Android based Encrypted SMS System

This is an advanced Encryption and decryption System targeting the SMS for Android Users both go and fro. The User can send an Encrypted message while he can decrypt an encrypted message. The System makes use of the SMS that you see in the inbox, but this system filters out the one which are encrypted and shows it in their Personal Inbox in the Application. The Shared private Key is already defined in the application and one has not to insert anything but the user id which is by default encrypted in the message. So whenever the user is sending a message he should know the receiver's id as the id is also appended to the message so that while the receiver logins to the system the message is already decrypted if he is the desired recipient. The Id is Auto generated and cannot be changed but for the users ease the system allows the user to save the recipient's id in a separate column as Favorites saving the his Id, Name and Mobile No. The Login is necessary here as a single user can have multiple accounts with different ids so that he can maintain each account for different purposes and not clubbing them. This System makes use of AES Encryption Algorithm to encrypt and decrypt the messages. This App uses Android Studio as its front end and SQLite as back end.

Admin:

- **Registration:** The user has to register himself into the system to generate the Unique Id.

- **Login:** The user has to login into the system providing his username and password keeping all the data secure.

- **Inbox**: The user gets to see a list of messages which were encrypted and only sent to him i.e. to his account. The Inbox will only have the senders name and date/time.

- **Message:** The user is allowed to view the complete message which is already decrypted as he selects the messages from the Inbox.

- **Favorites**: As the recipient's Id is difficult to keep in mind the system allows the user to save the recipients Id, Name and Mobile Number for future messages.

- **Send Message**: The user can send messages which will be encrypted once he sends it, here the user should add mobile number and the receipts id or he can make use of the data saved in favorites.

- **Sent**: The user can view the messages that he has sent i.e. only the encrypted ones in the sent folder.

Software Requirements:

- Windows XP, Windows 7(ultimate, enterprise)
- Android Studio

Hardware Components:

- Processor – i3
- Hard Disk – 5 GB
- Memory – 1GB RAM
- Android Phone with kitkat and higher.

- **Feasibility Study:**

A feasibility study is a preliminary study undertaken to determine and document a project visibility also known as feasibility study

The term feasibility study is also used to refer to the resulting document. The results of this study are used to make a decision whether or not to proceed with the project. If it indeed leads to a project being approved, it will-before the real work of the project succeed. It is an analysis of possible alternative solutions to a problem and recommendation on an on best alternative. It, for example, can decide whether an order processing be carried out by a new system more efficient than the previous one.

A feasibility study is an important part of creating a business plan for a new enterprise, since it has been estimated that only one idea in fifty is commercially viable.

➢ **Technical feasibility:**

The User can send an Encrypted message while he can decrypt an encrypted message. The System makes use of the SMS that you see in the inbox, but this system filters out the one which are encrypted and shows it in their Personal Inbox in the Application.

➢ Operational Feasibility:

The Shared private Key is already defined in the application and one has not to insert anything but the user id which is by default encrypted in the message. So whenever the user is sending a message he should know the receiver's id as the id is also appended to the message so that while the receiver logins to the system the message is already decrypted if he is the desired recipient.
The Id is Auto generated and cannot be changed but for the users ease the system allows the user to save the recipient's id in a separate column as Favorites saving the his Id, Name and Mobile No. The Login is necessary here as a single user can have multiple accounts with different ids so that he can maintain each account for different purposes and not clubbing them.

➢ Economic Feasibilty:

The economic feasibility is carried out to know the financial viability of the project in terms of the amount of investment in the system and the output expected. It also includes the cost involved at the time of development of the system as well as future cost in terms of maintenance and other miscellaneous expenditure.

