SOFTWARE REQUIREMENTS SPECIFICATION FOR <EMERGENCY SOS APP - FIND ME! >

Version 1.0 Approved

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03/11/2021

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1.Introduction

1.1. Purpose

This Document is meant to delineate the features of an Emergency SOS application, so as to serve as a guide to the developer as a software validation document. The main objective of this project "Emergency SOS app – FIND ME!" is to incorporate all the unique features of SOS emergency feature in Modern smart phones and smartwatches.

The aim of the project is to create an Android application that allows users to send notifications in the event of an emergency or panic. Users can send multiple text messages and e-mails with one click. Phone numbers, emergency calls, and the content of text can be configured from the application. The sent text messages and calls along with the content also have the last known location of the user.
Tracking a person's whereabouts helps a lot. The user can also call 100(local police department), 101 (local fire department), 102 (ambulance) directly from the app if the nature of the situation so requires. In case of any danger there are options for the user to use SOS Sounds, SOS flashlights and can share the location to the emergency contacts.
Additionally, an application user can allow the application to track its location. If this option is selected, the application gets the device's location approximately every 10 minutes and saves it in the database. This information is very useful and can be used in many different ways. One such way to use location data is an Android app where the user can view a map that shows the history of his location over a specific time period for a specific day.

1.2. Document Conventions

- To make the document more effective and readable we used Times new Roman font style and font size 13 for the text and 14-20 for the headings.

- The headings are bold and highlighted with attractive colors. We have also used Italic fonts to make it more appealing.

1.3. Intended Audience and Reading Suggestions

This document is written for the researchers, project managers, programmers, designers, developers, testers, documentation writers, users involved in the application development and modification of "Emergency SOS app – FIND ME!". This document consists of the various steps and procedures for the website, and also describes the scope and other overall features. Finally, with the references.

1.4. Product Scope

MAIN FEATURES OF THE APPLICATION:

- ➢ Secure registration and profile management facilities for the users.
- ➢ Secure access of confidential data (user's details).
- ➢ 24 X 7 availability.
- ➢ Maintaining database of the user's information and updating if necessary.

- The user must give access to the above-mentioned requirements for maximum efficiency which are used in cases of emergency.
- The user will see the **pen** symbol on the top right corner of their screen, where they can modify or update any information.
- The aim of the project is to create an application that allows users to send notifications, SOS messages, pictures, audio and live location in the event of an emergency or panic.
- The user has the liberty to add at most 5-8 emergency contacts.
- This application has the feature to find the nearby police stations, fire departments, hospitals and ambulances using the GPS system.
- This application can be used in all operating systems and in all wired and wireless devices including wearable devices. Some examples, of devices where this app can be downloaded are iPhone, Apple watch, smartwatches, Fitbit, One-plus, Samsung, Laptops.

1.5. Reference

https://www.samsung.com/nz/support/mobile-devices/samsung-sos-smart-phone-emergency-message-guide/

https://support.apple.com/en-in/HT208076

https://techclickplus.com/add-emergency-numbers-xiaomi-emergency-sos/

The basic SRS Template.

2.Overall Description

2.1. Product Perspective

This application is purely meant for people to stay safe in case of any emergency or panic situations, help will surely come. We have considered all the important features needed for any type of situation. It helps the user not to be worried of their safety. Men, women, children, solo travelers and elderly people can install this application which can be used whenever they go out. Find Me! should be user-friendly, ‘quick to learn’ and reliable software for the above purpose. Find Me! is intended to be a stand-alone product and should not depend on the availability of other software. This application can be used in all operating systems and in all wired and wireless devices including wearable devices. Some examples of devices where this app can be downloaded are iPhone, Apple watch, Fitbit, One-plus, Samsung, Laptops.

2.2. Product Functions

After installing the application, the user will be asked to enter his/her personal details such as Name, Residential address, work address, nature of work, phone number, Emergency contacts, Blood group, any medical conditions that is concerned, organ donor, medical notes and address of the emergency contact (all these details must be entered without fail). Other options are also given which are optional such as known allergies, possible threats in current or past, medical records, family details, etc.

