.com
IP status	Pending for Approval

Innovation brief

The subject technology is a fabric treatment and dying process that produces clothing that is free of toxins, synthetic dyes or chemicals. The process utilizes a formulation of more than 200 herbal ingredients and is based on Ayurvastrathe ancient science of Clothing. It is a low carbon footprint, green, cleantech technology to produce Lifestyle Wellness Garments wherein each and every garment is processed from a concoction of medicinally rich herbs in addition to herbal/ natural dyes, which have excellent protective and curative properties.

35. Technology: Production of germanium nano wires encapsulated by MWCNT

Key facts:

Innovator's Name	A. Pandurangan
Company/Institution Name	Anna University
Address	Sardar Patel Road, Guindy, Chennai - 600025
Company website	www.annauniv.edu
IP status	None

Innovation brief

The present invention relates generally to the field of nanotechnology and, more particularly, to a method of producing germanium nanowires encapsulated within multi-walled carbon nanotubes as well as to such nano wires as produced by that method. Germanium nanowires will have commercial applications in photovoltaic, semi conducting, electronic, transformers, remote sensing, magnetic resonance imaging, energy storage and high energy physics applications.

36. Technology: Pyka/ Automatic wakeup call for train passengers

Key facts:

Innovator's Name	Bala Sundara Raman
Company/Institution Name	Ideophone technosol Pvt. Ltd
Address	106, Devi Residency, 1st Cross, Church Road, Murugeshpalya, Bangalore - 560017
Company website	www.ideophone.in
IP status	-

Innovation brief

Train passengers who need to get down in stations in the night are paranoid about missing the station and lose sleep. They are not sure whether the train is running on time. This smart wakeup call service Pyka keeps track of their train and calls the passengers on their mobile phone when their station is approaching. Automatic calls are repeated until the passenger wakes up and answers the call. It is also useful for people who need to pick up guests at the station.

37. Technology: Rainrunner

Key facts:

Innovator's Name	Karan Randhawa
Company/Institution Name	Roof for Two
Address	B 392, Second Floor, Chittranjan Park, New Delhi - 110019
Company website	www.rooffortwo.com
IP status	Pending for Approval

Innovation brief

This technology is a shield for motorcycles which protects riders from rain, blocks out direct sun rays, and protects them from cold wind. It fits onto any sub 150-cc motorcycle and features an instant deployment system from its portable form. It is durable, collapsible, detachable, and deploys instantly onto a wide variety of motorcycles.

38. Technology: Recycling recalcitrant coconut leaves to vermicompost to sustain coconut ecosystem services

Key facts:

Innovator's Name	Murali Gopal
Company/Institution Name	Central Plantation Crops Research Institute
Address	CPCRI, Kudlu P.O., Kasaragod, Kerala - 671121
Company website	www.cpcri.gov.in
IP status	None

Innovation brief

Fallen coconut leaves take more than 18 months to degrade naturally because of high lignin content. With this technology, the recalcitrant coconut leaf biomass residues can be recycled to vermicompost within 90 days period using an indigenous earthworm, Eudrilus sp. A liquid fertilizer, vermiwash, can also be produced as spin-off technology from the vermicomposting technology. The technology is for the agricultural sector. It generates granular and liquid fertilizers that can help in enhancing the microbial biomass, microbial diversity and soil fertility of soil in ecologically safe way besides sequestering carbon. It can reduce the inorganic fertilizer load up to 25%, add organic carbon and plant beneficial microbes to make the soil healthier. It can be used for all types of crops. Through this technology the ecosystem services provided by coconut palm can be sustained.

39. Technology: REDiTorQ, Automatic open and spanner

Key facts:

Innovator's Name	Kesava Prasad
Company/Institution Name	Redinvent Technologies
Address	PTP Nagar, Trivandrum - 695038
Company website	www.redinvent.in
IP status	India-Filed, pending for approval

Innovation brief

An open ended torque tool which automates tightening of nuts, ensuring required torque using an embedded controller able to access nuts in multiple orientations in space with near zero reaction to the human arm. The proposed device automates nut tightening in assembly lines on piping, tubing and places inaccessible for regular nut runners due to space constraint. Reduced operator fatigue, repeatable and accurate torquing (+/-4%), and reduced cycle time are achieved leading to better efficiency. Application: Industrial equipments, automotive component and other discrete manufacturing, oil & gas and other process industries, pump industry, power, infrastructure sector, energy & utilities.

40. Technology: Remote controlled system for power tiller

Key facts:

Innovator's Name	Prajwal V Kumar
Company/Institution Name	Mangalore Robautonics Pvt ltd
Address	Shiva Prasad Building, Main road, Near Post office, Surathkal , Karnataka – 575014
Company website	www.robautonics.com
IP status	India- IP granted

Innovation brief

This remote controlled power tiller allows farmers to operate their tillers from a distance just by pressing a button on a hand held remote control unit. There is no need to walk along the machine as it moves in the field. It uses a radio requency based wireless electronic technology combined with a pneumatic system as a power source to operate the direction control clutches and brake lever on the tiller. Once the farmers install the kit on their already existing power tiller, their machine is ready for use.

41. Technology: Safety Medical Device (MecSafe Safety I.V. Cannula)

Key facts:

Innovator's Name	Manoj Kumar Maan
Company/Institution Name	Mecmann
Address	92, Bahadurgarh H O, Bahadurgarh - 124507.
Company website	-
IP status	India-Filed, pending for approval, US – Filed pending for approval

Innovation brief

The MecSafe Safety I.V. Cannula was constructed to safe-guard medical professionals from needle stick injuries (NSI) and blood borne infections during needle withdrawal and disposal. The MecSafe Cannula uses a manual retraction system to withdraw the needle into the chamber and is designed so that after withdrawal, the needle is locked inside a safety chamber so the user does not come into contact with the needle or is in any danger of accidental injury. This method prevents blood from accidentally splashing on the healthcare provider, and in turn

reduces exposure to diseases such as HIV, Hepatitis A, B and C.

42. Technology: Solar Mosquito Destroyer

Key facts:

Innovator's Name	Mathews K Mathew
Company/Institution Name	National Innovation Foundation
Address	Satellite Complex, Premchand Nagar, Ahmedabad – 380015
Company website	www.nif.org.in
IP status	Design patent in India

Innovation brief

The solar mosquito trapper cum destroyer makes use of the smell from the septic tank to attract the mosquitoes. Once the mosquitoes get trapped inside the device, the heat built up inside the device, as a result of direct sunlight exposure kills them. It is installed near septic tanks and traps and kills mosquitoes at the source itself, away from the homes. The product is placed so as to have direct sunlight hitting the dome of the device. The product has many unique features which make it universal, cost effective and a high quality solution which can be deployed anywhere. It is an eco-friendly self-sustaining device, which does not use any chemical or pesticide to destroy the mosquitoes. Once installed on site, this unit has no running cost or cost of consumable as applicable in conventional mosquito repellants. Also, requiring at least 30 minutes of direct sunlight a day (between 11.00 am to 4.00 pm), this outdoor unit is weather independent and requires no maintenance.

43. Technology: Solar Photo Voltaic Water Pumping

Key facts:

Innovator's Name	Parveen Jambholkar
Company/Institution Name	Cybermotion Technologies Pvt. Ltd.
Address	Plot #235, Road #14, Banjara Hills, Hyderabad - 500034
Company website	www.cybermotionind.com
IP status	-

Innovation brief

The technology is a pumping control system used to manage solar powered water pumping systems. These systems are intended to be used for irrigation and potable water systems. The heart of the system is an electronic control system that efficiently drives conventional three phase AC motors using solar power panels. This is accomplished by employing Maximum Power Point Tracking (MPPT) techniques dynamically to adjust to the motor during all points in the load curve.

44. Technology: Solar Powered Constant Move Pivot Irrigation

Key facts:

Innovator's Name	Padmakar Waman Kelkar
Company/Institution Name	Bright Stars Electronics
Address	43/2, Erandawana, Erandawana Industrial Estate, Pune - 411038
Company website	www.brightstarindia.com
IP status	Patent pending for approval

Innovation brief

The Solar Powered Constant Move Pivot Irrigator delivers water to the agricultural fields in an even manner like the rains. This increases the yield by 160-180% and reduces the water requirements by 40-50%. This machine works on solar power thus is environment friendly. The system is far better than Drip, as no maintenance is required for 25-30 years. The life of a drip is 6 years, with 15% maintenance every year. The machine can be used anytime after installation and does not require working on it

45. Technology: Soleckshaw a pedal operated, motor assisted, zero carbon emission, urban transport vehicle

Key facts:

Innovator's Name	Amit Jyoti Banerjee
Company/Institution Name	CSIR-Central Mechnical Engineering Research Institute
Address	Manufacturing Technology Group, CSIR-CMERI, M.G. Avenue, Durgapur - 713209
Company website	www.cmeri.res.in
IP status	India-Filed pending for approval

Innovation brief

This vehicle reduces drudgery of rickshaw puller, helping them earn more and lead a decent life. It hybridizes the motor power and manual power. Urban transport green vehicle. It can be used as traditional passenger / goods carrier, green vehicle for tourist places, waste disposal vehicle, vehicle for the physically disabled, school carrier, in-campus micro transport, trade show vehicle, ice-cream / fast food cart or postal cart. This technology is designed to replace the existing cycle rickshaws. Compared to these existing rickshaws, present invention provides driving comfort and better life to the rickshaw pullers.

46. Technology: Solidification Simulation of Metal Casting (AutoCAST-X)

Key facts:

Innovator's Name	B Ravi
Company/Institution Name	Indian Institute of Technology, Bombay
Address	Mechanical Engg. Dept., I.I.T. Bombay, Powai, Mumbai - 400076
Company website	www.iitb.ac.in
IP status	Patented

Innovation brief

AutoCAST-X is metal casting solidification software designed to improve the quality and yield of metal casts. The application is a web based system that links to a manufacturer's Computer Aided Design (CAD) software to simulate a part before it has been cast. Using a Gradient Vector Method (GVM), AutoCAST-X increases the reliability of metal parts by showing the heat signatures of the solidifying part. Viewing hot spots of the solidifying metal parts before an actual pour allows defects to be addressed, enhancing the quality of the finished part.

47. Technology: System and Method for Price Forecasting

Key facts:

Innovator's Name	V S K Murthy Balijepalli
Company/Institution Name	Indian Institute of Technology Bombay
Address	Department of Electrical Engineering, 2nd floor- GG Building, IIT Campus, Powai, Mumbai - 400076
Company website	www.iitb.ac.in
IP status	Pending for Approval

Innovation brief

The Energy Demand Advanced Forecast System (EDAFS) is a software system that uses complex algorithms to predict electricity demand for energy suppliers and regulators. The technology's primary purpose is to help this group better control costs by not overproducing electricity, and thereby wasting money, and selling more by not under producing, and thereby increasing sales.

48. Technology: User-Wearable Portable Communication Device (Vesag Watch)

Key facts:

Innovator's Name	Rajendra P Sadh
Company/Institution Name	Vyzin Electronics Private Limited
Address	#405 V.V.Vintage Boulevard , Raj Bhavan Road, Somajiguda, Hyderabad – 500082
Company website	www.vyzin.com
IP status	India-Filed, pending for approval, US-Filed pending for approval

Innovation brief

The Vesag watch is a personal emergency response system (PERS) designed for the purpose of patient tracking, providing preemptive medical care and avoiding emergencies. The medical watch includes the tracking features and collects health index parameter of the patient such as pulse, ECG, body weight, blood sugar and blood pressure monitors. All accumulated data is wirelessly transmitted to the web portal for monitoring by a medical call center. The device is worn as a watch or a pendant around the neck and does not confine the wearer's location due to the use of GPS and GSM technologies.

49. Technology: ViTranSP — Virtual Transaction Service Provider

Key facts:

Innovator's Name	Ramesh Baswa
Company/Institution Name	BASIX Sub-K IT iTransactions limited
Address	58 & 59, Saranya, 1st Floor, Nagarjuna Hills, Road No.2, Banjara Hills, Hyderabad - 500034
Company website	www.subk.co.in
IP status	India-Filed, pending for approval, US-Filed, pending for approval

Innovation brief

The technology is an integrated financial services platform known as the Virtual Transactions Service Platform (ViTransSP) ViTransSP was created to deliver cost-effective financial services to un-served and under-served Indian rural and semi-rural banking customers. In addition to its technological systems, ViTransSP relies on a network of Basic Convenience Outlets (BCOs) which are local service agents operating from existing brick and mortar establishments such as markets and shops. ViTransSP provides a number of services including: micro-savings, government payments, remittances and top-off (re-charging) of mobile phone accounts.

ViTransSP offers banks and other financial services providers a way to offer a wide range of services to rural customers at affordable transaction rates. The ability for banks to conduct transactions at low costs is critical to their ability to offer basic banking services to low-balance customers such as India's rural poor.

50. Technology: Zed Magic Water-Solar Powered Air to Water Generator

Key facts:

Innovator's Name	Chandrasekhar Hariharan
Company/Institution Name	Biodiversity Conservation India Pvt. Ltd.
Address	#397, 13th Cross Road, Sadashiv Nagar, Bangalore - 560080
Company website	www.zed.in
IP status	-

Innovation brief

This technology converts water vapour into potable water. The system extracts, filters, treats and purifies water, all from the air we breathe. Humidity from the air is captured by the air–to water unit and then converted into pure healthy drinking water. This technology provides for potable water that can be installed anywhere. Given that the water is a necessity for all its application across various sectors starting from individual residences, residential complexes, offices and commercial spaces, institutional sector, healthcare and hospitality sector. This novelty of this innovation lies in the fact that it doesn't need any supply of water.Iit is environment friendly clean water generation unit based on plug and play model, thus extremely user friendly and it generates clean and pure water, free from impurities.

51. Technology: Zed Sun-zyme Foliar Spray

Key facts:

Innovator's Name	Chandrasekhar Hariharan
Company/Institution Name	Biodiversity Conservation India Pvt. Ltd.
Address	#397, 13th Cross Road, Sadashiv Nagar, Bangalore - 560080
Company website	www.zed.in
IP status	-

Innovation brief

Zed Sun-zyme is a bio-growth enhancer which is applied in a nano-spray form. The product is an organic liquid protein hydrolsate and is applied to the foliage of crops and plants in a nano-spray format. Sun-zyme consists of various minerals suspended in amino acids, which helps to boost the synthesis of enzymes in the treated plants. Photosynthesis is improved, resulting in improved growth and yield. Sun-zyme has been developed for use in agriculture and horticulture industries.

Technologies Selected in IIGP 2013

Technologies Selected in IIGP 2013

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	A novel antibiotic adjuvant entity for lowering Antimicrobial Resistance	Manu Chaudhary	Venus Remedies Limited
2.	A simple endpoint method for intracellular calcium sensing	R. V. Omkumar	Rajiv Gandhi Centre For Biotechnology
3.	A versatile and intelligent biomechanical medical device for regenerating new bone in the human body	Rajiv Agarwal	K.G Medical University
4.	Alvel Omega 3 Egg	Surekha S Bhalerao	Center For Innovation In Nutrition Health And Disease
5.	An organic plant growth enhancer and yield promoter	M. S. Rao (Mahendrakar Srinivasa Rao)	ICAR- Indian Institute of Horticultural Research
6.	Artificial Vortex (ArVo) Power Generation	Aravind Venukumar	Point5 Innovations, Virtually incubated at Startup Village, Kalamassery
7.	Bamboo Greenhouse	Arupratan Ghosh	Preson Agritech LLP
8.	BASP Biotech Processing and Flitration System	Bapusaheb Malgonda Patil/ Vikrant Bapusaheb Patil	BASP Industries
9.	Beta Thalassemia Carrier Detection Kit	M. V. Hegde	Center for Innovation in Nutrition Health Disease
10.	Bio-Medical Instrument Compatible with Telemedicine System	Pramit Ghosh	RCC Institute of Information Technology
11.	CareMother- Mobile Pre and High Risk Care	Shantanu Pathak	CareNX Innovations Pvt Ltd
12.	Clean energy generation using plasma process	Rajeev Prasad Gupta	Green Systems / Vast Heat Pvt. Ltd.,
13.	Compact rebar bender	P.Manikandan	Ankusam Engineering
14.	Decision Making Tools using Digital Maps	Amarsh Chaturvedi	Transerve Technologies Pvt. Ltd.
15.	Democratization of Business Intelligence with 1KEY	Vikram Kole	MAIA Intelligence Pvt. Ltd.
16.	Design and Development of Integrated Plant for Mechanized Production of Value Added Traditional Indian Dairy Products with Better Product Quality and Economy	Sunil Patel	Anand Agricultural University
17.	DeTect (Normal/High Temperature Defect Detection Technology)	Tarun Mishra	DeTect Technologies
18.	DrMHope Cloud based SaaS application for Hospital	BK Murali	DrMHope
19.	Engineered bamboo houses: A cost-effective low-embodied energy disaster-resistant solution	Parthasarathi Mukhopadhyay	Indian Institute of Engineering Science and Technology, Shibpur
20.	Environmental Remediation Catalyst	Bharat Lodha	Battelle Science and Technology India Pvt Ltd.
21.	Fault tolerant Unmanned aerial vehicle autopilot	Srinath Mallikarjunan	Unmanned Dynamics
22.	Flame ware / Ceramic cooking ware	Bharat Gidwani	Ninads Pottery

S. No	Technology Name	Innovator's Name	Company/ Institution Name
23.	Grameen Bandhu Plant (GBP)	Raymond Myles	Raymond Myles
24.	GSM Mobile Starter For Motor	Vijay Mehta	Khyatee Electronics Pvt. Ltd.
25.	Hand pump attachable Iron Removal System	S.P. Andey	National Environmental Engineering Research Institute
26.	Hand pump integrated with filtration system for treating contaminated ground water /JeevanDhara- Handpump integrated with filtration	Kirti Ranjan	PayJal Solutions
27.	Light weight unmanned drone	Aakash Sinha and Suryansh Saxena	Omnipresent Robot Technologies Pvt. Ltd.
28.	Liquid Biofertilizers Technology	Rajababu Vyas	
29.	Low cost Indigenous raw materials for making sanitary napkins	Jaydeep Mandal	Aakar Innovations Pvt. Ltd.
30.	Mobile Harvest	Sachin Gaur	MixORG Consulting Services
31.	Mobile Shoe Charger	Mandar Tulankar	Zero Point Energy Pvt Ltd
32.	Multifuel / fuel-hydrid I.C.Engine	Das Ajee	GYATK RVCR Apparatus Private Limited
33.	Nanneer - An Indian Herbal Technology for Water Management and Water Purification	Nandagopalan	NA
34.	OcuDA: Ocular Digital Adaptor	Ramesh S. Ve	Manipal University
35.	Omsafe TM safe disinfactant and Carbamide peroxide, import substitude, a stable solid disinfectant	Dev Lal Sharma	Omatek laboratories Pvt Ltd
36.	OptiBlend kit	Manish Dixit	Eden Energy India Pvt. Ltd.
37.	Papyrus Eficiencia - most eco-friendly and cost efficient paper	Anurag Kumar Kyal	KIIT School of Biotechnology, KIIT University
38.	Photo Dynamic Therapy Laser System	Ramadas MR Pillai	Vinvish Technologies Pvt. Ltd.
39.	Processing of Hazardous Waste	Mohit Jain	Jain Agro Industries
40.	Production of Dietary Fibers and Micro-crystalline Cellulose from Bengal Gram husk and Garlic Peel Husk	Chandramohan Marimuthu	Microcore Research Laboratories India Pvt Ltd
41.	Seed Vigour Enhancement through Magneto Priming	Sandeep Kumar Gupta	Academy Of Embedded Technology
42.	SES- Molecular Diagnostic Services	Ravi Kumar	XCyton Diagnostics Pvt Ltd
43.	Simple Soil Nutrient Analysis using AAT	J. Arunkumar/ K. Perumal	Shri AMM Murugappa Chettiar Research Centre
44.	Smart Energy Solution	Sushanta Banerjee	Indian Space Research Organisation

S. No	Technology Name	Innovator's Name	Company/ Institution Name
45.	Solar Powered Crop Harvester	TJ David	ENTICE-IIIT
46.	Universal camera for digital imaging of anterior and posterior segment eye diseases	Satish C Gupta	Venu Eye Institute
47.	Universal Compactor: UniPactor	Vindhyavesh Tripathi	Shree Vindhya Mechanicals
48.	Universal Multifunction Accelerator	Venu Kandadai	Manjeera Digital Systems Pvt. Ltd.
49.	VAJRA(Vessel desk)	Raghunath P Iohar	Kruti innovations
50.	Vertial Axis Wind Mill (VAWM)	Brijesh Maurya	Tejas Oturkar, Pratik Lotia
51.	Vertical Axis Wind Turbine	Orlando Fernandes	Nontional Conventional Power Devices Pvt Ltd

1. A novel antibiotic adjuvant entity for lowering Antimicrobial Resistance

Key facts:

Innovator's Name	Manu Chaudhary
Company/Institution Name	Venus Remedies Limited
Address	51-52, Industrial Area, Phase -1, Panchkula (Haryana) - 134109
Company website	www.venusremedies.com
IP Status	Indian Patent, Copyright, trademark

Innovation brief

The need of the innovation arises from the fact that there is an increasing incidence of multidrug resistant gram-negative infections in hospital community and settings and there is a growing resistance to commonly used antibiotics in ICU.