Since the hardware and software requirements are easily available at affordable cost, cost of development is very low

- **Use case Diagram:**

- **Flow chart diagram:**

```
                    ╭─────────────╮
                    │    Start    │
                    ╰──────┬──────╯
                           │
                           ▼
                    ╱─────────────╲
                   ╱    Message    ╲
                   ╲     Input     ╱
                    ╲─────────────╱
                           │
                           ▼
                    ◇─────────────◇
                   ╱   Encryption  ╲                  ┌──┬──────────────┬──┐
                   ╲    or No ?     ╱──── Yes ───────▶│  │    N-TEA     │  │
                    ◇─────────────◇                   │  │  Algorithm   │  │
                           │                          │  │  Encryption  │  │
                           │                          └──┴──────┬───────┴──┘
                          No                                    │
                           │                                    │
                           ▼                                    │
                    ┌─────────────┐                             │
                    │             │◀────────────────────────────┘
                    │ Send Message│
                    │             │
                    └──────┬──────┘
                           │
                           ▼
                    ╭─────────────╮
                    │     End     │
                    ╰─────────────╯
```
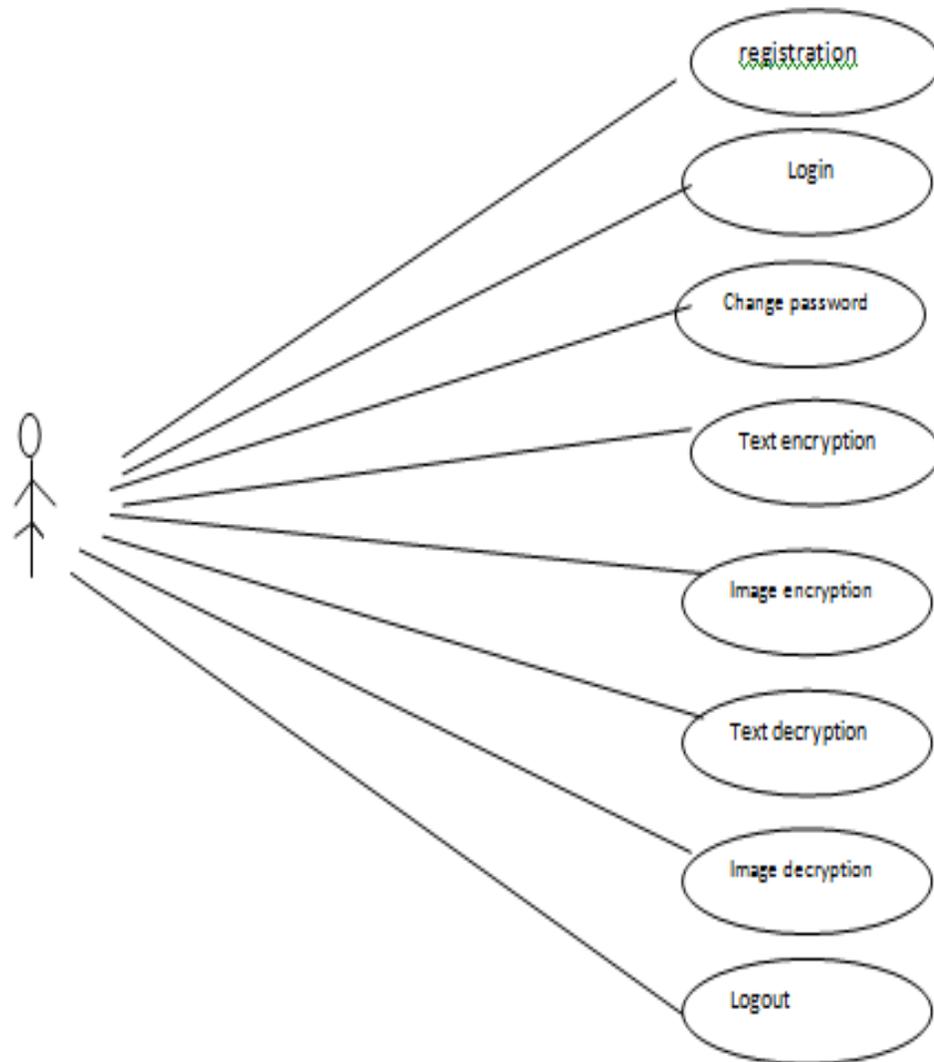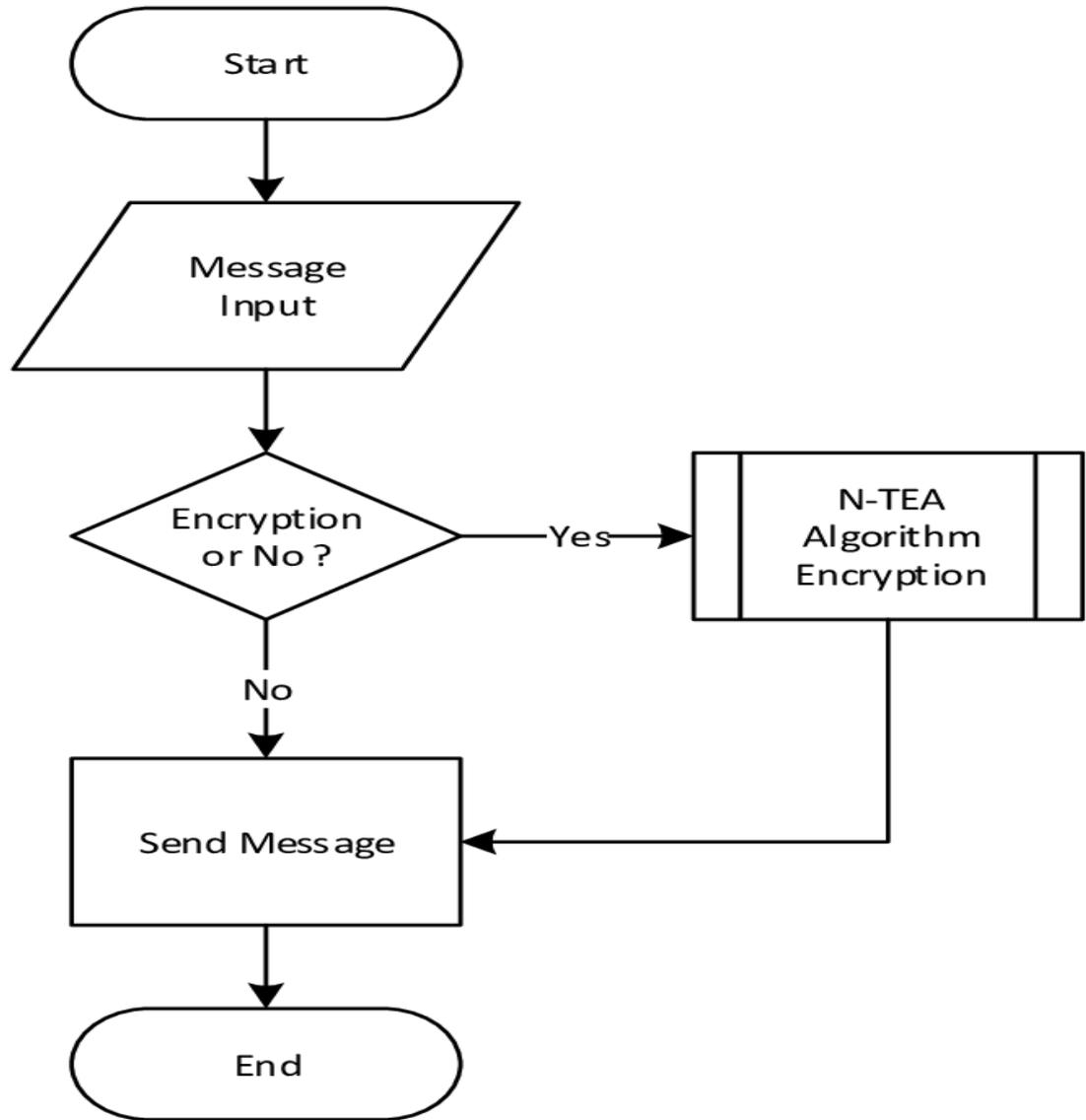
Advantages:
- The user has to login keeping the data secure
- The Messages is already decrypted for you.

- The system also allows you to save recipients details which can be accessed only by the user.
- The messages are simple SMS's but this app filters out all others and just keeps the encrypted ones.
- Fast and Easy to use.
- No Internet Needed.
- It is highly reliable and secure.
- Since only encrypted messages are shown old messages are also loaded quickly saving a lot of time which would go to search messages.

Disadvantages:
- The user has to login from his phone to see decrypt the messages.
- If the user deletes the message from his phone's default app or inbox, it will be reflected on the current system also.
- Messages can't be saved.

Applications: This system can be used by companies or owner or partners if they want few messages to keep it secret.

- Since only encrypted messages are showed in this app it saves a lot of time.