USER:

- Tapping on the phone's screen five time or pressing the power button thrice opens the app automatically and the requirements for the apps are turned on. Once the app is active, a countdown will start up to three seconds, in case if it the opened by mistake the user can click the cancel button.
- After entering into the app, the user's live location is sent to the emergency contacts added.
- The users will see the following options:
    - **"SOS FLASHLIGHT"** – In case, if the user is stuck anywhere in dark and wants to grab the attention of the people around when they can't talk.
    - **"SOS SOUND"** – When the user clicks on this option a loud sound will be emitted in order to grab the people's attention.
    - **"CALL OR MESSAGE EMERGENCY CONTACT"** – A call or a message along with the live location is sent to the emergency contacts.
    - **"SHARE LOCATION"** – Live location will be sent to the emergency contacts or to the rescue departments.
- The user will also have the option to send pictures and record the audio of the surroundings which will be sent to the emergency contacts or to the rescue departments.
- The recorded audio, location, pictures of the surroundings will automatically be stored in the app in case of any future needs.
- The user can click on **"History"** where he/she can view the history of locations, pictures, messages, and recordings.
- The user will also have the option to **activate the front and rear camera of phone** to capture pictures, videos with audio as soon as they click on the **"Record surroundings"** which is sent to the emergency contacts.
- This application also has the facility to locate nearby police stations, fire departments, hospitals and ambulances and their respective contact details and addresses which are

extracted with their GPS location and the internet, which are stored and updated regularly according to the user's location.

- This helps the user to call the rescue departments with a click away, instead of searching for contact details and addresses which takes a long time.
- In case if the user in a place where there is no internet connection, SOS messages, pictures and audio will directly be sent to the emergency contact.
- Basic toll-free numbers will already be stored in this app.

  Example: The helpline for calling an ambulance in India at times of emergency is **102**.
  The toll-free number for calling local police is **100.**
  The number for calling the local fire station in India is **101.**
  One can also get emergency response services in case of medical, fire, and police emergencies by calling **108**, the toll-free number. All these numbers can be used with just a click.
- We have also added the voice assistant option for easy use.
- Additionally, an application user can allow the application to track its location. If this option is selected, the application gets the device's location approximately every 10 minutes and saves it in the database. This information is very useful and can be used in many different ways. One such way to use location data is an Android app where the user can view a map that shows the history of his location over a specific time period for a specific day.
- Another unique feature of this application is that when the user activates **"Track Me"**, it automatically sends their current location to any two members of the emergency contacts during every particular interval of time.

  The time limits can be set according to the user's convenience.

  Example: Every 30 minutes the location will be sent to the emergency contact.
  Every one hour the location will be sent to the emergency contact.

2.3. User Classes and Characteristics

The basic requirements of this application to work efficiently:

- Stable internet connection and network is very important in order to track the live location.
- The user must allow or enable his/her current location using GPS system of the phone.
- The user must allow or add his/her contact details in case of emergencies.
- The user must allow or enable his/her phone's camera to take any pictures if needed.
- The user must allow or enable his/her phone's microphone to record any audio in case of emergencies.

2.4. Operating Environment

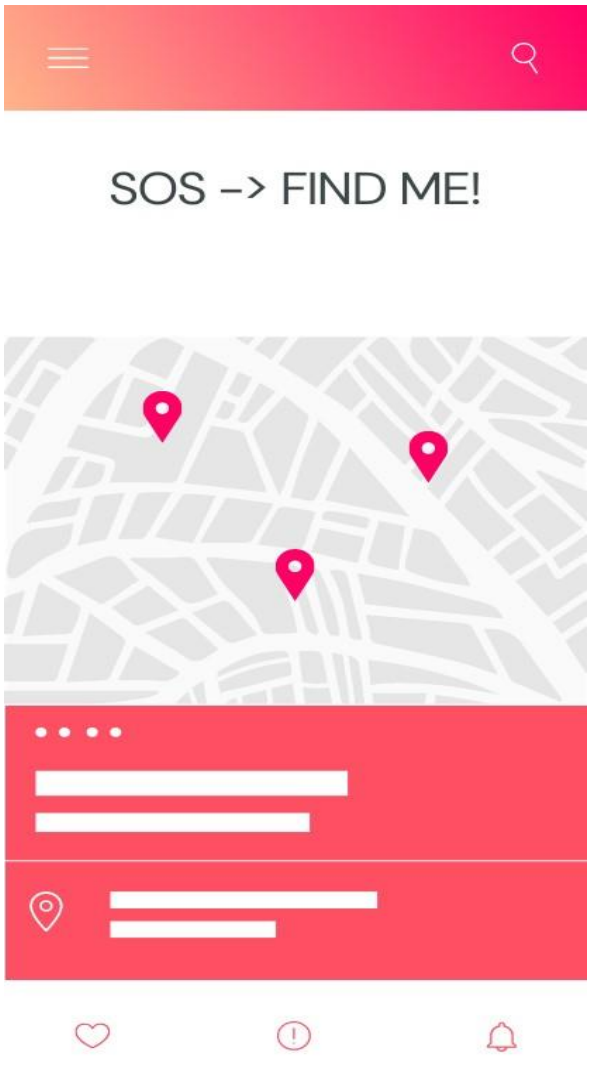
- Processor: Intel Pentium IV or higher RAM:256MB Space on disk: 250 MB (at the least)
  Operating System: Android OS or higher/Mac OS X 15.8, Bada (Samsung), Blackberry OS, Apple iOS