Elores comprises of a beta-lactam, a beta-lactamase inhibitor along with Adjuvant as a potentiator in a single injection. It is a solution to the Multi-drug resistant ESBL and MBL producing gram –ve infections and only solution to NDM-1. The approved indications include Lower Respiratory Tract Infections, (HAP/VAP) Urinary Tract Infections, Skin and skin structure Infections, Bone and Joint Infections, Acute bacterial septicaemia (Sepsis), Chronic Suppurative Otitis Media, Surgical Prophylaxis.

2. Technology: A simple endpoint method for intracellular calcium sensing

Key facts:

Innovator's Name	R. V. Omkumar
Company/Institution Name	Rajiv Gandhi Centre For Biotechnology
Address	Jagathy, Thycaud, P. O., Thiruvananthapuram - 695014
Company website	www.rgcb.res.in
IP Status	The innovation is patented in USA and India. European patent is ready for granting.

Innovation brief

The invention is a new method for discovering a class of drugs called "Calcium channel blockers" for neurological and cardiovascular diseases. Many diseases affecting the brain such as Alzheimer's disease, Parkinson's disease, Epilepsy, stoke, etc. and those affecting the cardiovascular system such as Hypertension, Arrhythmia, etc. are all associated with impaired functioning of cellular components called calcium channels. Inhibiting the function of calcium channels using drugs is a strategy for controlling all these diseases. In addition, calcium channels are also involved in taste sensing, pain sensing etc. Thus modulators of calcium channel function have the potential to be pain killer drugs as well as taste modulators that are of interest in food industry. Calcium channel inhibitors are discovered by screening large number of compounds for their ability to inhibit Calcium channel proteins. This process critically depends on the ability to measure the activity of calcium channel proteins i.e., an assay method for the activity of calcium channels. All the currently used calcium channel assays fall in the category of "real time methods" that require powerful and sophisticated instruments and highly specialized technical expertise. Consequently, the process of drug discovery against calcium channels becomes expensive. This method is an "end-point detection method" that is fundamentally different from the existing methods. This is simpler and easier and does not require the sophisticated equipments or the specialized skills required for the existing methods.

3. Technology: A versatile and intelligent biomechanical medical device for regenerating new bone in the human body

Key facts:

Innovator's Name	Rajiv Agarwal
Company/Institution Name	K.G Medical University
Address	Department of Plastic Surgery, K.G Medical University, Lucknow - 226003
Company website	www.kgmu.org
IP status	-

Innovation brief

The technology is a versatile and reliable biomedical device which can regenerate new bone in the human body. This device can be used to treat those parts of the human body that are deficient in bone tissue. The device when implanted on the body helps to increase the length of the bones in cases where the natural bone is lost by disease or due to any other reason. In patients with either lost bone or less developed bones of the face, this device has proven useful in correcting the face deformities.

4. Technology: Alvel Omega 3 Eggs

Key facts:

Innovator's Name	Surekha S Bhalerao
Company/Institution Name	Center for Innovation in Nutrition, Health and Disease
Address	Dhankawadi, Pune - 411043
Company website	-
IP Status	Applied, pending for approval in India

Innovation brief

Modern food is deficient in omega-3 fatty acids. This technology makes the egg healthier and heart friendly. The technology is a step towards Omega 3 nutritional security in the country. Egg is a naturally packed nutrient, dense, protein rich cheap food, consumed by majority of our population both poor and rich. The technology provides over 250 mg of omega 3 per egg packaged within the egg protected from any adulteration possibilities. Omega 3 in these eggs are more bio-available and more affordable as it comes along with high bio-value protein, vitamins, minerals unlike the Omega 3 soft gel capsules. These healthier eggs can increase the consumption of eggs by health conscious consumers, which would boost the poultry industry.

5. Technology: An organic plant growth enhancer and yield promoter

Key facts:

Innovator's Name	Mahendrakar Srinivasa Rao
Company/Institution Name	ICAR- Indian Institute of Horticultural Research
Address	Division of Entomology and Nematology, Indian ICAR- Institute of Horticultural Research Institute, Hessaraghatta Lake (PO), Bangalore – 560 089
Company website	www.iihr.res.in
IP Status	Applied, pending for approval in India

Innovation brief

ARKA – Plant Yield Booster is an organic formulation consisting of Pseudomonas fluorescens and Trichoderma harzianum. The formulation has a dual action formula for plant growth promotion and enhancement of yield. It is a unique product for the management of bacterial, nematode and fungal diseases.It can be used in any agro-climatic regions and any cropping systems, in both organic and intensive cultivation/ farming. It can be used for spraying, drenching and soil amendment, nursery seedling production, in root stock production and in protected cultivation practices.

Crop Range

- Vegetable crops: Tomato, capsicum, okra, brinjal, cabbage, cauliflower, chillies, gherkins, carrot, onion, potato, cabbage, soya bean, beans.
- Flower crops: Tuberose, gerbera, crossandra, chrysanthemum.
- Fruit Crops: Banana, papaya, pomegranate, acid lime, citrus, grapes.
- Crops under protected cultivation: Crops under protected conditions- carnations, gerbera, capsicum, tomato, musk melon and water melon.
- Nursery seedlings: Nursery seedlings of all transplanted vegetable crops.

6. Technology: Artificial Vortex (ArVo) Power Generation

Key facts:

Innovator's Name	Aravind Venukumar
Company/Institution Name	Point5 Innovations, Virtually incubated at Startup Village, Kalamassery
Address	Polothil House, Thriprayar, Nattika P O., Thrissur - 680566
Company website	-
IP Status	Applied

Innovation brief

Artificial Vortex (ArVo) Power Generation is an innovative run-of-the-river (without dams) hydroelectric power generation scheme that effectively extracts kinetic energy from flowing water producing 100% green electricity. By using vortices, the flow and head requirements for power generation is brought down remarkably. The technology addresses the problem of energy crisis and puts forward an innovative technology in harvesting the unexploited immense hydro potential in India, thereby offering a partial solution to the problem of energy deficiency.

7. Technology: Bamboo Greenhouse

Key facts:

Innovator's Name	Arupratan Ghosh
Company/Institution Name	Preson Agritech LLP (on Feb 15)
Address	B – 5 /78, Kalyani, 741235
Company website	www.arupratanghosh.com
IP Status	Applied for patent

Innovation brief

It is a greenhouse that is structured by matured, cured & treated bamboo instead of usual structural elements such as GI/MS/ wood. For that matter, innovative design and construction methods and a new curing method has been generated.

It is difficult to standardize the design of bamboo greenhouses, specifically due to the non-standardized nature of bamboo. Unlike GI/MS pipe etc, bamboo does not have the same dimensions and uniformity with respect to size & shape (diameter/ width/ thickness etc). Thus, bamboo greenhouse is low in height and naturally ventilated. However, there is an enormous scope to work on design of bamboo greenhouse for different climatic situations to avail the benefits of its natural advantages and low cost.

8. Technology: BASP Biotech Processing and Filtration System

Key facts:

Innovator's Name	Bapusaheb Malgonda Patil/ Vikrant Bapusaheb Patil
Company/Institution Name	BASP Industries
Address	G.P Industries Compound, Opp Jawahar Jyoti CHS compound. Lewiswadi. Thane. 400 612
Company website	www.baspfilters.com
IP Status	BASP -The Inventors have already filed IPR proposal on 20th Sept. 2013 and the same has been Published by the Patent Office. (Patent Pending)

Innovation brief

BASP Biotech Processing and Filtration System is a One –Step, very Simple Effective & Economical Solution for High Density Mass Filtration which replaces the conventional Multi-Stage Elaborate Process of Centrifugation followed by Micron Filtration. This novel Technology involves the Separation of High Value Liquid Products obtained from Recombinant Microorganisms High Cell Density Fermentation (HDMF) Broth. The technology is also applicable for Pharma and Biotechnology fields.

It has Revolutionized Processing of HDMF Broth particularly High Value Metabolites & Recombinants Products. Separation of Liquid from Biomass especially in HDMF is very challenging. This demands Cost Effective Separation Technique for Maximum Yield of high value product. Accepting the challenge, a prototype of novel BASP Biotech Processing and Filtration System is developed to address the issue of filtration involving High Density Mass. This novel Technique is 10to 20 times more efficient than the conventional techniques and will prove to be a Breakthrough in Filtration-Separation Technology. This Technique will be a Boon for Pharma and Biotechnology Sector which produces high value products like Vaccines, Enzymes and Metabolites etc as well as extremely valuable Transgenic Recombinant Products.

This novel technique has wide applications in Biomass Filtration-Separation Technology and also in Pharma and Biotech Industries. The technology will be of immense help in Fermentation Industry.

9. Technology: Beta Thalassemia Carrier Detection Kit

Key facts:

Innovator's Name	Prof. M. V. Hegde
Company/Institution Name	Center for Innovation in Nutrition, Health & Disease
Address	Real World Nutrition Laboratory Foundation(RWNLF), Bharati Vidyapeeth University, Dhankawadi, Pune 411043
Company website	-
IP Status	-

Innovation brief

The technology is a diagnostic kit. It consists of a reagent which can be used to detect beta thalassemia in carriers by a simple finger prick blood test.

10. Technology: Bio-Medical Instrument Compatible with Telemedicine System

Key facts:

Innovator's Name	Pramit Ghosh
Company/Institution Name	RCC Institute of Information Technology
Address	Pramit Ghosh Assistant Professor , Department of Computer Science & Engineering, RCC Institute of Information Technology, (Unit of An Autonomous Society under Government of West Bengal) Kolkata 700015, India
Company website	-
IP Status	-

Innovation brief

Pathological investigations play a major role in diagnosis of diseases. But in India and other third world countries, enough pathological infrastructures for medical diagnosis do not exist. Moreover, most of the remote places of those countries have no pathologists.

11. Technology: CareMother- Mobile Pre and High Risk Care

Key facts:

Innovator's Name	Shantanu Pathak
Company/Institution Name	CareNX Innovations Pvt Ltd
Address	CM-305, 3rd, Floor, SINE, CSRE Building IIT, Bombay, Powai, Mumbai-400076
Company website	www.caremother.in
IP Status	Applied for patent

Innovation brief

CareMother is portable digital pregnancy care kit. It serves right from data collection, awareness information, tracking, scheduling, basic medical tests, early diagnosis for high risk pregnancies and anytime anywhere connectivity to doctor. It empowers Gynecologist/Government ability to reach and manage many patients and offer them quality service. It is a mobile application with user interface in multiple languages and unique data entry assists high risk pregnancy prediction test with the help of digital sensors and specially designed platform to record the test results at home and upload it for doctor's information at any place.

Currently hypertension induced Preeclampsia parameters and tests, Diabetes, Anemia, Fever, some special Symptoms Foetal Heart Rate, Hb Count, Weight, Pulse Rate etc. can be covered under CareMother for record and diagnosis and reporting to doctor for analysis. Dos and Don'ts in pregnancy, Exercises in pregnancy, Nutrition, Family Planning, Notifications, Tracker & Scheduler, Meal Planning etc., covered as part of it.

12. Technology: Clean energy generation using plasma process

Key facts:

Innovator's Name	Rajeev Prasad Gupta
Company/Institution Name	Green Systems / Vast Heat Pvt. Ltd.,
Address	303 Shriraj Apartment, Behind Mansi Tower,Vastrapur Road, Ahmedabad – 380 015
Company website	-
IP Status	Patented

Innovation brief

The technology relates to a process for generating cleaner energy from organic waste using Plasma (ionized 4th state of matter) method of energy conversion. Organic waste dried by solar energy is directly converted to heat and light energy. Value proposition is cleaner, cheaper, reliable, renewable and non-hazardous fuels, as compared to burning of fossil fuels. Energy plantations will ensure sustainable source of renewable energy. The technology would reduce global warming agents in the atmosphere and helps in solid waste reduction. The process is different than wet bio-mass or simple waste incineration or Pyrolysis. The plasma process is adaptable for solid fuel IC engine and even for jet propulsion engines.

The venture designs and manufacture innovative energy generator. It is designed around microwave oven, wherein microwave converts dried organic waste to high temperature plasma. The waste is dried in low cost dryers using waste heat and other sources of low temperature heat. This dried waste is exposed to microwaves within microwave oven, resulting in high temperature plasma. The process is clean because no fumes, smoke or toxic gases are released. The technology is also useful for cleaning the smog and suspended particulate emissions from automobile. It reduces the pollution level in big cities such as Delhi, Mumbai, Beijing etc.

13. Technology: Compact rebar bender

Key facts:

Innovator's Name	P.Manikandan
Company/Institution Name	Ankusam Engineering
Address	1/439, near Indian bank, Chinniyampalayam post, Coimbatore - 641062
Company website	www.ankusamengineering.com
IP Status	Applied for patent

Innovation brief

The innovation is a portable compact bar bending machine for making stirrup of 8 mm and 6 mm TMT rod for construction application

14. Technology: Decision Making Tools using Digital Maps

Key facts:

Innovator's Name	Amarsh Chaturvedi
Company/Institution Name	Transerve Technologies Pvt. Ltd.
Address	2nd Floor, CIBA, Agnel Ashram, Verna (Goa) 403722
Company website	www.transervetechnologies.com
IP Status	Patent filing is currently in progress, 2 Trademarks filed

Innovation brief

The innovation is a cloud-based hyperlocal information system, called SmartMu, for Municipal Bodies. It helps streamline their GIS-based data collection and thus enhance revenues. The solution has been adopted by a few municipalities in Western part of India and has helped them in the following aspects:

- Provide floor-by-floor & building-by-building tax visualization and record information (including tax defaulters)
- Manage all types of taxes (property tax, trade license, signage, solid waste, water & sanitation)
- Helps administrators in proactive decision making to evaluate ward-by-ward performance of the city and manage tax collection drive effectively
- Pull out tax reports, publish tax demands on map-based and non-map based interfaces
- Provide mobile-based data collection and update platform to update information from the field on real-time basis
- Capability to integrate with existing GIS databases created by municipalities.

15. Technology: Democratization of Business Intelligence with 1KEY

Key facts:

Innovator's Name	Vikram Kole
Company/Institution Name	MAIA Intelligence Pvt. Ltd.
Address	319, Building 2, Sector 1, Millennium Business Park, Mahape, Navi Mumbai- 400710
Company website	www.maia-intelligence.com
IP Status	-

Innovation brief

1KEY BI is a Business Intelligence (BI) Software which allows business intelligence deployment for masses. BI traditionally has been restricted for the top management use creating a large gap between Management vision and Operational performance of organisations. 1KEY enables data based empowerment to the Operational team members to take informed business decisions to abide by the Management vision, thereby helping organisations to exponentially improve productivity & profitability.

16. Technology: Design and Development of Integrated Plant for Mechanized Production of Value Added Traditional Indian Dairy Products with Better Product Quality and Economy

Key facts:

Innovator's Name	Sunil Patel
Company/Institution Name	Anand Agricultural University
Address	University, Anand (Gujarat)-388 110
Company website	www.aau.in
IP Status	Applied for patent

Innovation brief

Integrated Plant for 'Traditional Indian Dairy Products' is designed and developed at Dairy Engineering Department, SMC College of Dairy Science, AAU, Anand, under AAU-BPD Unit-ICAR-NAIP-I Project. The Plant is designed for mechanized production of TIDP, having capacity of handling 250 kg of milk per hour. The plant is consisting of three basic units (i) Plate Heat Exchanger (PHE), (ii) Twin Cylinder Thin Film Scraped Surface Heat Exchanger (Twin SSHE) and (iii) Batch type Steam Jacketed Kettle. Patent filing for the plant and standard process of mechanized production of Basundi, Halwasan, Kulfi mix and Sandesh using this integrated plant is in process.

17. Technology: DeTect (Normal/High Temperature Defect Detection Technology)

Key facts:

Innovator's Name	Tarun Mishra
Company/Institution Name	DeTect Technologies
Address	2nd Floor, Machine Design Section, IIT Madras, Chennai-600036
Company website	www.detecttechnologies.com
IP Status	Applied for patent

Innovation brief

India has a huge network of pipelines, more than 30,000 Kms. This figure is expected to increase by about 100 percent in 2017. These pipelines are mainly Oil and Gas Refineries or Chemical pipelines. This huge network of pipelines also leads to a continuous increase in the pipeline accidents due to cracks, leaks and corrosion. The main problems although still remain the same for some industries. Some of the major hurdles are the high cost of monitoring these pipelines, as well as the break in production in plants while doing these monitoring. Moreover, in nuclear industries, pipes operate at higher temperatures; there have been no technologies till date that can operate at these temperatures.

DeTect is a product which provides solution to these well known problems. It is not only considerably cheaper but is also designed to work at a very wide range of temperatures which is from sub zero temperatures to higher temperatures, to about 3500C. DeTect is also a continuous monitoring system, which means that it can be embedded in the pipelines before. It has been shown extensively under the lab condition that the prototype can detect almost any kind of defects. It works at a wide range of temperature. Moreover, since the design is simple and does not involve any moving parts, the robustness of this technique is huge.

This sensor works because of the unique selection of a material for wave generation. This material is an amorphous ribbon which uses magnetostriction to generate ultrasonic guided waves within a structure and therefore find any defects or leaks within a structure. It has been designed such that it does not use any couplant or adhesives, which is used by all other similar techniques. Due to this there is no delamination at higher temperatures. Moreover, one of the major improvements in this technology is that no permanent magnets are used against the other existing technology. This reduces cost as well as makes it suitable for higher temperatures, as these magnets loose there magnetism at high temperatures, thereby leaving other sensors redundant at these temperatures. The other advantage is that a long pipeline can be monitored using DeTect from a single point continuously.

18. Technology: DrMHope Cloud based SaaS application for Hospital

Key facts:

Innovator's Name	B.K. Murali
Company/Institution Name	DrMHope
Address	51, Dhantoli, Nagpur - 440012
Company website	www.drmhope.com
IP Status	-

Innovation brief

DrMHope is a SaaS based hospital information system on open source trusted technology. It is designed to integrate the different information systems into one single efficient system. Solves the problems inherent in a network of multiple programs that are not compatible. It can integrate almost any type of services, systems, departments, clinics, processes, data, communication, etc. that exist in a hospital. Can even handle non-medical services or functions like security, maintenance etc. There is no need for special user interface software. All program modules are processed on the server side. Even if the hospital is located in remote areas with poor internet connectivity, works offline and syncs later. Reduces medical errors and improves quality of care.

19. Technology: Engineered bamboo houses: A cost-effective low-embodied energy disaster-resistant solution

Key facts:

Innovator's Name	Parthasarathi Mukhopadhyay
Company/Institution Name	Indian Institute of Engineering Science and Technology, Shibpur
Address	Flat B/3, "Ironside Apartments" 11/3B Old Ballygunge 2nd Lane, Kolkata – 700 019
Company website	www.iiests.ac.in
IP Status	Applied for patent

Innovation brief

The technology consists of constructing engineered houses using chemically treated bamboo for population Below Poverty Line (BPL). The absence of strength data and less durability inhibits engineered use of Bamboo, a traditional building material of the poor. The proposed technology contributes in value-addition to such houses by addressing these two issues. The bamboo 'floor-board' and 'wall-board' with respectively cement topping and plastering, a unique feature, further up-grade these houses at a minimal cost.

Construction cost of the proposed bamboo houses will be about 50-60% of conventional 'pucca' (permanent) housing solutions. This is an initial estimate. Further cost reduction is possible with economic procurement of bamboo and its mechanized processing. Thus, this can be a viable alternative for social housing schemes like 'Indira Awaas Yojana' (IAY) of Govt. of India.

Furthermore the replacement of conventional building materials like steel, cement, brick etc. by bamboo reduces the energy required and CO_2 released during their manufacture considerably. It may be noted that 22% of the greenhouse gases produced in developing and developed economies is caused by construction industry. Also, bamboo releases 35% more oxygen than equivalent stands of trees, and some species are reported to even sequester up to 12 tons of CO_2 per hectare. The hollow tubular cross-section and fibrous morphology makes bamboo a natural choice against earthquakes. Proposed technology will also take care of wind load and hence, huge economic damages caused by earthquakes and cyclones can be minimized.

20. Technology: Environmental Remediation Catalyst

Key facts:

Innovator's Name	Bharat Lodha
Company/Institution Name	Battelle Science and Technology India Pvt Ltd.
Address	302, Panchshil technology Park, Hinjewadi, Pune - 411057
Company website	www.battelle.org
IP Status	-

Innovation brief

The proposed technology is a low cost, non metal remediation catalyst synthesized from the waste of the food industry. The catalyst is of natural origin, bio-degradable and non toxic in nature. Currently there are issues with disposal of this waste material in the food industry. The proposed catalyst is a very good adsorbent of contaminants as well as reactant (hydrogen, which is released in nZVI based reactions). The rate of remediation increases due to its sorption-reaction mechanism on the surface of the catalyst.

21. Technology: Fault tolerant Unmanned aerial vehicle autopilot

Key facts:

Innovator's Name	Srinath Mallikarjunan
Company/Institution Name	Unmanned Dynamics
Address	A6 Arundathi Apartments, 97 C.P. Ramaswamy Road Chennai-600018
Company website	www.unmanned-dynamics.com
IP Status	-

Innovation brief

High-end autopilot that takes advantage of the revolution taking place in low cost sensors and chips with huge processing power while meeting stringent performance specifications.

