

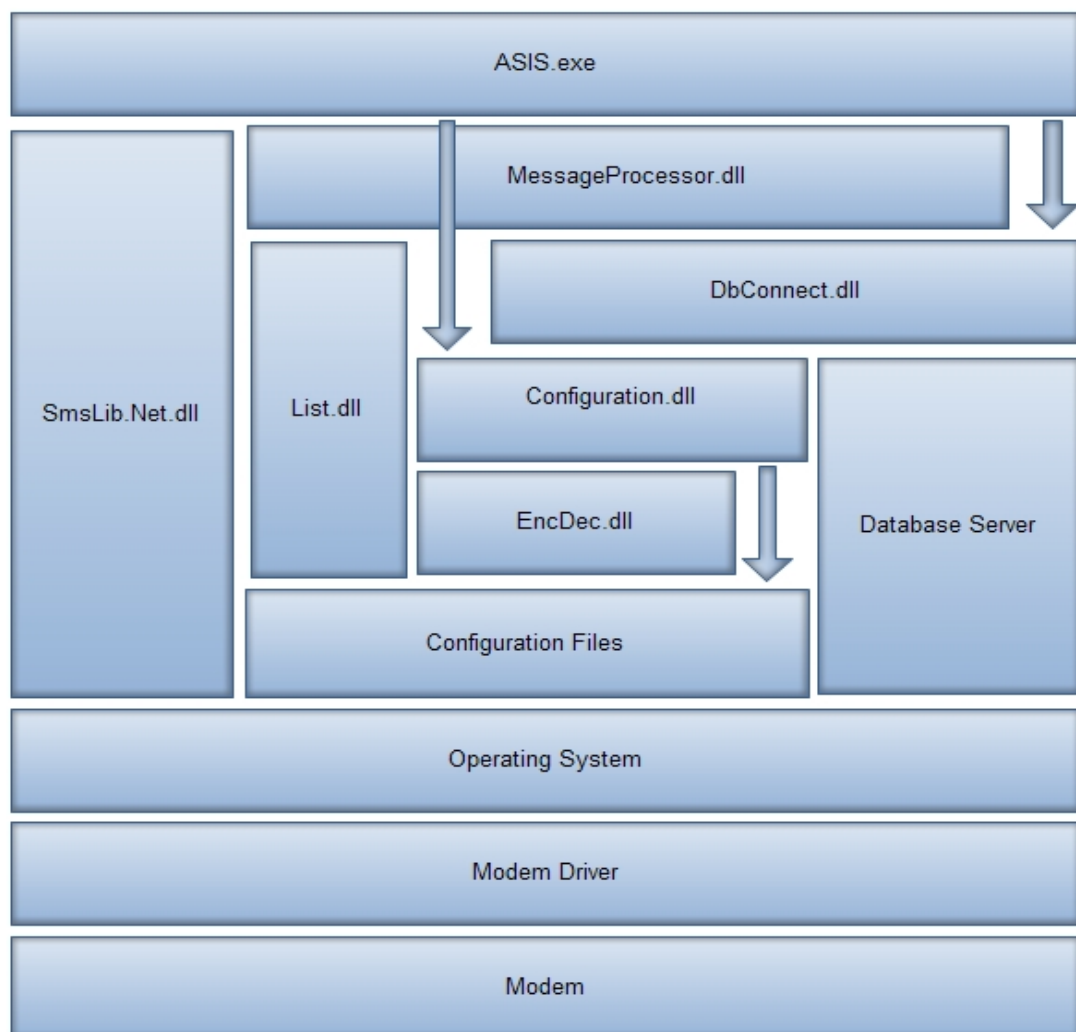
Automated Student Information System

Description of Software Design:

- **Modem:** It is a GSM modem to send and receive SMS Messages. It supports a broad range of GSM modems that support the ETSI GSM 07.05 guidelines. You can connect a GSM modem through one of the following interfaces: Serial port, USB interface, Bluetooth and Infrared. It communicates with computer with modem driver.
- **Modem Driver:** Modem driver is software provided by modem Manufacturer Company that helps to communicate with computers. It is a bridge between modem device and computer system..
- **Operating System:** Operating system is a software application that provides basis for other application to run. Operating system communicates with hardware and controls them. Our ASIS application runs on operating system, and communicates with modem device for sending or receiving SMS.
- **Database Server:** Database server is a central database where all the information are stored and from where a user can query for any information through SMS. Here ASIS application process the query and reply to the inquirer accordingly.
- **SmsLib.Net.dll:** SmsLib.net is a SMS library that contains all the SMS related sending and receiving functions. It directly communicates with configuration files, list.dll, MessageProcessor.dll and operating system. It provides basis to all other dll files and contains all other functions.
- **Configuration files:** Configuration files are XML files that contains all configuration settings for modems likes modem setting, baud rate, port no, database settings etc, and also setting for blacklisted numbers.
- **List.dll:** List file defines functions to blacklist specified mobile numbers. It also check for the previously blacklisted numbers and if any number is blacklisted then ASIS will not reply to the query of that mobile number.
- **MessageProcessor.dll:** Message Processor is the core of all command processing that does all processing. It first beak the received SMS into parts and search for the valid commands and match from the commands stored in database. Then after recognizing the valid commands it issues a SQL command related to that and after that it sends the retrieved information to the inquirer.
- **DbConnect.dll:** Db Connect contains all connection settings and functions that help to connect the Database server and the ASIS

application. It also has functions for group broadcast. All the logins and authorizations are handled by DbConnect.dll. All other components like configuration.dll, database server, ASIS, Message Processor and list.dll directly communicate with DbConnect.dll for all logins and authorizations.

- **EncDec.dll:** It is an encryption and decryption files used for providing extra security to the application. It first encrypts the password and store in the database if required and before using again decrypt it. It uses DES encryption and decryption algorithms for encrypting passwords. It is only used for encrypting database passwords and SIM passwords.
- **ASIS:** ASIS is an Automated Student Information System. It is a higher layer application that interacts with user and also with inner components and database on other side. User directly communicates with the GUI provided in ASIS for Broadcasting message and all other admin related functions. Authorized users can login from here and can perform all other required tasks.



ASIS Architecture

Following improvements can be made in this Application in future.

- Currently the ASIS usages only GSM Modem to send and receive messages but it's future extension can use multiple messaging gateway with round robin scheduling.
- ASIS needs to be started as soon as the system starts, thus it needs to be build as a system service.
- The database connectivity can be improved to support wide variety of database such as MYSQL,DB2 and ORACLE.

For further information, please contact

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