Two of the main breakthroughs achieved are:

- In house calibration techniques for low-cost sensors (Gyroscopes, accelerometers, Magnetometers) typically the sort found in cell-phones, which improves their performance and reliability to almost Military grade. This entailed building of machine for calibration of the autopilots
- L1 adaptive control ensures that the innovator has globally stabilizing control law with guaranteed transient performance. This is unique and unlike linearized, gain-scheduled controllers that are prevalent in industry.

22. Technology: Flame ware / Ceramic cooking ware

Key facts:

Innovator's Name	Bharat Gidwani
Company/Institution Name	Ninads Pottery
Address	12/A, Stavely Road, Camp, Pune - 411001
Company website	www.ninadspottery.com
IP Status	-

Innovation brief

Ceramic cookware with permanent mineral based bio ceramic coating.It addresses the unhealthy cooking utensils currently in the market viz non stick coating Teflon, aluminium and others.

23. Technology: Grameen Bandhu Plant (GBP)

Key facts:

Innovator's Name	Raymond Myles
Company/Institution Name	-
Address	C-37, Jeewan Park, Pankha road, Uttam Nagar, Delhi-110059
Company website	-
IP Status	-

Innovation brief

Grameen bandhu, provides clean and safe energy in the form of "biogas" as well as manure to rural households. The plant generates biogas from the dung (manure) of domestic farm animals. The innovation uses environmental friendly bamboo reinforced with cement concrete as the construction material for biogas plants and involves women to participate in the construction process, thus making them stakeholders in the process. The training they receive in this also provides employment opportunities and creates an environment that fosters rural entrepreneurship.

24. Technology: GSM Mobile Starter For Motor

Key facts:

Innovator's Name	Vijay Mehta
Company/Institution Name	Khyatee Electronics Pvt. Ltd.
Address	Office No 5, Phule Corner,Above Hotel Panchami, Pune Satara Road,Pune 411009
Company website	www.khyatee.in
IP Status	-

Innovation brief

The "Khyatee Gsm Wireless Motor Mangement" is an intelligent and flexible motor management system. It offers comprehensive motor management including extensive protection, monitoring and control functions. With easy to use operation and on-site diagnostic data helps to carry out predictive maintenance and GSM Technology based operations.This has Dual core microcontroller and GSM SIM based technology which is unique, reliable, and cost effective and continues to monitor all parameters and applications simultaneously at all the time and there is no delay in any fault condition detection, monitoring and providing safety. It can also monitor and control various parameters like flow, temperature, pressure, energy, humidity, etc for different applications.

This product is very unique as it has three modes to operate.

- Use switches given on the unit
- Dial the GSM SIM card inserted in the unit and use voice interactive service.
- By sending SMS to unit to do /set all the parameters

25. Technology: Hand pump attachable Iron Removal System

Key facts:

Innovator's Name	S.P. Andey
Company/Institution Name	National Environmental Engineering Research Institute
Address	National Environmental Engineering Research Institute (CSIR- NEERI), Nehru Marg, Nagpur - 440 020.
Company website	www.neeri.res.in
IP Status	-

Innovation brief

It is low-tech, low-cost, natural based system with the principle of KISS (Keep It Sweet, Simple). Globally, groundwater systems provide almost 40% of the world's drinking water. Iron contamination in groundwater is one of the major concerns as it affects taste/appearance and has adverse effect on domestic use, water supply structures and promotes ironbacterial growth. Iron contamination may cause digestive disorders, skin diseases and dental problems. As per Bureau of Indian Standards (BIS), the permissive and excessive guidelines for Iron are 0.3 and 1.0 mg/L respectively in drinking water. As per Ministry of Drinking Water and Sanitation (MDWS), more than 50,000 habitations in more than 25 states in India are affected due to excess Iron in groundwater. In this developed system, Iron is precipitated by aeration with air, then properly settled and finally filtered. All the treatment processes like aeration, sedimentation and filtration are incorporated in a single unit which is attached to an existing Hand-pump. The system treats the water with Iron content in the range of 1 – 30 mg//L.

26. Technology: Hand pump integrated with filtration system for treating contaminated ground water /JeevanDhara- Handpump integrated with filtration

Key facts:

Innovator's Name	Kirti Ranjan
Company/Institution Name	PayJal Solutions
Address	E-118, Sushant lok, E Block, Gurgaon - 122002
Company website	-
IP Status	-

Innovation brief

The Technology is a newly designed community water hand pump which filters water. It uses muscular power/solar power/a combination of both to pump as well as filter water. The design and control of the handpump is such that it provides pure drinking (upto Reverse Osmosis grade) water for a whole community of 20 families.

27. Technology: Light weight unmanned drone

Key facts:

Innovator's Name	Aakash Sinha and Suryansh Saxena
Company/Institution Name	Omnipresent Robot Technologies PVT LTD
Address	A28/A29, Okhla Industrial Area Phase -1, New Delhi -110020
Company website	www.omnipresenttech.com
IP Status	Patent

Innovation brief

Hansa – is a Portable, high altitude, long endurance Drone. Essentially, it is an unmanned Airplane with about 2m wingspan and can be hand launched. It is made of Balsa wood and Fiberglass and weighs about 1.2kg. Its has a unique high payload capacity of 3kg, which is highest for any drone of this weight category. It has GPS and Autopilot and can autonomously take off, follow a mission and land. It has got a unique day/night camera with 20x optical zoom, ability to detect and track a human from 1km distance. It can fly altitudes of 1km for about 4hours and can be controlled from upto 10km distance.

28. Technology: Liquid Biofertilizers Technology

Key facts:

Innovator's Name	Rajababu Vyas
Company/Institution Name	-
Address	Anand Agril University, ANAND 388 110, India
Company website	www.aau.in
IP Status	-

Innovation brief

Liquid Bio-fertilizers (LBF) are suspensions having useful cultures of bacteria viz., Azotobacter chroococcum, Azospirillum lipoferum and Bacillus coagulans which fix atmospheric nitrogen and solubilize insoluble phosphates and make it available for the plants. LBF is safe, cost effective natural eco-friendly crop nutrient substitute to chemical fertilizers which can reduce chemical fertilizers application by 25 to 50 % in crops.

Existing marketed biofertilizer powder packets exhibits shorter shelf life of 6 months and are based on non renewable source such as, lignite derived from mines which is in-consistent in quality and quantity, flammable, possess low pH , more prone to cause occupational health hazards restraining prospects of the product. Also, when it reaches from factory to farmers, bacterial population drastically get reduced. Considering these drawbacks / limitations, LBF technology is developed having 10 times more population per milliliter longer shelf life more than one year, easy transport and having prospects in drip irrigation and Hi-Tech protective cultivation as fertigation as well as best adopted as a component in organic farming.

29. Technology: Low cost Indigenous raw materials for making sanitary napkins

Key facts:

Innovator's Name	Jaydeep Mandal
Company/Institution Name	Aakar Innovations Pvt. Ltd.
Address	B-303,Great Eastern Summit,Sec-15,CBD Belapur,Navi Mumbai-400614
Company website	www.aakarinnovations.com
IP Status	Patent

Innovation brief

About 300 million women in India do not use sanitary napkins. Instead they use unsterilized and often unclean, old rags, plastics etc resulting in various urinary tract diseases, cervical cancers and labor complications which claim thousands of lives each year. With only 12% penetration at present, existing feminine care brands are focused on the more affluent sections of our society and don't have the required reach, product range or focus to serve the underprivileged. The innovator is a social enterprise which creates a sustainable and profitable business model by producing Anandi, the brand for low cost 100% biodegradable sanitary napkins of high quality using low cost indigenous raw materials & low cost highly efficient machine & involving village women as workforce, thereby addressing this serious issue and market gap.

The technology's raw material for making 100% biodegradable Sanitary Napkins comes from indigenous pulps Bagasse (Sugarcane waste),Bamboo stem, Knit-wear waste, banana stem, Water Hyacinth etc.) as an absorbent material and bio-degradable & compostable plastic and bio-non woven fabric as bottom & top layer of napkin. These alternative materials will reduce sanitary napkins production cost by 30-40% while the quality of napkins will be higher as it involves mixing different pulps in unique combinations which have specific properties required for a high quality napkins and all these pulps are agri/plant waste & easily available in various parts of India. Biodegradable top & back layer of napkins will ensure easy disposal of napkins & will not harm environment like existing MNC napkins. This is primarily used for alternative to expensive imported pine wood pulp in making sanitary napkins. It can also be used in diaper as an absorbent.

30. Technology: Mobile Harvest

Key facts:

Innovator's Name	Sachin Gaur
Company/Institution Name	MixORG Consulting Services (IIGP participation was under Mobile Harvest, which is a sister concern of MixORG but now merged with MixORG, for future please use MixORG for contact details)
Address	Maple 1, 216, Gulmohur Enclave, Ghaziabad - 201001
Company website	www.mixorg.com
IP Status	Applied for a patent

Innovation brief

Mobile Harvest is an intuitive and literacy neutral community networking platform. The application enables people to create and share their stories, like an oral Wikipedia. Content over the application is disseminated in the form of audio-video format.

31. Technology: Mobile Shoe Charger

Key facts:

Innovator's Name	Mandar Tulankar
Company/Institution Name	Zero Point Energy Pvt Ltd
Address	Jayanti Mansion1 Manish Nagar Ring Road, Nagpur - 440015
Company website	www.zeropointenergi.com
IP Status	Patent

Innovation brief

The basic day to day routine work activities releasing enormous amount of pressure can be fruitfully used to drive power, using the natural tendency of some elements.The innovator has devised a simple sandwich structure that uses the routine pressure and gets activated. These can be miniaturized to be small enough to fit into a shoe as Mobile shoe charger.

Some crystals possess' natural property of delivering charge when fractured without breaking them. Using this property of the crystal we can create mats that could be used as flooring to be placed on areas where continuous activities are carried out. This assembly can be compressed small enough to be fit into the shoe in the form of Mobile shoe charger and at the same time can be modulated big enough to be stand alone power supply for a premise. The crystals are naturally available and can be easily molded as per need and demand of the supply. The sandwich assembly is easy to install and does not require re engineering of the installed light circuit. These mats can be directly placed upon the existing flooring and still will not cause any inconceivability to the passers by. This is clean source of power that generates no by products during the generation.

32. Technology: Multifuel / fuel-hydrid I.C.Engine

Key facts:

Innovator's Name	Das Ajee Kamath
Company/Institution Name	GYATK RVCR Apparatus Private Limited
Address	Bunglow No 48, TATA Motors Senior Officers Colony, Pimpri, OPP Tata Motors CVBU Plant, Pune - 411039
Company website	www.gyatk.com
IP Status	-

Innovation brief

RVCR (Rotary/Roto Dynamic Variable Compression Ratio) technology is about a new seed kinematic mechanism which is applicable to various downstream engineering applications like Car engines, Pumps; Compressors, Pumps; Wind and Water Power generators etc. It is a superior yet simpler alternative to the currently used Crank and other kinematic mechanisms which results in superior products in terms of features like energy efficiency and carbon foot print.

The technology when applied to car engines makes a highly fuel efficient fuel hybrid/ multi fuel Car, wherein the car can run on varying choices of fuel like petrol, diesel, bio gas or hydrogen. A user has the choice to use the best fuel available and does not have to depend on one rigid fuel like petrol (GAS oil) in case of petrol car etc. Similarly RVCR technology when applied to wind motors results in highly superior wind motor power generator in terms of efficiency and installation cum running cost (superior alternative to the 3 Blade wind turbine used for wind energy power generation). The technology enables the VCR feature (a feature which was(is) globally pursued by almost all Major Industry Players through the 20th century since Sir Harry Ricardo First attempted in 1920's) that is empirically accepted to be resulting in high efficiency and Multiple fuel capability.

33. Technology: Nanneer - An Indian Herbal Technology for Water Management and Water Purification

Key facts:

Innovator's Name	Nandagopalan
Company/Institution Name	-
Address	Old no:29, New no:65, 3rd Main Road, Gandhi Nagar, Adyar, Chennai-600020
Company website	-
IP Status	-

Innovation brief

The innovation is named by Revolution as "Nanneer". Nanneer means good Water. This product is a herbal water which is extremely human and nature friendly. The outcome of this innovation is based on classical sciences of the ancient Tamil heritage.Using traditional method, extracting potassium value without disturbing its potency from 6 different species from the plant kingdom which will enable to produce this herbal water called Nanneer.

Nanneer is edible herbal water which will prove that it is extremely human friendly.It is an effective de-toxin and anti bacterial which makes it a useful tool to protect agriculture from any chemical pollution as a powerful pesticide.

34. Technology: OcuDA: Ocular Digital Adaptor

Key facts:

Innovator's Name	Ramesh S. Ve
Company/Institution Name	Manipal University
Address	Asst Professor, Department of Optometry, Manipal College of Allied Health Sciences, Manipal - 576104
Company website	www.manipal.edu
IP Status	-

Innovation brief

Ocular Digital Adapter (OcuDA) is a simple and compact attachment (external), made to affix to any camera (hotshot, web camera, smartphone etc.) and take a good picture of the front portion (Anterior segment) of the eye. OcuDA is a cost effective, compact portable version of illumination system of slit lamp biomicroscope, used in clinical examination. Combined to any conventional camera images of the front of eye could be taken, which can be further analyzed and used for effective tele-ophthalmic practices.

35. Technology: Omsafe TM safe disinfactant and 2.Carbamide peroxide, import substitude, a stable solid disinfactant

Key facts:

Innovator's Name	Dev Lal Sharma
Company/Institution Name	Omatek laboratories Pvt Ltd
Address	178, Sector F, Sanwer Road, Industrial Area Indore - 452015
Company website	www.omateklab.com
IP Status	Omatek® Trademark for company Omsafe TM for edible per acid disinfactant Omasil TM for atmosphere disinfactant hydrogen peroxide with silver nitrate, Carbamide peroxide unique manufacturer of stable products. Patents are to be taken in this year.

Innovation brief

New Edible, safe food preservative and disinfecting agents, organic peracids OmsafeTM and OmasilTM are brands of range of disinfactants for food, water and soil, per acids and carbamide peroxide. It is a unique producer in India and is sold directly to food processing, dentists and traders of various parts.

36. OptiBlend kit

Key facts:

Innovator's Name	Manish Dixit
Company/Institution Name	Eden Energy India Pvt. Ltd.
Address	S-2, Kushan Appt, Friends Colony, Ambawadi, Ahmedabad - 380015
Company website	www.edenenergy.co.in
IP Status	-

Innovation brief

Optiblend system is an innovative retrofit technology developed for a wide range of diesel engine applications. This economical kit displaces diesel with biogas/natural gas/syn-gas or any other alternative fuels up to 70% without any major modifications to the internal components of the stock fuel management system. The ignition technology is still compression ignited technology that is predominantly associated with DG set engines. Optiblend system tunes the DG engine across the entire range of engine load for optimized displacement of diesel fuel (economic advantage) and offers emission benefits also without compromising engine performance and safety matters.

37. Technology: Papyrus Eficiencia - most eco-friendly and cost efficient paper

Key facts:

Innovator's Name	Anurag Kumar Kyal
Company/Institution Name	KIIT School of Biotechnology, KIIT University
Address	KIIT School of Biotechnology, Campus 11, KIIT University, Patia, Bhubaneswar – 751024
Company website	www.kiitbiotech.ac.in
IP Status	Patent in process

Innovation brief

Papyrus Eficiencia involves producing paper using biologically-engineered process. The technique developed provides paper which is 30-35% cheaper than its counterpart in the market; with lowest energy consumption and a halt to nearly all the environmental damages involved in its production especially deforestation and pollution i.e. nearly zero environmental damage unlike conventional paper producing techniques. There is no quality compromise when compared to market available paper. Also the alternative source of pulp used unlike traditional sources would reduce deforestation to a minimal and a paper within everyone's budget.

38. Technology: Photo Dynamic Therapy Laser System

Key facts:

Innovator's Name	Ramadas MR Pillai
Company/Institution Name	Vinvish Technologies Pvt. Ltd.
Address	C-16, Thejaswini Building, Technopark, Trivandrum - 695581
Company website	www.vinvish.com
IP Status	-

Innovation brief

Photodynamic Therapy (PDT) is a powerful therapeutic technique used for the destruction of cancerous cells. The principle of PDT is based on a photochemical reaction, by light activation of a photosensitizing drug at a particular wavelength which causes tumor cell death. The excited photosensitizing drug transfers energy to ground state of molecular oxygen. The excited-state singlet oxygen thus formed is very reactive and has the ability to oxidize bio-organic molecules, such as proteins, nucleic acids and lipids. Thus, PDT has an advantage over other therapeutic modalities of treatment owing to its ability to get attached directly to the membranes of pathogenic cells and also due to the possibility for accurate light delivery to the affected tissue.

PDT is widely used to cure the skin, oral and cervical type cancers. The uniqueness of PDT laser system is its minimal side effects, reduced long-term morbidity, no drug resistance and the fact that PDT does not compromise future treatment options for patients with residual or recurrent disease.

39. Technology: Processing of Hazardous Waste

Key facts:

Innovator's Name	Mohit Jain
Company/Institution Name	Jain Agro Industries
Address	House No. 649, P.L.A., Hisar - 125001
Company website	-
IP Status	-

Innovation brief

The technology is to extract oil from the spent bleaching earth (a hazardous waste by-product of the vegetable oil refining process/ lube oil refining process). The recovered vegetable oil can be used for soap manufacturing and poultry feed industries. It can also be subjected to further processing for value added products such as biodiesel via trans-esterfication process. The recovered lube oil has very high calorific value and hence can be used as a heating/ furnace oil. The technology can either be implemented as an integral part of the oil refineries which have got large refining capacity, or as a standalone project in the vicinity of cluster of small refiners.

40. Technology: Production of Dietary Fibers and Micro-crystalline Cellulose from Bengal Gram husk and Garlic Peel Husk

Key facts:

Innovator's Name	Chandramohan Marimuthu
Company/Institution Name	Microcore Research Laboratories India Pvt Ltd
Address	Microcore Research Laboratories India Pvt Ltd9th km, 30 Feet Road, 204-A, Avilpoondurai Main Road, Checkmedu, Erode - 638115, Tamil Nadu. 0424 2337300
Company website	www.microcoreresearch.com
IP Status	-

Innovation brief

The technology is about conversion of the Indian Agro Waste in to Wealth. Over six years research work in screening more than 500 varieties of agro wastes such as husk, hulls, bran, straw, pod, and leaf as inexpensive source of renewable resources effected the identify the feasibility to produce dietary fibers in India. The research has led to development of sustainable technologies to produce soluble, insoluble dietary fibers and micro crystalline cellulose in India. The advantage of our technology would facilitate to cut down the pulp imported from other countries and largely utilize the renewable resource available in India and also manage the domestic need on Dietary fibers and Micro crystalline Cellulose in domestic and also export opportunities.

41. Technology: Seed Vigour Enhancement through Magneto Priming

Key facts:

Innovator's Name	Sandeep Kumar Gupta
Company/Institution Name	Academy Of Embedded Technology
Address	100 U.B Jawahar Nagar Delhi-110007
Company website	www.aet-embedtech.com
IP Status	-

Innovation brief

Vigor tests can monitor seed quality through every seed production phase from harvesting, storage, conditioning, bagging, and planting. They enable adverse practices to be readily detected and corrective action to be taken.

The technology is about stimulation of seeds to improve competitiveness of seedling growth under normal or harsh environment. It simply charges the seed to compete in a harsh environment without any genetic modifications. The magnetic stimulation process involves exposure of seed samples to magnetic radiation for a particular duration of time which enhances the seed vigor.

42. Technology: SES- Molecular Diagnostic Services

Key facts:

Innovator's Name	Ravi Kumar
Company/Institution Name	XCyton Diagnostics Pvt Ltd
Address	No 449, 10th Cross, 4th Phase, Peenya Industrial Area, Bangalore - 560058
Company website	www.xcyton.com
IP Status	-

Innovation brief

XCyton's SYNDROME EVALUATION SYSTEM (SES) allows for the simultaneous identification of multiple organisms like bacteria, Viruses, Fungi and parasites in a single test from a single sample.

With XCyton's Syndrome Evaluation System, the innovator has created a paradigm shift from disease based sequential diagnosis to syndrome based diagnosis. In one sample, one can test, all the probable causative agents that cause a a syndrome can be diagnosed, in a short duration of just 7 hours, thus leading to early initiation of appropriate therapy and reduction of death and disability.

The technology involves extraction of the genetic material of the causative agent from the given specimen and simultaneously amplifying the "Virulence Specific Signature genes" of all the causative agents, followed by "Sequence Specific Hybridization".

The amplification of the gene allows for higher sensitivity of the test and the renaturation of the amplified signature gene to its chemically identified complementary gene sequence on the SES allows for higher specificity of the test. And the simultaneous amplification of all the causative agents allows for early diagnosis of the infection.

43. Technology: Simple Soil Nutrient Analysis using AAT

Key facts:

Innovator's Name	J. Arunkumar/ K. Perumal
Company/Institution Name	Shri AMM Murugappa Chettiar Research Centre
Address	Taramani, Chennai - 600113
Company website	www.amm-mcrc.org
IP Status	Patent

Innovation brief

Alternative Analytical Technology (AAT) is a simple, cost effective and reliable technology to determine soil nutrients rapidly. AAT is based on subjecting a small sample of soil to simple chromatography and using image processing for obtaining a comprehensive, quantitative soil nutrient analysis. The test result provides alerts on excesses or deficiency of nutrients. The resultant soil analysis is converted by software to recommend 5 suitable crops for the particular soil as well as fertilizers, secondary and micronutrient requirements for the chosen crop.

AAT gives a quantitative analysis of soil including pH, Electrical Conductivity, Organic Carbon content, Humus content, Primary nutrients-Nitrogen (N), Phosphorus (P), Potassium (K), Secondary nutrients- Calcium (Ca) and Sulphur (S) and 8 key micronutrients. This system will help the farmer maintain the health of his soil and protect his crop yield by identifying soil deficiency. This can be done near or on his farm at about 20 times less than cost incurred by him with conventional laboratories. The results can be made available within 6-8 hrs instead of a typical waiting period of 7-12 days. The technology has the following advantages:

- Low capex investment - 2% of conventional labs
- Low Operating expenses - 12.5% of conventional lab
- Lesser number of labs - 50% of conventional labs

44. Technology: Smart Energy Solution

Key facts:

Innovator's Name	Sushanta Banerjee
Company/Institution Name	Indian Space Research Organisation
Address	Flat No:22080, Janapriya Apartments, Attapur Mehdipatnam, Hyderabad - 500048
Company website	www.isro.gov.in
IP Status	-

Innovation brief

Related to Energy & its utility and conservation of Energy achieved by using renewable energy sources.

45. Technology: Solar Powered Crop Harvester

Key facts:

Innovator's Name	T.J. David
Company/Institution Name	ENTICE-IIIT
Address	T.J.David, Project Coordinator, ENTICE, IIIT, Gachibowli-500032, Hyderabad
Company website	www.iiit.ac.in
IP Status	-

Innovation brief

The prototype is expected to provide solutions for all the challenges faced by the farmer at the same time making farm mechanization not only a feasible option but also a source of recurring revenue for the farmer. The product takes a meager 5 KW and that too runs on solar/ grid power. During the off season, the machine which has a 20 KW battery backup serves as a power hub for farming activities like irrigation and domestic needs. It provides fodder that is suitable for consumption for the livestock. It is a completely unmanned vehicle operated using a mobile phone.

46. Technology: Universal camera for digital imaging of anterior and posterior segment eye diseases

Key facts:

Innovator's Name	Satish C Gupta
Company/Institution Name	Venu Eye Institute
Address	1/31, Press Enclave Road, Sheikh Sarai Institutional Area, Phase-2, New Delhi - 110017
Company website	www.venueyeinstitute.org
IP Status	-

Innovation brief

This is a low cost, image capturing device which is capable of taking pictures of anterior segment of the eye as well as the retina of the eye in digital format. These images can then be used for tele-ophthalmology.

47. Technology: Universal Compactor: UniPactor

Key facts:

Innovator's Name	Vindhyavesh Tripathi
Company/Institution Name	Shree Vindhya Mechanicals
Address	Rajiv Nagar, Nagpur - 440025
Company website	www.svmech.com
IP Status	-

Innovation brief

Unipactor is a pellet mill machine with customizable parts to suit various user purposes. The machine is appropriate for compressing a variety of fibrous biomass materials such as corn (maize) husks, peanut shells, rice husks, corncobs, cotton seed hulls, wheat by-products, sunflower seed shells, sawdust, cotton stalks, weeds, house refuse, waste-plastic and similar types of factory waste. It is also suitable for raw materials which are otherwise difficult to pelletize due to low bonding ratios. Organic bacterial manure, organic fertilizer and compound fertilizer may all be pelletized by our machines at low temperatures.

48. Technology: Universal Multifunction Accelerator

Key facts:

Innovator's Name	Venu Kandadai
Company/Institution Name	Manjeera Digital Systems Pvt. Ltd.
Address	Plot No. 23 Laxmi Enclave Gachibowli, Hyderabad - 500032
Company website	www.manjeerads.com
IP Status	-

Innovation brief

Universal Multifunction Accelerator (UMA)UMA is a new and efficient method and architecture for performing computations using patent pending Middle Stratum Operations (MSO) based technology. UMA enables computers and chips to perform faster at lower energy consumption.

49. Technology: VAJRA (Vessel desk)

Key facts:

Innovator's Name	Raghunath P Lohar
Company/Institution Name	Center for Innovation and Business Acceleration
Address	Agnel Technical Education Complex Verna, Salcete Goa 403 722
Company website	-
IP Status	-

Innovation brief

"Vajra" is a device which distributes load over head to shoulders. Also, it is multi-purpose and muti-tasking and can be used by all kind of labourers and acts like a safety suit also. The technology is focusing on addressing and solving the problem of lifting and moving all kind of materials and goods.

50. Technology: Vertial Axis Wind Mill (VAWM)

Key facts:

Innovator's Name	Brijesh Maurya, Tejas Oturkar and Pratik Lotia
Company/Institution Name	Hari Impex & Ventech
Address	B-301, Sai Charan Residency, Ramdeo Park Cross Road, Behind Devtara Apt, Mira Road East, Thane-401105
Company website	-
IP Status	-

Innovation brief

This technology includes a Vertical Axis Wind Turbine. When less amount of space is available for setup of wind turbines, the VAWM is more efficient than the traditional Horizontal Axis Wind Turbines. In urban areas, space availabilty is low and there is a need to generate energy through renewable sources (clean green energy) to cut down the amount of carbon footprints. VAWM serves as a perfect example for setting up efficient green energy solutions. The turbine system rotates due to the wind, thus generating high rotational mechanical power. The Blades are specially designed so as having better contact areas with the wind & hence sweep a large volume to generate a high torque. The angle of contact is so adjusted such that it overcomes the problem of pulsatory torque which was a drawback of the traditional wind turbines. The blade material is made of high quality carbon re-inforced fiber which can resist negative effects due to intense solar light and other environmental changes. The mechanical energy generated is transferred to an alternator via a gear system which directly converts mechanical power in AC (Alternating Current) power. The energy generated can be fed in to energy grid via proper mechanism.

51. Technology: Vertical Axis Wind Turbine

Key facts:

Innovator's Name	Orlando Fernandes
Company/Institution Name	Nontional Conventional Power Devices Pvt Ltd
Address	A-9 Neugi Nagar, Portais, Panaji, Goa - 403001
Company website	-
IP Status	-

Innovation brief

Series of Vertical Axis Wind Turbines, ranging from wattage's from 30W to 5000W, Wind + Solar hybrid systems. Currently importing white labeled micro inverter sytems for the Solar PV installations. We also want to develop our own microinverter modules and control systems, and are working with power electronics chip manufacturers to complete the design.

Innovator has also started developing self contained Concentrated Solar Power plants of 1KW capacity (designed to be easily scalable to MW capacities), these will consist of three modules i) Heat extraction from Solar insolation and/or Industrial processes module ii)Thermal Storage module, using PCM's / molten salts 3) Power generation module, using tesla disk + altenator combination.

Technologies Selected in IIGP 2014

Technologies Selected in IIGP 2014

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	Advanced PCM heat exhanger for cold storage	Rajat Gupta	Thermal energy Service Solutions Pvt. Ltd.
2.	Assisted respiration	Cyja Jose	OneBreath India Pvt. Ltd.
3.	Bhungroo- both waterlogging & irrigation solution	Biplab Ketan Paul	Naireeta Services Private Limited
4.	Bio-adhesive	A. Gnanamani	CSIR- Central Leather Research Institute
5.	Broad spectrum root canal filling composition for endodontic usage	Rajdeep Pavaskar	GDC, Goa
6.	CardioTrack - Remote ECG Diagnostics	Avin Agarwal	Uber Diagnostics Private Limited
7.	Cloud Computing Platform for Indian language Application	Phani Bhushan	Grass Root Software Innovation Tech Pvt. Ltd.
8.	Companion diagnostics for diabetes	Arumugam Muruganandam	Affigenix Biosloutions Pvt Ltd.
9.	Computer program for DNA marker discovery	V Arunachalam	ICAR (Indian Council of Agricultural Research) Research Complex for Goa
10.	Converting Shuttle loom to rapier loom	Ravinder Vannam, Narender Vannam	Sri Sai Textile Consultancy / Shreenidhi Green Services
11.	Data Driven Energy Optimization for Telecom Towers	Rushabh Shah	Panchsheel Research Private Limited
12.	ECG using an Android Smartphone	Gajanan Nagarsekar	Kallows Engineering India Pvt. Ltd.
13.	Edible safe biocide /disinfectant	Dev Lal Sharma	Omatek lab Pvt Ltd
14.	EMA - Live Aquafeed	Stanley Abraham L	Centre for Ocean Research, Sathyabama University
15.	Emergency labour cot	Gayathree Mohan	Rite Products
16.	E-waste recycling and metal separation plant	D P Prabhu / Rupal Fadia	Response Waste Management and Research Private Limited
17.	Floating wetland ecosystem	Niranjan Kolekar	Eco Support Pvt. Ltd.
18.	Geothermal cooling technology	Arun Shenoy	GIBSS
19.	Hurdle technology for processing of shelf stable meat products	R. Thomas	ICAR-National Research Centre on Pig, Indian Council of Agricultural Research
20.	ICT intervention to empower maternal healthcare	Saurabh Srivastava / Keyru Sorathia	IIT Guwahati
21.	Intelligent Water Management System	Jitender Bajaj	REDI TECHNOLOGIES PVT LTD
22.	Intuitive Bigdata Processing Framework	Vasanth Ravula	Relgo Networks Pvt LTd
23.	Low cost automated web security solution	Lavakumar Kuppan	Ironwasp Information Security Solutions Pvt Ltd
24.	Low cost, no consumable waterless urinal technology	Uttam Banerjee	Ekam Eco Solutions Pvt. Ltd
25.	Low cost soil & water testing kit	Archana Sarma Goswami	Easy Solutions

S. No	Technology Name	Innovator's Name	Company/ Institution Name
26.	Low cost solar parabolic dish concentrator	G Madan Mohan Reddy	Solwedish Solar Pvt. Ltd.
27.	Medical diagnostic test kit	Dilip S. Velaskar	Thrombochek Labs Pvt Ltd
28.	Mosquito breeding disruptive device-TAKE IT EAZZY	E.C. Thomas	Mosquito Breeding Disruptive Device-Take It Eazzy
29.	Multifunctional finishing of textiles using eco-friendly plasma technology	Shital S Palaskar	The Bombay Textile research Association
30.	nHA-Vitamin - Polymer hybrid microsphere	P. N. Shilpa, Ph. D	Virtis Bio Labs Pvt. Ltd.
31.	Non-invasive oral cancer detection device	K.R.Suresh K Nair	Innobreeze Communication Technologies Pvt Ltd.
32.	Nutrient sequestration from waste water and reuse	Shaon Ray Chaudhuri	West Bengal University of Technology
33.	Pest-repellent Food Protecting Sheets	Sudhir Reddy	LEELA HOLDINGS
34.	Redox engineering for 3-Hydroxypropionic acid	Sathyavrathan Pathanjali	SVBiotech
35.	Smaat community water center	Karunakara M Reddy	Smaat India Private Limited
36.	System & method for managing pressure & flow rate	Sunil Kumar	Individual (then, in the year 2014) Mittal Intellectual Properties OPC Pvt. Ltd. (now)
37.	Technology platform for producing proteins and viral therapies	Vishwas D. Joshi	Seagull BioSolutions Pvt. Ltd.
38.	The willow - aerial surveillance system	Rohan Verma	BlackProp Tree
39.	Traditional medicine for oral cancer	Thomas M.Walter, MD	Bethesda CAM Research Center
40.	Smart coatings for corrosion protection	S.K. Dhawan	CSIR-National Physical Laboratory
41.	Solar boiler using linear fresnel technology for process heat	K P Ashwin Krishna	Promethean Energy Pvt. Ltd.
42.	Swajal smart water station	Vibha Tripathi	Saurya EneerTech
43.	Ultra-light-weight electric-assist bike	Jaspreet Singh	-
44.	Visually challenged ergonomic footwear	Krishna Sai Inkoolu	GITAM UNIVERSITY

1. Technology: Advanced PCM heat exhanger for cold storage

Key facts:

Innovator's Name	Rajat Gupta
Company/Institution Name	Thermal energy Service Solutions Pvt. Ltd.
Address	R-389, Rabale, Maharashtra Industrial Development Corporation (MIDC), Navi Mumbai, 400701
Company website	www.tessol.in
IP Status	Applied for patent

Innovation brief

PLUGnCHILL fuel free refrigeration developed by TESSOL is an innovative refrigeration system for transportation and storage of perishable products, which does not consume high cost diesel either as primary or backup fuel. Instead it operates on electricity and stores the energy in the patented pending heat exchangers consisting of a Phase Changing Material that freezes and melts thereby storing and releasing stored energy.

PLUGnCHILL transport refrigeration works by charging while the vehicle is stationary at a hub and while it moves, there is no additional fuel consumed. This reduces the operating cost of the system by more than 60-70%. For stationary refrigeration, this would charge the system when there is grid / solar power available and use it during non-power / solar hours. This system has the capability of offsetting more than 3000 liters of diesel per small vehicle per annum providing huge environmental benefits.

2. Technology: Assisted respiration

Key facts:

Innovator's Name	Cyja Jose
Company/Institution Name	OneBreath India Pvt. Ltd.
Address	One Breath Operations Hub, iKeva Level 8, Tower 1, Umiya Business Bay, Cessna Business Park, Sarjapur Ring Road, Bangalore – 560035
Company website	-
IP Status	-

Innovation brief

OneBreath is an early stage medical device company that has developed a fundamentally simpler platform to provide mechanical ventilation. By discarding existing paradigms, OneBreath has dramatically lowered the cost of ventilation while maintaining a high level of accuracy. The product is designed to penetrate the vastly underserved markets in developing countries and pandemic stockpiling.

3. Technology: Bhungroo- both waterlogging & irrigation solution

Key facts:

Innovator's Name	Biplab Ketan Paul
Company/Institution Name	Naireeta Services Private Limited
Address	B7 Aditya Flats, Opposite Rusabh Society, Nr Prashant , Park Society, Fatehpura, Paldi, Ahmedabad – 380007
Company website	www.naireetaservices.com
IP Status	Trademarked

Innovation brief

Bhungroo is a process/solution through which during monsoon period excess water from farm plots are injected underground with an objective that standing crop of the farmers is saved and excess water is retained underground at right conformable zones. In lean period same filtered, injected, stored water is lifted and given to the farmers for irrigation.

It works on injection module principle and the Bhungroo design is defined based upon various variables in relation to the local situation. Bhungroo can be erected in those places where subsoil strata allow water storage.

Each Bhungroo is dedicated to 5 acres of water logging land. Thus in optimum condition each unit of Bhungroo can store excess water from 5 acres of land. In that process Bhungroo can attend at least 6 crore liters of water and can guarantee irrigation of minimum 25 acres of land each in monsoon and winter both for food crop as well as marketable crops.

4. Technology: Bio-adhesive

Key facts:

Innovator's Name	A. Gnanamani
Company/Institution Name	CSIR- Central Leather Research Institute
Address	Adyar, Chennai - 600020
Company website	www.clri.org.in
IP Status	Indian patent

Innovation brief

Till date there is a demand for a suitable substrate for tissue engineering and cell regeneration. This biomaterial with required modulus is able to accommodate cells and in addition helps in differentiation based on the requirements and need at the target site.

The bio-adhesive product was developed by imparting the required moieties to the fibrillar protein, which upon oxidation interact with the tissue proteins and adhere to the surface very firmly. Further, the quick intermolecular interactions transform the physical nature of substrate to gel product with adhesive nature. The adhesive product developed replaces sutures and save the time of surgery as well as the life of the patient.

5. Technology: Broad spectrum root canal filling composition for endodontic usage

Key facts:

Innovator's Name	Rajdeep Pavaskar
Company/Institution Name	Goa Dental College, Goa
Address	A12, Building 4, Kenkre Estate Cooperative Housing Society, Cabesa, Santa Cruz -403005, Goa
Company website	www.gdch.goa.gov.in
IP Status	US patent

Innovation brief

The present invention relates, in general, to the field of endodontic materials suitable for root canal filling and, in particular, to a dental root canal filling composition that are effective against most infection causing root canal based micro organisms including resistant root canal infections caused by Enterococcus faecalis and Vancomycin-resistant Enterococci.

Unlike existing medicaments, broad spectrum intracanal medicament (BSIM) has a multi factorial approach, suitable not only in primary infections but also in resistant cases and treatment failures.

6. Technology: CardioTrack - Remote ECG Diagnostics

Key facts:

Innovator's Name	Avin Agarwal
Company/Institution Name	Uber Diagnostics Private Limited
Address	1670, 18th Cross, MC Layout, Bangalore- 560040
Company website	www.uberdiagonistics.com
IP Status	Patent and Trademark

Innovation brief

It is a portable and affordable 12 lead ECG machine. The results are clinical grade giving physicians all the details needed to make a diagnosis. The ECG reading along with the patient details are displayed on an Android tablet to which the Cardiotrack unit is connected via Bluetooth. The reading is then uploaded on to the cloud from where it can be retrieved easily and shared, if necessary.

It is convenient, portable, affordable and requires less than 20 minutes of prior training to be used. Results are uploaded on to the cloud and can be accessed easily from anywhere. It is sturdy and reliable and can be used in the most basic conditions making it easy for general physicians working in ill-equipped clinics to use it. It is programmed to sound a warning when a possible cardiovascular irregularity/condition is detected and equips the general physician to check patients who have a history of hypertension, cholesterol or family of history of strokes/heart attacks.

7. Technology: Cloud Computing Platform for Indian language Application

Key facts:

Innovator's Name	Phani Bhushan
Company/Institution Name	Grass Root Software Innovation Tech Pvt. Ltd
Address	508, Arcadia, Hiranandani Estate. GhodBunder Road, Thane – 400607,
Company website	-
IP Status	-

Innovation brief

Anant Computing Platform (ACP) is a product which been designed to allows enterprise and developer communities to create applications in various Indian languages. The platform has been designed with a view of providing an integrated engine for supporting the diverse need of multiple stakeholders. The applications can be deployed on any type of end devices; be it Smart phone or non Smart phone ; and running any OS. Thus it provides flexibility on both platform (i.e Android/ iOS/ Windows/ Linux/ Symbian) and the type of end user devices.

8. Technology: Companion diagnostics for diabetes

Key facts:

Innovator's Name	Arumugam Muruganandam
Company/Institution Name	Affigenix Biosolutions Pvt Ltd
Address	265/1F KSSIDC Industrial Area, Bommasandra, Anekal Taluk, Bangalore - 560099,
Company website	www.affigenix.com
IP Status	Applied for patent

Innovation brief

The innovation is an in vitro diagnostic (IVD) kit developed on the principle of antigen and antibody interaction to monitor the presence or absence of antibodies against insulin and insulin analogues. The innovation can be developed and commercialized as qualitative and quantitative kit and can be used as single use stand-alone kit or can be multiplexed with other biomarker detection kit. This simple user friendly, affordable kit is targeted at becoming preferred companion diagnostic kit along with the routine Glucose test and HbA1c measurement in diabetes management.

The in vitro diagnostic (IVD) kit will aid the Doctors to rapidly determine whether the loss of efficacy of Insulin or its analogue in T1DM patients are possibly due to presence of anti Insulin antibodies in patient's serum; thereby enabling them to prescribe personalized medicine that will be more efficacious in controlling glucose levels.

9. Technology: Computer program for DNA marker discovery

Key facts:

Innovator's Name	V Arunachalam
Company/Institution Name	ICAR (Indian Council of Agricultural Research) Research Complex for Goa
Address	Horticulture Section, ICAR, RC Goa Ela, Old Goa - 403 402
Company website	www.icargoa.res.in
IP Status	Patent

Innovation brief

The innovation is a software which increases effectiveness of random primers in biotechnology and potential to benefit the industry. Primers are short piece of oligonucleotides similar to the bookmarks to read the complex genome information. Failure due to inappropriate primers can cost as high US$ 100 (INR 6200) for a small experiment of 20 reactions.

The innovation named Marker express 1.0, gives a prior computer aided judgement of suitability of given primers by checking them on target Deoxyribonucleic acid (DNA) sequence of the organism for presence of priming sites. If the primer is 10 letters long, single and random, they are easy and cheap but the success and repeatability are low. The software locates the random primers at optimal distance(s) and convert them to pair of 20 letters long, specific and effective as in silico Sequence characterised amplified region (iSCAR) primers.

The software works by few simple steps: searches for priming sites of the given primer(s) in all the target sequences, calculates priming sites of sequence(s), measures distance between priming sites, and converts best amplified primers into iSCAR primers. It requires two input text files a primer sequence file (*.txt) and a target nucleotide sequence file (*.fasta) from the user. It generates five sets of output files. One of the output files is database ready input file hence the results of the software can be easily built as new online database.

The innovation helps to save the time, reagents and energy by eliminating the wrong primers beforehand by a computer aided search on the target genome sequence

10. Technology: Converting Shuttle loom to rapier loom

Key facts:

Innovator's Name	Ravinder Vannam, Narender Vannam
Company/Institution Name	Sri Sai Textile Consultancy / Shreenidhi Green Services
Address	104, Habitat Elite, Kavadiguda, Secunderabad, Telangana State-500080
Company website	www.srisaitextileconsultancy.webs.com
IP Status	Patented

Innovation brief

The company has designed and developed a conversion kit for existing shuttle loom to Rapier Loom i.e. in-situ up-gradation. Flying Shuttle mechanism is replaced with Rapier mechanism for inserting the weft yarn by frugal engineering in cost effective way. This alternative fitment provides energy efficiency, longevity and ease of operation. It can be operated with minimum manual intervention, saves 20% of energy and is good for the environment and is ideal for Small/Micro scale operators in India, Asia, and Africa.

11. Technology: Data Driven Energy Optimization for Telecom Towers

Key facts:

Innovator's Name	Rushabh Shah
Company/Institution Name	Panchsheel Research Private Limited
Address	C-35, Purvanchal CHS, Sector-1, Airoli, Navi Mumbai – 400708
Company website	www.panchsheel.biz
IP Status	-

Innovation brief

As part of the continuous efforts by the telecom industry to bring down the power and fuel cost, several initiatives are being tried. However performance of these initiatives is heavily dependent on site characteristics (tenancy, weather, asset-health, grid availability etc.), technology evolution and fuel costs. Implementation of identified initiatives is typically done at a group-level and given the diversity in site characteristics, the actual benefits reduce.

A site-specific decision making can significantly reduce the Operational Expense (OPEX). Given the large (x 10K sites) and individual site characteristics, there is a need of a data analytics driven approach for site-specific decision making. Optenet specializes in providing focused decisions that bring benefit at every site, while operators / IP retain the flexibility in introducing new initiatives.

12. Technology: ECG using an Android Smartphone

Key facts:

Innovator's Name	Gajanan Nagarsekar
Company/Institution Name	Kallows Engineering India Pvt. Ltd.
Address	S-7, Pai House, Second Floor, Sadar, Ponda - 403401
Company website	www.kallows.com
IP Status	-

Innovation brief

Mobmon 12.0 is a 12-lead simultaneous ECG machine combined with a pulse oximeter which is designed to record, monitor, store, manage and share an ECG and Blood Oxygen using an Android smartphone or tablet. It has unique features such as Live-Transfer and File-transfer to share ECGs with a Remote Doctor (e.g. Intensivist or Physician).

Traditionally, ECGs were shared as a picture or pdf whereas in this latest technology from Kallows India the Android application communicates with different Android smartphones or tablets to seamlessly display the ECG tracing in Real-time. The remote doctor has the options to communicate instant cardiac first aid back to the paramedic next to the patient. This entire communication takes place in less than 2-5 minutes and the ECG tracing is stored as a DICOM (pronounced: "di-com") file on the server and can be accessed using a Website.

Mobmon 12.0 not only reduces the time for treatment delivery during a cardiac emergency but also the cost per ECG and reporting is very minimal. The case where the product has been utilized is Emergency services (e.g. Ambulances or Cardiac Centre in Hospitals), Rural periphery, Urban homecare services providing first aid during Cardiac Emergency. Future segments would be General Physicians and Alternate Medicine doctors and Self-use ECG machine designed for general public.

13. Technology: Edible safe biocide /disinfectant

Key facts:

Innovator's Name	Dev Lal Sharma
Company/Institution Name	Omatek lab Pvt Ltd
Address	178, Sector F, Sanwer Road, Industrial Area, Indore – 452015
Company website	www.omateklab.com
IP Status	-

Innovation brief

Innovation comprises of safe Per acids which have been tested for physical chemical, instrumental and microbial content. Their effect on various kind of food products has been seen and validated. Lot of literature is available to express Per acetic acid / organic per acids are effective safe. It also clinically approved by USFDA as per FDA notification FCN1132 1000ppm in poultry & 400 ppm in other products.

The rechnology has been completed and tested for scalability, adoptability and usability by 8 customers of the company and all have reported satisfactory results.

14. Technology: EMA - Live Aquafeed

Key facts:

Innovator's Name	Stanley Abraham L
Company/Institution Name	Centre for Ocean Research, Sathyabama University
Address	Sathyabama University, Jeppiaar Nagar, Rajiv Gandhi Road, Chennai – 600113
Company website	www.sathyabamauniversity.ac.in
IP Status	-

Innovation brief

JEMA is a freeze-dried pellet or granules consists of a group of different microbial species omprising probiotic bacteria, pollutant scavenging bacteria, yeast and artemiaspp which bring wide scale benefits for Aquaculture and Environmental protection. The bacterial consortium proves to act as probiotic, effective antibiotic, pollutant scavenger by utilizing and degrading the nitrates and sulphates in the aqua pond which keep the pond live for several months. As the microorganisms present in the formulation are non-pathogenic they are harmless and more safe than any other chemical farm inputs. In addition the Artemiaspp will act as good source of proteins and fatty acids as they are rich in essential fatty acids ie. poly unsaturated and mono unsaturated fatty acids and amino acids.

This aquafeed helps to bring down the usage of antibiotics and fertilizers used for aquaculture. Since the ingredients are obtained naturally this product found to be user and eco-friendly.

15. Technology: Emergency labour cot

Key facts:

Innovator's Name	Gayathree Mohan
Company/Institution Name	Rite Products
Address	B2 Sidco Industrial Estate,Mmda Colony, Chennai – 600106
Company website	www.Riteproducts.co.in
IP Status	Patent

Innovation brief

The Emergency Labour Cot is a tool to alleviate maternal mortality and child mortality ratio. Just as it saves two lives (Mother and child), it reduces two emergencies into a single one. Traditionally when a pregnant mother approaches delivery, getting an ambulance is the first emergency and praying for non occurrence of labour during transportation becomes the second emergency. With the advent of the Emergency Labour Cot inside the ambulance van, it is enough if the pregnant mother reaches the ambulance van. The delivery is done inside and mother and child are safely handed to the hospital or home depending on the type of delivery.

The Emergency Labour Cot would eradicate Pre- Eclampsia which is the single largest cause of maternal death worldwide. The ELC drastically cuts cost of Transportation and Infrastructure of Public Health Centre for delivery inside the ambulance and can be integrated into existing ambulance vans.

16. Technology: E-waste recycling and metal separation plant

Key facts:

Innovator's Name	D.P. Prabhu / Rupal Fadia
Company/Institution Name	Respose Waste Management and Research Private Limited
Address	Hira Krishna, Rajaji Road, 1st Cross Lane, Ramnagar, Dombivili (East) - 421201
Company website	www.resposeindia.com
IP Status	Patented

Innovation brief

The clean-tech solution is useful for separating metals and non-metals in e-waste composites such as Printed Circuit Boards and wires in an environmentally friendly manner. It is based on mechanical size reduction and density separation without using acids or burning.

Respose Rudra, is a localized small format plant for recycling of e-waste. The advantages are right capacity, lower power consumption, smaller footprint, lower capital investment, lower operating expenses, lower complexity e-waste management solution suitable for developing economies.

17. Technology: Floating wetland ecosystem

Key facts:

Innovator's Name	Niranjan Kolekar
Company/Institution Name	Eco Support Pvt. Ltd.
Address	3B/33, Drug Employees CHS, Opp JK Gram, Near Cadbury Junction, Pokhran Road 1, Thane - 400606
Company website	www.ecosupport.co.in
IP Status	-

Innovation brief

Floating Wetland (FW) is bio-mimetic, self-sustaining treatment that is designed to remove excess nutrients and contaminants from eutrophic lakes, streams and wastewater lagoons. The islands typically use a combination of microbial (bacteria and algae) and plant growth to effectively take up, precipitate and/or filter nutrients and other pollutants from water. They are also extremely effective at reducing nitrate, phosphate, ammonia total suspended solids and dissolved organic carbon in waterways, which reduce algal bloom in the water bodies, improve visibility, and reduce obnoxious smell by supplying oxygen and overall water quality.

It is made up from support unit made up of polymer material, which support plant material that provides surface area for microbes which covert the complex nutrient to similar forms taken up by the specially acclimatized wetland plants from the water bodies. The flowering plants improve aesthetic, nutrient uptake, which is specific by various plants for different nutrient and contaminants.

The system works on simple processes already present in the nature. It does not require any energy input or manpower to run the system. The island can be made in any shape or size suitable for the water body, which improve the water quality desirably, hence improve overall aquatic ecosystem. In addition to the water quality improvement floating island also provide shelter and breeding ground to fishes and aquatic birds.

18. Technology: Geothermal cooling technology

Key facts:

Innovator's Name	Arun Shenoy
Company/Institution Name	GIBSS
Address	621, Avior, LBS Marg,, Mulund(W), Mumbai - 400080
Company website	-
IP Status	-

Innovation brief

Geothermal systems can bring down air conditioning operation costs by 40 – 50%. They use the naturally renewable temperature of the earth to extract the heat from within any building. Earth, below a certain depth from the surface, can offer a cooler environment than the ambient throughout the year. Typically, in tropical countries like India, the temperature at these depths is around 23 – 26 Deg C. Therefore, heat from the building when rejected into the earth at these temperatures, makes the airconditioning system a lot more energy-efficient compared to any conventional system. Heat transfer to the earth happens through conduction and convection, thereby eliminating any water losses. The system is therefore 100% water efficient.

The lifecycle cost of a geothermal system is the lowest compared to any conventional air-conditioning system as the economic life of this system, as per ASHRAE, is as high as 50 years.

19. Technology: Hurdle technology for processing of shelf stable meat products

Key facts:

Innovator's Name	R. Thomas
Company/Institution Name	ICAR-National Research Centre on Pig, Indian Council of Agricultural Research
Address	Rani, Guwahati -781 131, Assam
Company website	www.nrcp.in
IP Status	Patent

Innovation brief

Hurdle technology is the use of two or more additives/treatments to improve the microbial stability and sensory quality of foods as well as their nutritional properties. This technology permits addition of preservatives at a sub-lethal concentration, wherein the additive/synergistic action with other factors will ensure the total preservation in the finished product. The development of shelf stable meat products which can be stored at ambient temperature, will therefore provide an imperative to boost their marketing.

The same technology (with minor modifications) could very well be used to process shelf stable pet foods for cats and dogs. The marketing process of meat products will greatly improve as shelf stable meat products could eliminate the need of freezer (non-recurring) and electricity (recurring) for the storage meat products at retail outlets. The technology developed would also help the meat industry for greater value addition to the produce and generation of employment opportunities in rural as well as urban areas by establishing small scale meat processing industries.

20. Technology: ICT intervention to empower maternal healthcare

Key facts:

Innovator's Name	Saurabh Srivastava / Mr. Keyru Sorathia
Company/Institution Name	IIT Guwahati
Address	Department of Design, IIT Guwahati - 781 039
Company website	www.iitg.ac.in
IP Status	-

Innovation brief

Chetna is a gesture enabled interactive information system (presented through TV interface) aimed at educating and creating awareness about maternal healthcare in rural Assam, India. Healthcare information is provided through interactive audio-visual animations (operated through human body gestures) in local Assamese language for easy understanding and adaptability. It is targeted to educate low socio-economic and low-literate health workers from rural areas of Assam, who currently work as Accredited Social Health Activist (ASHA) under National Rural Health Mission (NRHM). With detailed information modules on frequently observed symptoms and relevant recommendations, important tests and checkups and food habits, it also educates them with appropriate reasoning of presented information. The information provided is in-line with National Rural Health Mission (NRHM) national and state schemes. Users can also ask pregnancy related questions to system, which are answered by health specialists during their next visit.

21. Technology: Intelligent Water Management System

Key facts:

Innovator's Name	Jitender Bajaj
Company/Institution Name	REDI Technologies Pvt. Ltd.
Address	B-52,B Block, Sector 26, Noida, 201301, Uttar Pradesh
Company website	www.red-itech.com
IP Status	-

Innovation brief

The purpose invention is to provide a water management system and method thereof that is configured to include all advantages and to overcome the drawbacks inherent in the prior art offering some added advantages.

The water management system and method of the invention aims to convey and update the optimization and the efficiency parameter by communication with the users and by inter communication between the water management units via the GSM/ CDMA/3G/2G and other wireless and wired modes. The invention also conveys alters, messages and important information to the users in case of prompting by the user or in-built feature to help implement a constant and error free system.

22. Technology: Intuitive Bigdata Processing Framework

Key facts:

Innovator's Name	Vasanth Ravula
Company/Institution Name	Relgo Networks Pvt Ltd
Address	12-2-823/A/67 Mehdipatnam, Hyderabad - 500028
Company website	www.relgo.com
IP Status	-

Innovation brief

Relgo's innovation is organizing enterprise relations of all entities and processes in a well-known structure and enabling capturing, aggregating transactions into automation application. It consists of algorithms to scope the relations and aggregate the data based on relations graph/ hierarchy to present operations view. All Relgo products are built using the same concepts and programming model to reduce development cycle.

The above innovation is patented globally to cover the relationship definition and framework.

23. Technology: Low cost automated web security solution

Key facts:

Innovator's Name	Lavakumar Kuppan
Company/Institution Name	Ironwasp Information Security Solutions Pvt Ltd
Address	127, Bhuvaneshwari Nagar, 3rd Main Road, Selaiyur, Chennai - 600073
Company website	www.ironwasp.net
IP Status	Trade secret

Innovation brief

The innovation is a product that helps software development teams create secure software without changing how they currently work. The product sits invisibly in the development environment and when any application is put through regular functional testing, it automatically kicks in and performs security testing. The unique feature of this software compared to alternatives is the no-hands on approach, once configured it works automatically on every functional test.

It can pinpoint the exact line the source code where there is a security issue. It makes it possible for developers to create secure software without additional training, effort or consulting a security expert.

24. Technology: Low cost, no consumable waterless urinal technology

Key facts:

Innovator's Name	Uttam Banerjee
Company/Institution Name	Ekam Eco Solutions Pvt. Ltd
Address	Unit 6, TBIU, Synergy Building, IIT Delhi, Hauz Khas, New Delhi – 110016
Company website	www.ekamecosolutions.com
IP Status	Patented and trademark applied

Innovation brief

Waterless urinals look very much like conventional urinals in design and these can be used in the same manner. However, waterless urinals do not require water for flushing and thus result in saving anything between 56,800 litres to 1, 70,000 litres of water per urinal per year. Also, the dry operation of waterless urinals and touch free operations reduce spreading of communicable diseases. Innovative Odor trap mechanism "ZERODOR" developed jointly by IIT Delhi and Ekam Eco Solutions assist in preventing odor developed inside the drainage lines connected to urinals and it does not require replaceable parts or consumables resulting in low maintenance costs.

In order to enable ease of conversion of existing urinal pans available in the market into waterless urinals, the design and dimensions of Zerodor are kept similar to waste couplers which are usually fitted to men's urinals.

25. Technology: Low cost soil & water testing kit

Key facts:

Innovator's Name	Archana Sarma Goswami
Company/Institution Name	Easy Solutions
Address	Easy Solutions, Panbazar, Guwahati, Assam - 781001
Company website	-
IP Status	-

Innovation brief

The company has developed a low cost, comprehensive, easy to use water and soil testing kit which can test for 18 parameters in water and 8 for soil. Important contaminants that can be tested are fluoride, arsenic, iron, chloride and lead for water and organic carbon, NPK for soil. The methodologies used are tried and tested and any person with a rudimentary knowledge of reading and counting can carry out the tests. The kit is easy to pack, carry and use in fields or in homes. Not all users are interested in carrying out all the tests and this leads to wastage of chemicals and effort. The company's business plan involves breaking up the present kit into smaller units that will cater to the needs of different consumer segments. These smaller kits are called "Easy Solutions – Know your water, Know your soil".

26. Technology: Low cost solar parabolic dish concentrator

Key facts:

Innovator's Name	G Madan Mohan Reddy
Company/Institution Name	Solwedish Solar Pvt. Ltd.
Address	Villa No.5, Ashoka A-La Maison, Dulapally Road, Quthbullapur, Secunderabad - 501505
Company website	-
IP Status	-

Innovation brief

The importance of solar concentrator technologies arises from the fact that two-third of industrial end energy consumption is thermal energy (process heat). One-third of industrial process heat demand is below 200°C, which suits the integration of solar concentrator systems in process heat applications. The dish has a great potential to become a major source of heat energy needs in various industries such as thermic fluid heating in various industries, vapour absorption refrigeration system, service industries like hospitals, hotels, milk processing, sugar industries, agro industries, chemical processing plants, boiler make-up water and feed-water heating, metallurgy industries, power generation.

The proposed innovation Low Specific Cost Solar dish concentrator system (dish) comprises of the concentrator (reflector), receiver (absorber), heat transfer media/storage and conversion/transmission of thermal energy with a dual-axis tracking system. The system acts as a source of thermal energy for industrial process heat requirements and used as a substitute to fossil fuels.

27. Technology: Medical diagnostic test kit

Key facts:

Innovator's Name	Dilip S. Velaskar
Company/Institution Name	Thrombocheck Labs Private Limited
Address	3/Lumbini CHS, National Library Road, Bandra West, Mumbai - 400050
Company website	-
IP Status	Patented

Innovation brief

A simple clinical laboratory test to identify and detect early any hyperactive platelet in those individuals prone to heart attack/ stroke/ kidney and other vital organ damage, also as a tool to monitor those on antiplatelet therapy like low dose aspirin, etc.

The thrombochek test is a signal –alert, to be added in the atherosclerosis test protocol for prevention of heart attack/stroke accidents. This timely measure for platelet hyperactivity will enable individuals to stay young longer by nipping atherosclerosis in the bud, no compromised blood circulation to the heart, brain, kidney or peripheral organs/ limbs.

28. Technology: Mosquito breeding disruptive device-TAKE IT EAZZY

Key facts:

Innovator's Name	E.C. Thomas
Company/Institution Name	Mosquito Breeding Disruptive Device-Take It Eazzy
Address	"Karuvamood", Kavuvila Road, Chennilode, Medical College PO- Trivandrum, Kerala- 695011
Company website	-
IP Status	Applied for patent

Innovation brief

The device is developed to interrupt and strike at the very root of the mosquito breeding cycle to decimate generations of mosquitoes. Eggs laid by mosquitoes (around 3000) are automatically eliminated before they develop into mosquitoes. The device works on the principles of Fluid Dynamics, Gravity, Buoyancy and Atmospheric pressure. The device has a tray of water with attractants and a non-return valve below for mosquitoes to lay eggs. It is placed under an overhead tank and fixed inside a larger tank with feeder pipes, drip valve and siphons to evacuate mosquito siblings automatically within 10 days without any electric power, into a 'killing chamber' containing a mixture of sand and salt. The mixture filters and kills the siblings and the filtered water is drained into an evaporation chamber or sewage. This prevents further enlargement of mosquito population.

29. Technology: Multifunctional finishing of textiles using eco-friendly plasma technology

Key facts:

Innovator's Name	Shital S Palaskar
Company/Institution Name	The Bombay Textile Research Association
Address	Lal Bahadur Shastri Marg, Ghatkopar (west) - 400086, Mumbai
Company website	www.btraindia.com
IP Status	-

Innovation brief

Atmospheric plasma treatment is a dry and clean continuous process that acts primarily on the surface of the textile material to produce an eco-friendly multifunctional fabric. Plasma technology is the pathway for clean production in the textile industry implying a production process with minimum impact on the environment.

The bulk properties such as strength and flexibility are not affected. Surface treatment makes the textile material highly receptive to subsequent treatments leading to significant savings in chemicals, auxiliaries, water and energy. The long term benefit of the technology is that this is a green process which requires minimum amount of water and chemicals to produce desired functionalities.

The polyester can be more hydrophilic after a brief exposure to plasma. On the other hand cotton fabrics can be made hydrophobic (water hating). It also results in enhanced dye uptake resulting in deeper shades with a given dye concentration. It can also be translated as reduced effluent load.

30. Technology: nHA-Vitamin - Polymer hybrid microsphere

Key facts:

Innovator's Name	P. N. Shilpa, Ph. D
Company/Institution Name	Virtis Bio Labs Pvt. Ltd.
Address	39/3A2, Easwar Gardens, Kesavan Nagar, Kannankurichi, Salem – 636 008, Tamil Nadu
Company website	www.virtisbiolabs.com
IP Status	-

Innovation brief

Current treatments for bone re-construction are cumbersome and expensive but still yield poor healing because of lack of appropriate scaffolds and reliable cell sources. Stem cells are a powerful cell source for use in regenerative medicine as they can undergo extensive self renewal and when given appropriate signal can be driven to proliferate and differentiate into specific cells such as bone forming osteoblast. Osteoconductive substance could represent a useful therapeutic approach during fracture repair process.

The company hypothesize that mescenchymal stem cell or MSC and endothelial aggregates can be induced to become osteogenic or both vasculogenic and osteogenic by incorporating vitamin into PLGA/nHA composite microsphere and the resultant cell-polymer nHA composite constructed can be used for rapidly forming vascularized bony tissue for healing bone defects. It will examine the ability of controlled presentation of three proven osteogenic signal vitamin K2, vitamin D3 and nHydroxyapatite on osteogenic differentiation and bone formation within the aggregates and vascularization.

The proposal will provide a hint for potent therapy using co-supplementation strategy in repairing the fracture.

31. Technology: Non-invasive oral cancer detection device

Key facts:

Innovator's Name	K.R.Suresh K Nair
Company/Institution Name	Innobreeze Communication Technologies Pvt Ltd.
Address	34/790B, Aarushi, Beena Anjumana Road, Kochi - 682024
Company website	www.innobreezetech.com
IP Status	Applied for 3 patents

Innovation brief

The current innovation has led to development of a portable and non-invasive device for oral cancer detection. Visible light at specific colours are made to fall in oral cavity through a transmit optical fiber probe. The probe is designed to receive only the light which have gone through the tissues and reflected back. This diffused reflected colours of light contains information about tissue architecture, cell morphology and biochemical composition. As cancer cells get generated, the above said parameters change and the differential absorption of oxygenated haemoglobin varies. The received light is first detected and analysed using a developed model and algorithm on a real-time basis.

The developed device is based on Android platform, user friendly with touch screen and icons, does not require any special training. This does not use laser or any chemical markers and is very safe. The device named as 'Breezescan' can detect and discriminate all types of tissues of the oral cavity, including the tongue and lip. Dentists can use this device for oral health check-up.

32. Technology: Nutrient sequestration from waste water and reuse

Key facts:

Innovator's Name	Shaon Ray Chaudhuri
Company/Institution Name	West Bengal University of Technology
Address	
Company website	www.wbut.ac.in
IP Status	-

Innovation brief

The innovation is a microbial solution for treating waste water from agricultural runoff, domestic sewage/ grey water, industrial effluent from dairy, fertilizer as well as detergent industry (those rich in nitrate and phosphate) using minimal resources. It treats the waste simultaneously for nitrate as well as phosphate while accumulating these nutrients inside them so that it can be reused for agriculture with better growth and yield enhancement as seen in case of paddy and mung bean. The biofertilizer application needs to be done only once as compared to the chemical fertilizer which is applied thrice (in case of paddy). The conventional microbial system loses the nitrate while it only accumulates the phosphate taking about 10 days. The treated water is excellent for irrigation and other non-potable purposes.

When adopted in highrise buildings, the treated water could be used for vertical irrigation on building surfaces, the concept of a green building. This would lead to employment generation, revenue generation and at the same time protect the building from solar glare, thus cooling the interior to certain extent.

One of most important part of this invention is that the treatment system is 120 times faster than the conventional system (2 hrs as compared to 240hrs). Thus the requirement for land for construction of sewage treatment plant would also reduce drastically to treat same volume of effluent.

33. Technology: Pest-repellent Food Protecting Sheets

Key facts:

Innovator's Name	Sudhir Reddy
Company/Institution Name	Leela Holdings
Address	No.10, Block no. 64, Bollineni Hillside, Nookampalayam road, Sithalapakkam, Chennai
Company website	-
IP Status	-

Innovation brief

Romin Guard is an effective, natural, rapidly deployable, adaptable and affordable bio-technology solution that repels moths, ticks, flies, rodents and insects. It is highly customizable and versatile fabric roll that is laid in between the Dry Grain bags or Fruits and Vegetables to repel fruit flies or stitched into bags. It keeps food fresh for three to six months depending upon usage. Romin is an acronym for ROdent Moths INsects. It is is a mix of a chemical base which is a nano compound stabilized and locked into a non-toxic defensive applicant that has molecular adhesion and long shelf life.

34. Technology: Redox engineering for 3-Hydroxypropionic acid

Key facts:

Innovator's Name	Sathyavrathan Pathanjali
Company/Institution Name	SVBiotech
Address	F-5, Prasanna Apts, Sivaram Nagar, T.V.Koil, Trichy, Tamil Nadu
Company website	-
IP Status	None

Innovation brief

Renewable chemicals, green chemistry and synthetic biology are in their midst of setting their trend for sustainable living. Many raw materials in use today are derivatives of fossil fuels and we are in the process of biding adieu to them through day to day innovations in bio-chemical engineering. 3-Hydroxyproipionic acid (3- HP), an essential C3 intermediate being dreamed for its converted versions like 1,3-propanediol (textiles), acrylic acid (paints and plastics), acrylamide (latex), propionitrile (pharmaceuticals), reuterin and 3-HP polymers (food and health care) could be produced indigenously when 3-HP is made biochemically through our new method in redox bio-engineering.

Essentially, this innovation stands out from the prior art by solving a major bottle neck of 3-HP production briefed as redox related insults to metabolic pathways. It does it in a manner in which cells would be engineered to oxidize and reduce simultaneously a renewable feedstock like glycerol to 3-HP.

35. Technology: Smaat community water center

Key facts:

Innovator's Name	Karunakara M Reddy
Company/Institution Name	Smaat India Private Limited
Address	Survey no 61& 62, Plot no 12, Ward No. 8, Block No. 3, Karmanghat Villagem Saroornagar Mandal, Hyderabad- Telangana- 500097
Company website	http://www.smaatindia.com/
IP Status	-

Innovation brief

The innovator has developed the concept of Community Water Centers as a Corporate Social Responsibility and has established them in select villages. Smaat Community Water Center uses the state–of-the-art cutting edge technology, imported from various countries to provide potable drinking water. In combination with reverse osmosis, processes like ultra filtration, nano filtration, micro filtration, pzonization, ultra violet purified technologies are also used in Community Water Centres to ensure the water output is as pure as the quality present in mineral water.

Smaat makes sure that these processes do not harm the environment, thus making it eco-friendly. The combination of these processes is done based on the availability of the raw water, hence making each CWC Project a tailor made project.

36. Technology: System & method for managing pressure & flow rate

Key facts:

Innovator's Name	Sunil Kumar
Company/Institution Name	Individual (then, in the year 2014) Mittal Intellectual Properties OPC Pvt. Ltd. (now)
Address	B-65, Saraswati Kunj, Plot No. 25, Patparganj, Delhi-110092
Company website	-
IP Status	Patent and Trade Mark.

Innovation brief

At present in global market, there is no existing technology or device, which can regulate the pressure (total pressure) and flow rate, both, of a flowing fluid (liquid or a gas), simultaneously. Present technology regulates the pressure (total pressure) and flow rate, both, of a flowing fluid or a gas, simultaneously. This technology is useful at all places (indoor or outdoor), where there is a need to save a flowing fluid (liquid or a gas) from wastage due to excessive pressure and flow rates.

The device is robust with no moving part, therefore has a very long useful life and has negligible or almost nil maintenance cost. It can easily be installed as an indoor or outdoor application and can be manufactured in any shape and size to provide a tailor made solution to a specific consumer. No additional equipment or source of energy is required for its use or operation.

It can be used in water management in high-rise buildings and buildings in hill areas (a water saving device), developing a dependable braking system in a ship, airplane or submarine etc., developing a water spray gun for optimizing use of water while irrigating road side plantations, parks and agricultural fields; saving of blood veins from blowing while injecting medicines through an injection syringe; efficient use of LPG (Liquid Petroleum Gas) or PNG (Piped Natural Gas) in a gas stove; efficient water spray for cooling hot water, in an atomic power plant cooling tower; and Solid Waste Management.

37. Technology: Technology platform for producing proteins and viral therapies

Key facts:

Innovator's Name	Vishwas D. Joshi
Company/Institution Name	Seagull BioSolutions Pvt. Ltd. (SBPL)
Address	L5, Lab Block, NCL Innovation Park, 400 Dr Homi Bhabha Road, Pune - 411008
Company website	www.seagullbiosolutions.in
IP Status	Applied for patent

Innovation brief

SBPL has developed a proprietary technology (eSAME) that is useful for producing recombinant proteins and viruses for using as vaccines and therapeutic agents. This technology has been used to produce SBPL-0100 a novel non-toxic cancer therapy that also induces anti-cancer immunity.

Cancer is rapidly growing in India and the developing countries. It causes significantly more mortality in these countries than the advanced countries. Therapies like SBPL-0100 can be produced more cost effectively and can be very effective at reducing cancer associated mortality.

38. Technology: The willow - aerial surveillance system

Key facts:

Innovator's Name	Rohan Verma
Company/Institution Name	BlackProp Tree
Address	Room No. 4, Technical Business Incubation, BITS Pilani K.K.Birla Goa Campus, Zuarinnagar - 403726
Company website	-
IP Status	-

Innovation brief

The Willow is a light-weight, autonomous UAV for surveillance and reconnaissance operations. It can be launched from a small clearing, and can fly up to a distance of 15km from its take-off point. The operational altitude of the UAV is 400 m. With an onboard wireless transmitter, it can carry out surveillance in an area of 1.5 km Line of Sight (LOS) at the height of 300 m, for 45 minutes on a single battery charge. It has a high resolution CCD camera with a pan/tilt and zoom function to facilitate wider surveillance and can also carry a thermal camera for night operations. The zoom-in camera can identify human activity up to 500 m away, and can send live video feed of objects within a radius of 5 km. The images are sent through a local wireless network to laptops for monitoring. A complete overview of what the copter is seeing and sensing including live GPS waypoints and telemetry is displayed on a computer at the ground station. The Willow is fully autonomous and made for industrial operations.

The Willow provides a solution for extensive commercial applications which includes aerial surveillance for both policing and military purposes, surveillance of large industrial areas and inaccessible industrial structures like cooling towers and tankings, wild life surveillance, monitoring large chemical and petroleum pipelines for leakages, assist in fire and rescue operations, perimeter security , city planning etc. These drones are fast, quiet, precise, enduring and help reach the limits of possibility.

39. Technology: Traditional medicine for oral cancer

Key facts:

Innovator's Name	Thomas M.Walter, MD
Company/Institution Name	Bethesda CAM Research Center
Address	Government Siddha Medical College. 6, Anna Arch Rd, NSK Nagar, Arumbakkam, Chennai, Tamil Nadu 600106
Company website	www.siddhawalter.org
IP Status	-

Innovation brief

The innovation is a traditional, safe and clinically proven Indian Medicine having its reference in age-old Siddha literatures. It was selected and prepared by the Innovator as per an S.O.P (Standard Operative Procedures) which he prepared based upon the Traditional Literatures. It has been scientifically proven by in-vitro cell line studies (a lab procedure using HeLa cell line and MTT assay with Palcitaxel, a natural anti-cancer agent as the standard). The drug has 85% of anti-cancer viability even at the minimum concentration of 100 µg.

Clinically, this herbal medicine improves the patient's ability in swallowing and chewing initially followed by the gradual relief of other symptoms without any recurrence and side-effects. This drug also checks and prevents the multiplication (proliferation) of cancer cells which is a real challenge in controlling and curing any type of cancer (as per In-vitro HeLa cell line & MTT Assay).

40. Technology: Smart coatings for corrosion protection

Key facts:

Innovator's Name	S.K. Dhawan
Company/Institution Name	CSIR-National Physical Laboratory
Address	Polymeric & Soft Materials Section, NPL, Dr. K.S.Krishnan Marg,, New Delhi -110012
Company website	-
IP Status	-

Innovation brief

The innovation deals with the designing of smart self healing coatings of conducting polymers which can be used for preventing corrosion of iron under hostile environmental conditions. The aim of the invention is to design conducting polymer composites by incorporating filler materials and suitably selecting a medium for polymerization so that the resultant epoxy coatings can be used for prevention of corrosion in saline water conditions.

Some of the areas where these can be applied are railway bridges, sea-link bridges, ship hulls, undersea oil pipelines, floodgates and iron bars in concrete strucutres.

41. Technology: Solar boiler using linear fresnel technology for process heat

Key facts:

Innovator's Name	K P Ashwin Krishna
Company/Institution Name	Promethean Energy Pvt. Ltd.
Address	202-A, Shyam Smruthi, Sector 19, Nerul, Navi Mumbai - 400706
Company website	www.coolectrica.com
IP Status	-

Innovation brief

The SunLumen Concentrator, is an industrial-grade solar boiler, capable of achieving upto 300 degrees steam at pressures upto 40 bars. The patented clean technology is a result of extensive research of available products combined with a host of innovative modifications, and brings together the latest and most promising technologies to suit industrial needs. The product was intended to create a renewable energy product which serves the following purposes:

- Saves petroleum fuels on a consistent on-going basis, while reducing the carbon footprint of the industry
- Is economically attractive for industries to adopt and use. Recovers cost in a timeframe that industries find acceptable, and has attractive IRR's.
- Uses land most optimally, and
- Focuses on simplicity in design while maintaining high efficiencies

42. Technology: Swajal smart water station

Key facts:

Innovator's Name	Vibha Tripathi
Company/Institution Name	Saurya EneerTech
Address	864, Udyog Vihar, Gurgaon - 122001
Company website	www.sauryaenertech.com
IP Status	-

Innovation brief

Swajal smart water kiosk is an innovative solution for solving water problems of below poverty population. SWAJAL aims to improve the baseline health of the local community by providing WHO standards clean drinking water right at their doorstep. Swajal water stations are self service water purifying machines, operated by coin or access card. The basic machine consists of 9 stage RO filtration plant run by solar system and monitored through GSM. Existing local solutions show sale of water that is filtered at a centralized location which is then transported in plastic bottles, to the end user. A lot of diesel is burnt in transmitting and distributing water while the heaps of plastic bottles add to plastic pollution. A Life Cycle Assessment (LCA) study shows that a 2 liter bottled water has a similar carbon footprint in an year as that of a car been driven for 500 miles. In addition to the dangerous green house effect of these gases it also gives birth to the un-destroyable plastic, tonnes of which can be seen chocking the drains or food pipes of animals.

Swajal technology reduces costs by eliminating any logistics, intermediaries and plastic. The water produced by the machine carries a zero carbon footprint and helps in reducing the threat of global warming.

43. Technology: Ultra-light-weight electric-assist bike

Key facts:

Innovator's Name	Jaspreet Singh
Company/Institution Name	Individual Innovator
Address	C-1/301, Capital Appartment Vasundhra Enclave, Delhi - 110096
Company website	-
IP Status	Patented

Innovation brief

The Ultra-Light-weight Electric-Assist Bike is a technology that offers users a novel city commute experience with significantly reduced ride effort, carefree handling for longer distances, multiple ride modes, superior energy efficiency and relaxing comfort; all combined into a highly stylish product which offers customization opportunities to individual users. The product is unique in that it addresses the limitations of a conventional pedal bike and a fully powered electric bike and delivers middle ground where users benefit from a novel ride experience which the former two categories inherently cannot offer.

This innovation can find application in daily city commute over practical distances. Its light-weight, on the move connectivity and safety attributes enable portability and carefree usage. It can be carried on by a person in a bus or metro. The technology can also find acceptability in the commercial market for ferrying up to two passengers as a last-mile connect to the bus or metro stations in the form of ultra-light-weight electric-assist people carrier.

44. Technology: Visually challenged ergonomic footwear

Key facts:

Innovator's Name	Krishna Sai Inkoolu
Company/Institution Name	Gitam University
Address	7-4-53/1, Amanchivari Street, Anakapalle, Andhra Pradesh - 530045
Company website	www.gitam.edu
IP Status	-

Innovation brief

The innovation, One Foot technology, aids the underprivileged Blind people in identifying and Isolating the obstacles ahead of them and move to their destinations through specified /unspecified track. More importantly when an individual uses this technology, he need not carry any other additional support instruments such as conventionally visually challenged people use Hoover canes in support to their walk. By embedding a technology in to the shoe pods they can be made powerful in determining the obstacles ahead of the wearer. It includes identifying ditches, slopes, stationery tangible objects, staircase etc. The technology is capable of identifying the obstacles which are in the nominal range of (2cm –400 cm) using which it can determine the objects in front of the person within its nominal range.

Technologies Selected in IIGP 2015

Technologies Selected in IIGP 2015

S. No	Technology Name	Innovator's Name	Company/ Institution Name
1.	A continuous non-invasive blood glucose monitoring system based on photoacoustic spectroscopy	Praful P. Pai, Pradyut K. Sanki, and Swapna Banerjee	Indian Institute of Technology Kharagpur
2.	A novel preventive technique to help patients manage kidney disease	Lloyd Vincent	Renalyx Health systems Pvt Ltd.,
3.	A serum-based kit for the diagnosis of visceral leishmaniasis (Kala-Azar) and PKDL	Nahid Ali	CSIR-Indian Institute of Chemical Biology Kolkata, India
4.	Biomimetic smart aerosols for lung cancer, tuberculosis & other pulmonary diseases	Shahdeep Kaur, Nitin Joshi, Prof. Rinti Banerjee	Indian Institute of Technology Bombay
5.	Bone grafts designed via bio-mimetic approach from natural origin materials	Prabhash Dadhich	Indian Institute of Technology, Kharagpur
6.	Complete Indigenous technology to spin hemodialysis grade hollow fiber membranes	Anirban Roy	Indian Institute of Technology, Kharagpur
7.	Customized orthotic fabrication using 3 dimensional reconstruction of Computed Tomographic (CT) images	Sathish Kumar Paul	S.I.H.R & L.C Karigiri
8.	Dance Aid for Deaf	Janhavi Joshi	MIT Institute of Design
9.	Development of probiotic fermented milk enriched with oat fibers	Jigarkumar Bharatkumar Trivedi	Hildur Functional Foods Private Limited
10.	Development of X-ray visible polymers for non-invasive imaging applications	Paulomi Ghosh	Indian Institute of Technology, Kharagpur
11.	DosaMatic- Table top dosa machine	Eshwar K Vikas	Mukunda Foods Private Limited
12.	Drip chamber with auto end flow retarter and flow blocker	P V Narasaiah naidu	Individual
13.	Driverless shuttles for last mile public transportation	Nalin Gupta	Auro Robotics Private Limited
14.	Efficient cost effective detection kits for banana viruses	Ramasamy Selvarajan	ICAR- National Research Centre for Banana
15.	Energy saving device for producing uniform charcoal heat through LPG	Sanghi Sri Hari Rao	M/s Agnisumukh
16.	Fabric based heating elements for warmth/fomentation in medical applications	Smita C. Deogaonkar	The Bombay Textile Research Association
17.	Foot mounted pedestrian navigation made easy	Amit Kumar Gupta	GT Silicon Private Limited
18.	Futuristic eco-friendly safe rechargeable magnesium-ion battery	J.Vatsala Rani	India Institute of chemical Technology
19.	Genetic diagnostics and personalized medicine for maximum healthcare	Sooraj Ratnakumar	Swagene
20.	Guardian	Manik Mehta	Leaf Innovation Private Limited
21.	Heat Sink for UV LED Curing Solutions	Pratik Mukesh Lotia	Violet395nm [Brand Name for Product] – parent cos VenTech & Hari Impex.
22.	Home based devices for speech and language problems	Prashant Kumar Goyal	Innoflaps Remedy Pvt. Ltd.

S. No	Technology Name	Innovator's Name	Company/ Institution Name
23.	Inclined flanged diffuser augmented small wind turbine	Sandip Achutrao Kale/S. N. Sapali	Trinity College of Engineering and Research, Pune/ College of Engineering, Pune
24.	Inclusive healthcare for all - local language health videos and animations	Padma Rammoorthy	Med Health TV
25.	Jasper Creations	Tony Mammen John	E Health Technology Business Incubator
26.	Low cost and green manufacturing using smart enzymes libraries	Rajkumar Rajagopal	Cellzyme Biotech
27.	Low-cost point-of-care diagnostic device for blood cell counting	Prakhar Jain	MicroX Labs
28.	Low cost portable and safe digital X-Ray for the use in orthopedics and pediatrics clinics	Karthik Somasundaram	Mother Diagnsotic Systems Private Limited
29.	Micro paper-pencil fuel cell	Ravi Kumar Arun	CSIR-CMERI
30.	MiraCradle - Neonate Cooler	Ankit Jhanwar, Samit Jain. Devendra Jain	Pluss Advanced Technologies Pvt. Ltd
31.	Mobility solution for patients with neurological disorder / spinal cord injury	Mihir Apte	Hylpres Technik Engg. Company Private Limited
32.	Molasses spent wash treatment (decolurization and detoxification) to algal biofuels	Sangeeta Prashant Naik	Cleanergis Biosciences Pvt. Ltd.
33.	Myco-tablets for decolorization of dye waste water	Anushree Malik, Prachi Kaushik, Abhishek Mishra	Indian Institute of Technology Delhi
34.	NetPlug : Give the power of internet to your products	Pranav Pai Vernekar	Inventrom
35.	Off-grid renewable energy based cold storages for "First Mile" of our food supply chain	Akash Agarwal	New Leaf Dynamic Technologies Private Limited
36.	Production of carbon nano-material from industrial gas emissions	Amit Kumar	Carbon Continuum Private Limited
37.	Rice Husk Ash to highly dispersible silica	Tanmay Pandya	Bridgedots Techservices Private Limited
38.	Smartphone integrated noninvasive fetal ECG monitor to detect fetal distress	Vibhav Joshi/ Sumedh Kaulgud	Sattva MedTech
39.	Smart baby bracelet	Swapnil kokate	Institute of Chemical technology
40.	Smart sand - ZaaKSand™	Abbas Khan	ZaaK Green Building Products Pvt Ltd
41.	Super-resolution reconstruction and speckle reduction for enhancement of ultrasound image	Sudipta Mukhopadhyay and Debashis Nandi	IIT, Kharagpur
42.	Spoonful	Rashida Taskin	Spoonful
43.	Water-free sustainable colouration and functionalization of white and dyed textiles, and garments	Kartick K. Samanta	ICAR-National Institute of Research on Jute and AFT
44.	XrayTo3D - Tabplan3D	Vikas Karade	IIT-Bombay

1. Technology: A continuous non-invasive blood glucose monitoring system based on photoacoustic spectroscopy

Key facts:

Innovator's Name	Praful P. Pai, Pradyut K. Sanki, and Swapna Banerjee
Company/Institution Name	Indian Institute of Technology Kharagpur
Address	VLSI CAD Laboratory Dept. of E & ECE, IIT Kharagpur, Kharagpur, West Bengal - 721302
Company website	www.iitkgp.ac.in
IP Status	Applied for patent

Innovation brief

Diabetic patients are required to make a minimum of 3-4 measurements each day. Presently, most diabetics draw drops of blood from their fingertips and test it using a handheld device to get their glucose values. The innovation takes these blood glucose measurements in a non-invasive manner without any need for drawing blood at regular intervals. It makes use of an analytical technique known as photoacoustic spectroscopy for making these measurements. The device takes these photoacoustic measurements from the fingertips of a person and uses it to predict the blood glucose concentration. The device initially takes photoacoustic measurements from the subject and uses reference glucose concentration values taken at the same instant for calibration of these photoacoustic measurements, i.e., to say what value of photoacoustic signal corresponds to a particular glucose concentration. Once calibrated, the device operates independently, taking photoacoustic measurements at regular intervals and predicting the blood glucose concentration using the same. The device is aimed at daily use by diabetic patients to monitor their glucose, or for use in intensive care units for continuous monitoring of patients. It can also be used by physicians to assess patient health for diagnosis.

The device also requires little or no user intervention during measurement, allowing for greater patient freedom. It also has no consumable requirements during measurement keeping waste at a minimum.

2. Technology: A novel preventive technique to help patients manage kidney disease

Key facts:

Innovator's Name	Lloyd Vincent
Company/Institution Name	Renalyx Health systems Pvt Ltd.,
Address	No.3, 5th C Main Road, TATA Silk Farm, KR Road, Banashankari 2nd Stage, Bangalore - 560 070
Company website	www.renalyx.com
IP Status	Patent

Innovation brief

A novel, unique end-to-end preventive renal care solution at each stage of the chronic kidney disease. The technique involves a screening at the primary stage to identify high risk patients for chronic kidney disease leading to a secondary care of clinical intervention to delay disease progression. The tertiary care consists of a patented innovative connected dialysis machine with an objective of increasing the patient longevity. This is done by providing an accessible and affordable dialysis with a nephrologist supervision leading to an improved patient care. The low cost machine uses less water, power making it an attractive proposition for semi urban and rural markets in emerging countries. This innovative business model provides flexibility and scalability to reach larger masses.

3. Technology: A serum-based kit for the diagnosis of visceral leishmaniasis (Kala-Azar) and PKDL

Key facts:

Innovator's Name	Nahid Ali
Company/Institution Name	CSIR-Indian Institute of Chemical Biology Kolkata, India
Address	CSIR-IICB, 4, Raja S. C. Mullick Road, Jadavpur, Kolkata -700032
Company website	www.iicb.res.in
IP Status	Applied for patent

Innovation brief

Visceral leishmaniasis (VL) or kala-azar is a parasitic disease, which causes death if not treated. Post-kala-azar dermal leishmaniasis (PKDL) is a skin disease and a sequel of kala-azar. Approximately 10% of the total VL cases emerge as PKDL in the Indian subcontinent and East Africa.

This technology, Dipstick, is an easy to perform, cost effective and globally validated device for the diagnosis of VL and PKDL from serum samples. The dipstick contains two lines, a control line and a test line. When colour develops on both the lines the test is positive and negative if only the control line gets colour. Results can be visualised with the naked eye without any sophisticated instrument. The device is already evaluated on many Indian, Nepalese and Brazilian patients, and Indian PKDL. Currently a multi-centre evaluation of the device is being carried out in different VL endemic regions worldwide like Sri Lanka, Nepal, India, Brazil, Iran and Sudan.

4. Technology: Biomimetic smart aerosols for lung cancer, tuberculosis & other pulmonary diseases

Key facts:

Innovator's Name	Shahdeep Kaur, Nitin Joshi, Rinti Banerjee
Company/Institution Name	Indian Institute of Technology Bombay
Address	503, Nanomedicine Lab, Dept of Biosciences & Bioengg, IIT Bombay, Powai, Mumbai 400076
Company website	www.iitb.ac.in
IP Status	Patented Technology (Indian)

Innovation brief

Innovation is a platform technology for direct delivery of chemotherapy drug (paclitaxel) to the lungs using lung surfactant mimicking nanocarriers given as aerosols via inhalation. These smart carriers release the drug at the site where tumor specific pH is encountered. This technology provides the benefits of non-invasive needle-free delivery, ease of administration, reduced costs, tumor specificity, high efficacy and low systemic toxicity as compared to conventional intravenous chemotherapy injections. Further, this innovation is a platform technology which is thoroughly evaluated for paclitaxel delivery to treat lung cancer but can also be used to treat other lung disorders like tuberculosis, pneumonia, asthma, chronic obstructive pulmonary disorder.

5. Technology: Bone grafts designed via bio-mimetic approach from natural origin materials

Key facts:

Innovator's Name	Prabhash Dadhich
Company/Institution Name	IIT Kharagpur
Address	School of Medical Sciences and Technology, Indian Institute of Technology Kharagpur, West Bengal-721302
Company website	www.iitkgp.ac.in/
IP Status	Applied

Innovation brief

This innovation is about musculoskeletal patients, which stake 26% population currently in India & 35% globally. Current available options are slow in healing, required revision surger ies that cause several associated complications, mostly imported, highly expensive and unaffordable for developing countries.

'SMART GRAFT' is a natural origin 'Ca' source- EGG SHELLS, biological implant, having rapid integration with host tissue, results in faster healing following completely reabsorption and no revision surger ies required. Importantly, it is prepared via minimum processing steps, can be customized and scalable process using biological waste (egg shells) which makes it around 5-10 times less costly and affordable.

6. Technology: Complete Indigenous technology to spin hemodialysis grade hollow fiber membranes

Key facts:

Innovator's Name	Anirban Roy
Company/Institution Name	IIT Kharagpur
Address	Department of Chemical Engineering, Indian Institute of Technology, Kharagpur, West Bengal-721302
Company website	www.iitkgp.ac.in/
IP Status	Patent

Innovation brief

Around 1.5 lakh patients suffer from chronic kidney disease in India and the number is growing at 30% per annum. A minimum of 1 crore cartridges is required annually, but India does not have the technology to spin dialysis membranes indigenously. All the cartridges are imported and each cost around Rs. 1500 – 2000. We have developed an indigenous technology to spin dialysis grade membranes in India and the manufacturing cost of one cartridge is around Rs. 300. These cartridges can be used as export item as well to countries in South-East Asia and the continent of Africa.

7. Technology: Customized orthotic fabrication using 3 dimensional reconstruction of Computed Tomographic (CT) images

Key facts:

Innovator's Name	Sathish Kumar Paul
Company/Institution Name	S.I.H.R & L.C Karigiri
Address	S.I.H.R & L.C Karigiri, Vellore – 632106, Tamil Nadu, India
Company website	www.karigiri.org
IP Status	Applied

Innovation brief

Sensory loss with bony abnormalities would lead to abnormal peak pressures leading to ulcers in the leprosy and other peripheral nerve damaged patients' feet. Noninvasive correction of the bony abnormalities of these patients' foot is possible using customized insoles. The novel customized fabrication process using any 3 dimensional model of the foot would help the patients obtain customized, aesthetic insoles quickly. The insoles thus fabricated could be easily fixed to any of the patients' shoes or sandals and would help in preventing ulcers and high pressures in the insensitive feet of leprosy affected patients. These insoles could be manufactured in less than half the time taken for manufacturing conventional insoles.

8. Technology: Dance Aid for Deaf

Key facts:

Innovator's Name	Janhavi Joshi
Company/Institution Name	MIT Institute of Design
Address	Rajbag Loni Kalbhore, Next to Hadapasar, Pune, Maharashtra 412201
Company website	www.mitid.edu.in/
IP Status	Applied

Innovation brief

Blee is a product for deaf dancers to understand music through the sense of touch. Dance is a great medium of expression for the people with hearing impairment. But owing to their physical limitations, they face several problems. Blee aims to make these specially abled artists completely independent and confident. The product essentially has two parts, a wearable ring and a smart-phone application. Any song is converted into vibrations through the software which are then transferred to the ring via wireless mode of communication. Blee not only helps the deaf understand music, but it could also be a companion assisting them in different tasks throughout the day by giving tactile feedback.

9. Technology: Development of probiotic fermented milk enriched with oat fibers

Key facts:

Innovator's Name	Jigarkumar Bharatkumar Trivedi
Company/Institution Name	Hildur Functional Foods Private Limited
Address	Department of Dairy Microbiology, Anand Agricultural University, Anand Campus, Anand Gujarat -388110
Company website	-
IP Status	In process

Innovation brief

HilDur Provides an accessible, affordable and scientifically endorsed alternatives on the market for individuals looking for a change in their food lifestyle and/or who are at risk of developing lifestyle related diseases. This innovation is a new fermented functional food product (Lassi like product) developed using nutritious components from oats, cow's milk and probiotic microorganisms as the principal ingredients. It includes -glucan rich parts of oats with cholesterol lowering effect, milk proteins with insulinogenic effect and indigenous probiotic lactobacillus strains which offer improved gastro intestinal health status.

The product has been optimized and refined for various parameters at Department of Dairy Microbiology, AAU, Anand and Lund University, Sweden. The product technology was up-scaled for the production process at commercial dairy plant of the AAU i.e. Vidya Dairy.

10. Technology: Development of X-Ray Visible Polymers for Non-invasive Imaging Applications

Key facts:

Innovator's Name	Paulomi Ghosh
Company/Institution Name	IIT Kharagpur
Address	BL-21 Sector II Salt Lake City Kolkata - 700091
Company website	www.iitkgp.ac.in/
IP Status	Patent

Innovation brief

In a developing country like India with a population of more than 1 billion and a skewed patient to doctor ratio, follow up assessments post operation for better clinical decisions is expensive. This inovationis an effort to come up with a solution that is cost effective, as well as compatible with the existing imaging systems. It is a novel radiopaque derivative that is easily detectable with the X-ray radiography, fluoroscopy and CT. The product consists of iodine, a crosslinker and a polymer with amine linkages. The derivative is biocompatible as well as biodegradable as it is made of materials of natural origin. Additionally the derivative could be fabricated to form clinical products to fit the desired application.

11. Technology: DosaMatic- Table top dosa machine

Key facts:

Innovator's Name	Eshwar K Vikas
Company/Institution Name	Mukunda Foods Pvt Ltd
Address	545/15, Mukunda Foods Pvt Ltd, P-17, Opposite ICICI Bank, Bommanahalli, Bangalore-560068
Company website	www.dosamatic.com
IP Status	Patent, Trademark

Innovation brief

DosaMatic- A fully automatic table top dosa making machine. Dosas are a version of pan cakes that are consumed across the globe. This very difficult food to make and requires highly trained chefs to make this. DosaMatic can now make these dosas automatically at just the touch of a button.

12. Technology: Drip chamber with auto end flow retarter and flow blocker

Key facts:

Innovator's Name	P V Narasaiah Naidu
Company/Institution Name	Individual
Address	20-06-198,Ramalingeswara pet,6 th lane, Vijayawada-520003
Company website	-
IP Status	Patented

Innovation brief

Automatic saline bottle is an innovation in the field of Medicine. While executing I V fluids in hospitals care has to be taken to close the fluid supply from the saline bottle when liquid in the bottle is exhausted. If the saline bottle is not closed at the end it may lead to entry of air bubble's into the blood supply system and/or the blood of the patients may flow back into the IV tube and form clots. If air bubble enters the blood circulation system it may lead to air embolism, which may also cause death in rare cases. In case of blood clot in the I V tube it will be very painful for the patient while clearing the clot.

The AUTOMATIC SALINE BOTTLE solves the problem by blocking the fluid flow when the liquid in the saline bottle is exhausted. A hydro- mechanical -membrane (valve) is provided in the saline bottle which senses mechanically the liquid quantity in the bottle and acts accordingly.

13. Technology: Driverless Shuttles for Last Mile Public Transportation

Key facts:

Innovator's Name	Nalin Gupta
Company/Institution Name	Auro Robotics Pvt. Ltd.
Address	Auro Robotics Pvt. Ltd, STEP, IIT Indian Institute of Technology Kharagpur, West Bengal-721302
Company website	www.aurobots.com
IP Status	Patent

Innovation brief

To increase mobility and reduce operation cost by removing driver at sites such as large industrial sites, a university or company campus, Disneyland type theme parks, airports, residential colonies and pedestrianized city centres, driverless shuttles for last mile public transportation are made. While Google and all other automobile companies are racing for urban mobility and passenger cars, this technology is focusing on niche category of last mile public transportation.

14. Technology: Efficient cost effective detection kits for banana viruses

Key facts:

Innovator's Name	Ramasamy Selvarajan
Company/Institution Name	Indian Council Agricultural Research - National Research Centre For Banana
Address	Thogamalai Road, Thayanur Post, Tiruchirapalli, Tamil Nadu-620102
Company website	http://www.icar.org.in/
IP Status	-

Innovation brief

The virus diagnostic kit developed is for producing virus free tissue culture banana plants by the Tissue Culture Production Units, banana growers and also useful for Plant health clinics, Bio-security, and quarantines, banana exporting countries. Use of virus free plants will lead to increase the production and productivity of banana. This will increase the food security, socioeconomic status of banana growers in the tropical and sub-tropical countries. Unlike other kit produces ours is cheaper, more sensitive and quick in detection (saves time)

15. Technology: Energy saving device for producing uniform charcoal heat through LPG

Key facts:

Innovator's Name	Sanghi Sri Hari Rao
Company/Institution Name	M/s Agnisumukh
Address	10(1/3) , Muthanna Gardens, 11th Cross Anepalya Main Road, Opposite to Muthumariamman Temple, Bangalore 560 041
Company website	www.agnisumukh.com
IP Status	Applied for patent

Innovation brief

Agnisumukh is a startup entity which has pioneered energy efficient, clean and green devices for industrial kitchens that produce flameless, smokeless and noiseless radiant heat just like charcoal, by using LPG as a fuel source. It saves more than 30% LPG and 50% water and detergent. Considered to be safer as it operates under low gas pressure and is also eco-friendly since it does not emit carbon soot.

Some of its application areas are industrial kitchens, domestic kitchens, central heating, boilers – pressurised and non pressurised, thermic fluid heaters and other heat appliances.

16. Technology: Fabric based heating elements for warmth/fomentation in medical applications

Key facts:

Innovator's Name	Smita C. Deogaonkar
Company/Institution Name	The Bombay Textile Research Association
Address	LBS Marg, Nr. R-City Mall, Ghatkopar-W, Mumbai 400086
Company website	www.btraindia.com
IP Status	Patent

Innovation brief

Developed fabric based heating elements are ideal for patients suffering from Arthritis, back-aches, joint-muscle pains and those looking for thermal therapies with cheaper cost. Developed fabric based heating elements, were used and tested for its functioning in warming jacket and heating pads. Heating is found to be very effective. In colder region, the temperature of the developed pads can be maintained at 40-45 oC. A 24 V rechargeable battery is used as a power source.

These pads can also be used as a thermal therapy which has been used for centuries to combat backaches, muscle and joint pain.

17. Technology: Foot mounted pedestrian navigation made easy

Key facts:

Innovator's Name	Amit Kumar Gupta
Company/Institution Name	GT Silicon Private Limited
Address	LIG – 1398, Avas Vikas – 3, PO – NSI, Kalyanpur, Kanpur (UP) – 208017
Company website	www.gt-silicon.com, www.inertialelements.com
IP Status	Open source, patent not required.

Innovation brief

Saving life of a rescue agent like firefighter, requires tracking his step movements indoor, in absence of GPS, maps or any other pre-installed infrastructure. Similarly gait analysis of a patient suffering from movement disorders, as in Parkinson's disease or orthopedic asymmetry, requires accurate data associated with step movements. For such applications, a foot-mounted pedestrian navigation device has been devised.

The Osmium MIMU22BT, delivers superior tracking performance at compelling price-performance ratio. It is a compact wearable tracking sensor. The simplicity in integration, cuts short development time significantly for the system integrators and let them focus on developing innovative applications around our product. It is based on an open-source platform OpenShoe.

18. Technology: Futuristic eco-friendly safe rechargeable magnesium-ion battery

Key facts:

Innovator's Name	J.Vatsala Rani
Company/Institution Name	India Institute of chemical Technology
Address	FluoroOrganics, IICT, Telangana, Hyderabad-500007
Company website	www.iictindia.org
IP Status	Patent

Innovation brief

The technology developed is a rechargeable Mg based battery. The components of the battery are Magnesium (Anode) modified crystalline graphite (Cathode) and imidazoium based ionic liquid + magnesium perclorate (Electrolyte). The materials of the battery are available abundantly, eco-friendly, safe and biodegradable. The battery can be used to power UPS, inverters, automobiles, telephone towers, fork-lift trucks etc. Substitute to highly toxic and carcinogenic lead acid battery, which occupies 60-% of battery market.

19. Technology: Genetic diagnostics and personalized medicine for maximum healthcare

Key facts:

Innovator's Name	Sooraj Ratnakumar
Company/Institution Name	Swagene
Address	28 KR Ramasamy Nagar, Velachery Main Road, Chennai-600042
Company website	www.swagene.com
IP Status	None

Innovation brief

Swagene, translated as 'My Gene', is an award-winning knowledge laboratory that offers genetic diagnostics for personalized medicine. The results guide doctors on immediately actionable therapies tailored to the patient, resulting in high treatment success rates. Thereby also saving the patient's time and healthcare costs. Having launched in-house developed and validated assays in Infertility and Cardiovascular disease, currently teste are being developed for various Blood cancers. It will aim at developing novel noninvasive diagnostics for solid cancers, organ transplantation and prenatal diseases.

The company is consulting with IP lawyers for patenting non-invasive diagnostics of cancers, transplantation and prenatal diseases.

20. Technology: Guardian

Key facts:

Innovator's Name	Manik Mehta
Company/Institution Name	Leaf Innovation Private Limited
Address	1451/23,First Floor, Naiwala, Karol Bagh, New Delhi 110005
Company website	www.leafwearables.com
IP Status	-

Innovation brief

SAFER is a wearable safety jewelry designed for women safety. Activating SAFER by pressing it twice will send out an alert to pre-selected people called Guardians, who will then be able to track her movement in, real-time on maps. A woman can also enable the alert to go out to other SAFER app users (the SAFER community) so that more people can come to her assistance. The larger the community, the quicker help will reach the woman who needs it. The system works on both Internet and SMS. Other features include SaferWalk, where the woman can choose the beginning and end point of her commute, and select a Guardian who will then be able to SaferWalk with her in real-time on maps, till she reaches her destination.

21. Technology: Heat Sink for UV LED Curing Solutions

Key facts:

Innovator's Name	Pratik Mukesh Lotia
Company/Institution Name	Violet395nm [Brand Name for Product] – parent cos VenTech & Hari Impex.
Address	402, 1/A, Gokul Gaurav, Shivaji Road, Dhanukarwadi, Kandivali (West), Mumbai – 400067
Company website	www.violet395nm.com
IP Status	-

Innovation brief

Ultra violet (UV) light is used to cure (dry) inks, coatings, over-print varnishes in the printing, packaging & coating industries. A special mercury lamp is used as a source for UV light along with necessary arrangements suitable to the system. However, there are lots of shortcomings of using mercury lamp based UV Curing system. These shortcomings have been removed by the UV Curing system solutions which use special LEDs (Light Emitting Diodes) as UV light source. These LEDs are used on complex mechanism of heat sink i.e., metal body used to transfer heat from LEDs to surrounding environment, this heat sink and the electrical & electronic control system has been designed by us.

22. Technology: Home based devices for speech and language problems

Key facts:

Innovator's Name	Prashant Kumar Goyal
Company/Institution Name	Innoflaps Remedy Pvt. Ltd.
Address	99, Ground Floor, New Rajdhani Enclave , Preet Vihar, Delhi-110092
Company website	www.innoflaps.com
IP Status	Applied for patent

Innovation brief

This home based therapy product is dedicated to 20 million speech and language impaired children and adults such as Hearing impairments, Autism, stammering, and neurological disorder in India. Unlike other Speech Therapy products, the devices are much affordable and convenient with fast recovery. The device can be used by patient, teacher and professional even parents at home.

23. Technology: Inclined flanged diffuser augmented small wind turbine

Key facts:

Innovator's Name	Sandip Achutrao Kale/S. N. Sapali
Company/Institution Name	Trinity College of Engineering and Research, Pune/ College of Engineering, Pune
Address	Flat No. 511, Ganesh Nakshtram, Opposite Venkatesh serenity, Dhayari, Pune - 411 041
Company website	www.kjsedu.com
IP Status	Patent

Innovation brief

In the present scenario of ever increasing energy prices and shortage, wind energy is a most promising renewable energy source with huge potential. This innovation is a traditional wind turbine covered with an efficient and feasible diffuser, to increase the wind velocity and hence power output. This wind turbine produces more than two times power compared to traditional wind turbine. Light weight, compactness, manufacturing simplicity, enhanced stability, less noise, low cost are some important benefits of this wind turbine. The cost of this turbine is compatible with conventional sources and much lower than solar energy.

24. Technology: Inclusive healthcare for all - local language health videos and animations

Key facts:

Innovator's Name	Padma Rammoorthy
Company/Institution Name	Med Health TV
Address	H1404, Brigade Gateway, Malleshwaram West, Bangalore-560055
Company website	http://www.med-health.org/
IP Status	None

Innovation brief

Med-Health TV is an online portal that will provide local language video content lasting 2 to 3 minutes on topics related to Health, Medicine and preventive care using multi-media and animation so that a layman can understand. With an estimated 45 million users who access content on the Internet in their language, combined with a major dearth of local language health related information, there is a ready opportunity for Med Health. Low on bandwidth, accessible 24x7, and soon available as an app on the smartphone, Med-Health TV is health education anytime, anywhere for every Indian.

With an estimated 45 million users who access content on the Internet in their language, combined with a major dearth of local language health related information. Med-Health TV with videos in 4 major languages and expanding to 3 more languages, could be a major source for healthcare information and education in regional languages.

25. Technology: Jasper Creations

Key facts:

Innovator's Name	Tony Mammen John
Company/Institution Name	E Health Technology Business Incubator
Address	PES School of Engineering Pixel Park A, 3rd Floor, Electroninc City, Bangalore 560103
Company website	www.jasperconcept.com
IP Status	Patented

Innovation brief

"Shoes of Peace" Footwear as a Service are shoes made with water pollution free compostable leather and recyclable polymer soles having embedded scan-able tags. Information available will be its environmental footprint and the resources utilized during the collection of materials, manufacture of components, and assembly of the footwear. The consequent resource mitigation data when the footwear is collected back at end of use and disassembled as leather which lends itself to composting for use as plant growth factors and the polymer soles recycled as new soling materials is positioned as the schools or institutions positive contribution to society through the annual Corporate Social Responsibility report.

26. Techchnology: Low cost and green manufacturing using smart enzymes libraries

Key facts:

Innovator's Name	Rajkumar Rajagopal
Company/Institution Name	CELLZYME BIOTECH
Address	24-A, First Street, Coop Colony, Mettupalyam- Coimbatore, Tamil Nadu - 641301
Company website	www.cellzyme.com
IP Status	Patented

Innovation brief

CELLZYME BIOTECH had developed an innovative enzyme that can be used by pharmaceutical companies. The enzyme is developed using recombinant DNA technology. The enzyme can be used as a processing aid to shift the existing chemical process, which generates pollution to an enzymatic process that is greener and safer. The innovative product can be used for the large scale manufacturing of cephalosporin antibiotics.

Current manufacturing process is carried out at -60 C with higher amounts of sodium hydroxide (alkali) and huge volumes of organic solvent. It is desirable to develop a cost-effective, eco-friendly, green manufacturing of pharmaceutical intermediates for cephalosporin antibiotics. Traditionally, synthesis of cephalosporins has required an inefficient chemical process that involves significant quantities of organic solvents. To address these requirements, it is imperative to design an enzymatic process.

27. Technology: Low-cost point-of-care diagnostic device for blood cell counting

Key facts:

Innovator's Name	Prakhar Jain
Company/Institution Name	MicroX Labs
Address	Society for Innovation and Development Center Indian Institute of Science Campus Bangalore-560012
Company website	www.microxlabs.com
IP Status	-

Innovation brief

The technology provides complete blood cell count and Hb for rapid diagnostics. Currently, the diagnostics based on blood tests is confined to laboratory settings and dependent on costly and bulky cytometers or on a microscope. Consequently, such facilities are not present in rural settings due to cost factor, complexity of use and non-portability.

The present technology leverages advances in microfluidics and lab-on-chip fabrication techniques to miniaturize the conventional cytometers, which will be drastically bring down the cost, will consume small reagent quantities without compromising on gold standards. Such hematology analyzers will be find its use in homes, rural health care, ambulances, providing rapid yet reliable CBC testing.

28. Technology: Low cost portable and safe digital X-Ray for the use in orthopedics and pediatrics clinics

Key facts:

Innovator's Name	Karthik Somasundaram
Company/Institution Name	Mother Diagnostic Systems Pvt Ltd
Address	No:156, 4th A Cross, Kasturi Nagar, East of NGEF, Bangalore – 560043,
Company website	-
IP Status	Applied for patent

Innovation brief

The product is portable Digital X-Ray which costs 10% of conventional Digital X-Ray. It is very safe and provides twice better quality image than conventional Digital X-Ray. Digital X-Ray can be used for hand and leg Digital X-Ray. It can be carried in ambulance, earth quake affected areas, Village clinics etc.

29. Technology: Micro Paper-Pencil Fuel Cell

Key facts:

Innovator's Name	Ravi Kumar Arun
Company/Institution Name	CSIR-Central Mechanical Engineering Research Institute, Durgapur
Address	CSIR-Central Mechanical Engineering Research Institute, Durgapur, West Bengal-713209
Company website	-
IP Status	Patent

Innovation brief

In an attempt to meet the power demands of low power electronics, a micron sized fuel cell which is developed using a paper and pencil made graphite electrodes to convert chemical energy into electrical energy is presented. This fuel cell can work for longer duration at the consumption of very low volume of fuel. This flexible and inexpensive device can be applied in glucose sensors, pregnancy kits, amperometric tests, mobile phones, laptops and medical implants.

30. Technology: MiraCradle - Neonate Cooler

Key facts:

Innovator's Name	Ankit Jhanwar, Samit Jain. Devendra Jain
Company/Institution Name	Pluss Advanced Technologies Pvt. Ltd
Address	610-A Udyog Vihar Phase V, Gurgaon-122016
Company website	www.plus.co.in; www.miracradle.com
IP Status	In process

Innovation brief

MiraCradle™ - Neonate Cooler is an affordable passive cooling device for newborns suffering from birth asphyxia. It uses the advanced savE® Phase Change Material (PCM) technology to cool babies and maintain the temperature of the newborn between 33-34 C for a period of 72 hours with no requirement of constant electricity supply and minimal manual supervision. Neonate Cooler is safe, easy to use, and portable and costs less than 1/8th of the present devices in the market.

Phase Change Materials (PCMs) are special thermal energy storage materials that store and release heat at a particular temperature. The thermal energy transfer occurs when the material changes phase from solid to liquid or liquid to solid. MiraCradle™- Neonate Cooler uses the first of its kind - Form Stable PCMs. PCMs have been incorporated in a polymer matrix to ensure that when changing phase from solid to liquid PCMs retain its shape and form avoiding any risk of the PCM leaking from its encapsulation, thus making it completely safe for the user as well as the patient.

31. Technology: Mobility solution for patients with neurological disorder / spinal cord injury

Key facts:

Innovator's Name	Mihir Apte
Company/Institution Name	Hylpres Technik Engg. Co. Pvt. Ltd.
Address	D-25, Shalimar Indl Est, Matunga, Mumbai-400019
Company website	www.botx.in
IP Status	-

Innovation brief

The company is involved in manufacturing of Defence related robots. This innovation explores and gives solutions for rehab of soldiers who have Neurological and spinal cord injuries. It is a Robotic Vehicle which is useful for Patient Transfers and for helping them to conduct exercises required for Rehabilitation and GAIT training.

32. Technology: Molasses spent wash treatment (decolurization and detoxification) to algal biofuels

Key facts:

Innovator's Name	Sangeeta Prashant Naik
Company/Institution Name	Cleanergis Biosciences Pvt. Ltd.
Address	001, Indus Aspire Apts, No 3, 3rd Main, Bhoopsandra, Bangalore 560094
Company website	www.cleanergis.com
IP Status	Yet to apply

Innovation brief

This technology is cleaner and greener technology. This is a clean and green technology. It has the capacity to remediate the pollution caused by industrial waste water and also yield revenue through the creation of algal biomass. These units generate large volume of dark brown coloured wastewater, which is known as "molasses spent wash" (MSW). The most damaging effect of MSW on a stream is caused by high concentration of readily decomposable organic matter. Soluble and suspended organic matters present in MSW, results in high BOD (Biochemical Oxygen Demand) and COD (Chemical Oxygen Demand) thus creating a foul smell. This further promotes growth of nuisance organisms and can render the stream totally unfit for propagating fish life and for the purpose of drinking, personal hygiene, recreation and other purposes. MSW, when drained into a water source, make it susceptible for the propagation of harmful microbes resulting in water borne diseases. Distillery effluents, therefore need to be treated and/or utilized profitably. The present invention has generated a novel matrix based technology that can be used for decolourization and detoxification of MSW. The technology works in two steps. The first step involves treatment of MSW with the matrix that results in its decolourization and detoxification. This step makes the spent wash less toxic and suitable for algal growth. In a second step, algae are cultivated on the treated spent wash. This results in reduction of BOD and algal growth results in oxygenating the spent wash. The effluents generated from this treatment would be very healthy to be drained in a stream or used for any purpose. The algal biomass can be harvested and can be used for green manure, biofuel purpose or high value chemicals. Hence this is a greener and cleaner technology remediating pollution and yielding some revenue through the bye-products.

33. Technology: Myco-tablets for decolorization of dye waste water

Key facts:

Innovator's Name	Anushree Malik, Prachi Kaushik, Abhishek Mishra
Company/Institution Name	Indian Institute of Technology Delhi
Address	271, Block III, CRDT, IIT Delhi, Hauz Khas, New Delhi-110016,
Company website	www.iitd.ac.in
IP Status	Patented

Innovation brief

Dye removal using myco-tablets is an efficient and versatile process which covers wide range of dyes. It can be customized as per needs and practices of industry. The process aids easy sludge separation and can be integrated in to existing plants operated by unskilled labor.

Myco-tablet production is a simple process based on low cost resources. In-built carrier based nutrient is sufficient for supporting growth resulting in efficient dye removal. These are easy to pack and transport and can be stored in non-refrigerated conditions.

It is a solution for the pressing need of removal of polluted dyes from waste water generated by various textile and paper industries.

34. Technology: NetPlug : Give the power of internet to your products

Key facts:

Innovator's Name	Pranav Pai Vernekar
Company/Institution Name	Inventrom
Address	10, Gaspar Apts, Near People's High School, Mala, Panjim, Goa-403001
Company website	www.inventrom.com
IP Status	Patented

Innovation brief

NetPlug is an Internet of Things (IoT) device that lets manufacturers of electrical appliances, electronics devices and Industrial machinery to connect their products to the Internet. Due to its unique architecture NetPlug works with any machine, be it an Air Conditioner, a Refrigerator, Television, Microwave or any Industrial machinery. NetPlug allows users to control all these devices via a Smartphone App and other web based tools such as social media.

NetPlug is highly scalable -the same system can be used in almost any Electronic device, Electrical appliance or Industrial Machinery. Due to the unique patented architecture, the same App can be used to work with different devices. To the manufacturers, NetPlug levels the playing field. It simply brings down the cost of an iOS and Android App as well as cost of hardware development to zero.

35. Technology: Off-grid renewable energy based cold storages for "First Mile" of our food supply chain

Key facts:

Innovator's Name	Akash Agarwal
Company/Institution Name	New Leaf Dynamic Technologies Private Limited
Address	212, Okhla Industrial Estate Phase – 3, New Delhi
Company website	www.newleafdynamic.com
IP Status	Patent

Innovation brief

New Leaf Dynamic Technologies (P) Ltd. with 4 years of in-house R&D, have developed GreenCHILL: an off-grid, compressor-less & renewable energy powered refrigeration system that uses farm waste (biogas, cow-dung cakes, biomass pellets, dead wood, husk, hay, bamboo waste etc.) or biomass Gasifiers (producer gas) or waste heat of generators for cooling. GreenCHILL doesn't have moving parts in the refrigeration cycle. GreenCHILL uses only 40 liter of hot water to cool 1,000 liters milk & 10 MT of fruits, vegetables or any other horticultural produce.

The system has been built to store the agricultural produce at the village/farm level before it is transported to the market or to a processing facility. It can be integrated with new or existing industrial standard cold storages & bulk milk coolers. GreenCHILL will directly benefit small, marginal farmers as wells as producer cooperatives, who can use this refrigeration technology to refrigerate their produce until it is ready to be taken to market; thereby reducing food wastage & maintaining high quality of agricultural produce leading to higher price realization.

36. Technology: Production of carbon nano-material from industrial gas emissions

Key facts:

Innovator's Name	Amit Kumar
Company/Institution Name	Carbon Continuum Private Limited
Address	Plot No: 60, Mythri nagar, Phase-3, Madinaguda, Miyapur, Hyderabad- 500049
Company website	www.carboncontinuum.com
IP Status	Patented Technology

Innovation brief

Carbon Continuum has developed a reactor that captures greenhouse gases from industrial factories and converts the gas into one of the strongest and lightweight materials in the world- Carbon Nano Tubes (CNTs). The reactor can be used by factories to curb their carbon emissions and create a revenue stream through the sales of CNTs. Our CNTs are positioned to be used to enhance the performance of existing materials (aluminum, rubber, plastic, steel, cement etc.,) to make them stronger and more light-weight. For example: If used with steel in appropriate proportion, it can increase the strength of steel by 16 times and with copper the conductivity increases by about 300 times.

CNT-reinforced materials can be used in sporting goods, building construction, electronics and all modes of transportation, with particular emphasis on space travel.

37. Technology: Rice Husk Ash to highly dispersible silica

Key facts:

Innovator's Name	Tanmay Pandya
Company/Institution Name	Bridgedots Techservices Private Limited
Address	II Floor, G-42, Sector 63, Noida
Company website	www.bridgedots.com
IP Status	Applied for patent

Innovation brief

Rice husk is used as fuel in industries as its calorific value is very high. Rice husk ash is a waste generated after utilization of rice husk as fuel. Every year more than 2-3 million tons of rice husk ash is generated in India. As it doesn't have any commercial application, it is generally landfilled or thrown in open grounds. Open dumping of rice husk ash affects the environment negatively as this ash has high pH value and affects fertility of the land.

This technology uses this ash as raw material and extracts highly dispersible silica from it. Silica is a chemical compound with application in various industries including rubber, tire, food, dental etc. This technology produces an advance grade of silica which has an application in tire industry. This grade is used as filler in tires and it improves the performance of tires. It reduces the rolling resistance of tire, which results in reduction in fuel consumption of vehicle and reduction in emission of green house gases from the vehicle.

38. Technology: Smartphone integrated noninvasive fetal ECG monitor to detect fetal distress

Key facts:

Innovator's Name	Vibhav Joshi/ Sumedh Kaulgud
Company/Institution Name	Sattva MedTech
Address	5th Floor, Aanand Towers, Rajaram Mohan Roy Road, Sampangiramanagara, Bangalore - 560025
Company website	www.sattvamedtech.com
IP Status	Yet to apply

Innovation brief

Sattva MedTech is developing a next generation, non-invasive Fetal Health monitor to track the baby's well-being during labor and child birth. The goal is to adress 300,000 perinatal deaths caused by fetal distress and related conditions. The device called the Sattva Fetal Lite uses advanced sensors and composite stochastic pattern recognition algorithms to greatly enhance the accuracy and ease of use. The device is designed and engineered for India and LMICs.

India has a large number of young mothers who undergo multiple, rapid pregnancies. They suffer from Anemia and malnutrition or conditions like gestational diabetes and hypertension. In these cases, during labor the baby does not get enough oxygen supply and tries to compensate by erratically varying it's heart rate. This condition is called fetal distress and the current technology to diagnose this condition is variable, unreliable, required skilled operators and is big and bulky. It is unviable for India.

39. Technology: Smart baby bracelet

Key facts:

Innovator's Name	Swapnil kokate
Company/Institution Name	Institute of chemical technology
Address	Dr. S.T. Mhaske, PRC Ground Floor, Institute of Chemical Technology, Matunga, Mumbai-400019
Company website	www.ictmumbai.edu.in
IP Status	Applied for patent

Innovation brief

15,000,000 low-birth-weight and premature babies are born each year. Hypothermia, a condition where body temperature falls below the normal range, is a major cause of death. One of the major reasons for hypothermia is up to 13% loss of water from body by evaporation. Humidity in the surrounding atmosphere of the baby decides the evaporation of water. Hence, in scenarios when outside humidity is low, baby has to be protected from external environment to secure its life. Smart Baby Bracelet (SB2) is the colour changing humidity indicator that indicates whether the baby should be protected from the low outside humidity. It tracks external humidity and senses adverse conditions for baby's body and changes colour to attract attentions of parents to say 'Help Me'.

Indian Patent is filed and international application is in process.

40. Technology: Smart sand - ZaaKSand™

Key facts:

Innovator's Name	Dr. Abbas Khan
Company/Institution Name	ZaaK Green Building Products Pvt Ltd
Address	Level 2, 213 Raheja Chambers, Nariman point, Mumbai 400021
Company website	www.zaak.co.in
IP Status	Patent pending

Innovation brief

ZaaK has developed a unique technology to convert fly ash into lightweight sand (ZaaKSand™). It is an excellent alternative to normal sand and as such the technology provides an answer to the above both issues by transforming fly ash into value added sand. ZaaKSand™ is world's purest building material and is regular in shape, size and gradation, resulting in excellent workability. Replacing natural sand with ZaaKSand™ in a building will result in (a) energy saving from increased thermal efficiency (b) saving of cement and steel due to higher structural efficiency (c) lower life cycle costs and (d) high LEED™ credit points. The technology can process any types of fly ash, highly scalable and ensures availability of sand round the year.

41. Technology: Super-resolution reconstruction and speckle reduction for enhancement of ultrasound image

Key facts:

Innovator's Name	Sudipta Mukhopadhyay and Debashis Nandi
Company/Institution Name	IIT, Kharagpur
Address	Dept. of Electronics & EC Engg. IIT Kharagpur, West Bengal-721302
Company website	http://www.iitkgp.ac.in
IP Status	Patented

Innovation brief

First picture of most babies is captured before their birth using ultrasound (US) imaging. However, US imaging lacks spatial resolution and suffers from multiplicative nature of speckle noise. Newer technologies require more hardware that drives the cost but does not increase the image quality in the depth of the body. This innovation uses super resolution (SR) and novel speckle removal algorithm improves image quality and increases operating depth of imaging with a minimal increment in cost. Rural India (>6 lakh villages) provides a big market to exploit the benefit of low cost SR enhanced US system with reduction in maternal mortality rate and improving surgical outcomes. Estimated reduction in cost would be at least 70-80% in comparison with a more hardware intensive equipment.

42. Technology: Spoonful

Key facts:

Innovator's Name	Rashida Taskin
Company/Institution Name	Spoonful
Address	Manipal Institute of Technology, Manipal, Karnataka-576104
Company website	www.manipal.edu
IP Status	Patent

Innovation brief

Spoonful is a social enterprise with a mission to make assistive technology affordable in the health care sector across the nation. The innovation SPOONFUL is an automated assistive feeder which enables the physically disabled patients to have their meals without depending on others. Patients suffering from various forms of disabilities leading to limited motor functions which include conditions like Cerebral palsy, Parkinson's, ALS (Amyotrophic lateral sclerosis) , ageing related conditions and so on can be targeted by this innovation.

43. Technology: Water-free sustainable colouration and functionalization of white and dyed textiles, and garments

Key facts:

Innovator's Name	Kartick K. Samanta
Company/Institution Name	ICAR-National Institute of Research on Jute and AFT
Address	Chemical and Biochemical Processing Division; National Institute of Research on Jute & Allied Fibre Technology; 12, Regent Park; Kolkata 700040
Company website	www.icar.org.in
IP Status	Applied

Innovation brief

For 1 Kg of cotton textile, textile industry use 100 litres of water that is finally discharged as an effluent in contaminated with dyes/pigments, acid, alkali and other chemicals, which causes high water pollution.

Under this technology, innovator developed various plasma machines and novel plasma processing technologies for value addition of textiles without usage of water. A smart water repellent luxury apparel textile (white and dyed textile/garment) has been developed to avoid liquid contamination from rainwater, food, beverages and chemical/pesticides. It also helps in reducing laundering to save detergent and water. Unlike similar traditional product, our smart textile is comfortable due to surface modification at nano-level. In silk dyeing, 100% colour utilization was possible.

44. Technology: XrayTo3D - Tabplan3D

Key facts:

Innovator's Name	Vikas Karade
Company/Institution Name	IIT-Bombay
Address	OrthoCAD Lab, IIT-Bombay, Powai, Mumbai, Maharashtra-400076
Company website	www.xrayto3d.com
IP Status	Patent, Trademark, Copyright

Innovation brief

A novel software product (Tabplan3D) which will use 2D X-ray images as the input and provide 3D surgery planning platform for surgeons. It uses patented 'Xrayto3D' technology to generate accurate 3D bone models from 2D X-ray images within a minute. Hence, it provides 3D visualization without the drawbacks of the CT scans. The 3D visualization, simulation and planning tools of the software will help surgeon to make accurate surgical decisions quickly and easily. Tabplan3D will be available as tablet and web-based application where surgeon will upload a 2D Xray image and will get a 3D view based surgery planning. Since its a cloud based application, it can be accessed from anywhere, anytime and easy to use by any orthopaedic surgeon.

Notes

Notes

For further details, please contact:

Nirankar Saxena
Senior Director
Tel: 011 - 2348 7233
Email: nirankar.saxena@ficci.com

Centre for Innovation, Science and Technology Commercialization
Federation of Indian Chambers of Commerce and Industry
Federation House, Tansen Marg, New Delhi - 110 001