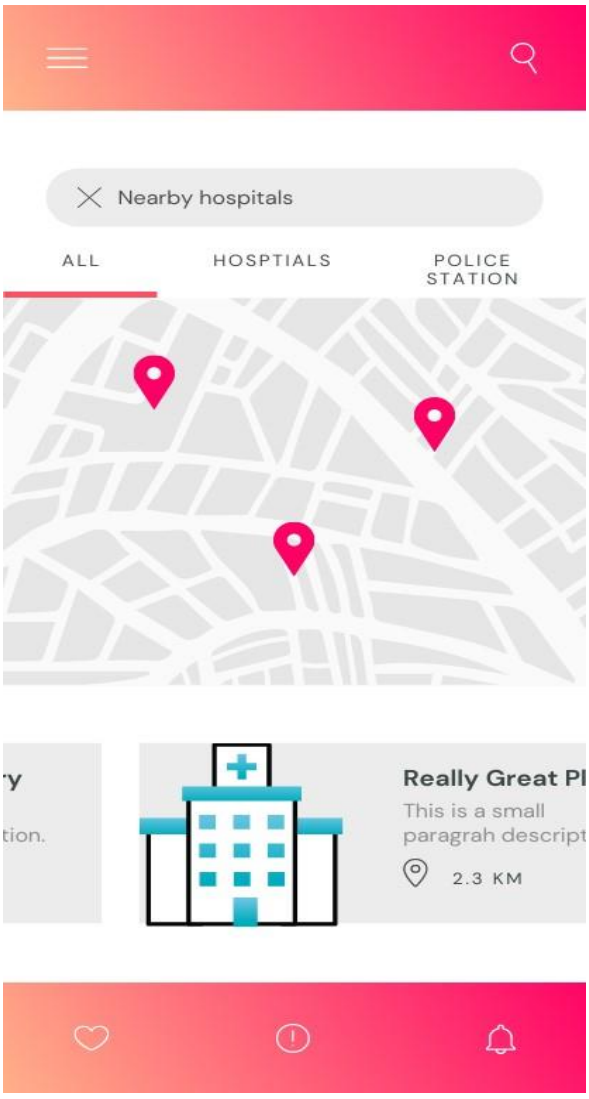
- **Platform**: Android SDK Framework 10 or higher
  Tools: Eclipse SDK 3.5, ADT plug-in for eclipse
  Technologies used: Java, SQLite, Android, Google maps v2 API Debugger: Android Dalvik Debug Monitor Service (DDMS)

- Android Emulator: API level

2.5. Design and Implementation Constraints

PROTOTYPE OF THE DESIGN AND CONSTRAINTS





2.6. User Documentation

Overall view of the application is given below for easy understanding on how the user can utilize the app to the fullest.

3. Assumptions and Dependencies

The assumptions are,

1. The coding should be error free.
2. The system should be user-friendly so that it is easy to use for the users
3. The system should have more storage capacity and provide fast access to the database.
4. Users must have credentials to enter into their accounts.

The dependencies are,

1. The specific hardware and software due to which the product will be run.
2. On the basis of listing requirements and specification the project will be developed.
3. The developers should have proper understanding of the product.
4. The system should have the general report stored.
5. The information of all the users must be stored in a database that is accessible by the portal.

3. External Interface Requirements

3.1. User Interfaces

The Emergency SOS App – FIND ME! allows the user to be safe and feel secured under circumstances or panic situations. This app can be used by everyone who is above 6+ years. The Home screen offers the user to enter their personal details and can add 5-8 emergency contacts. It allows the user to click on SOS Sounds and flashlights in order to get the people's attention and can share the live location of the user to anyone. It also allows the user to share their live location during certain intervals of time to their emergency contacts. This app allows the user to call the rescue departments like police stations, fire departments, hospitals and ambulances with just a click away. All these features are included to make sure the user feels safe whenever they are travelling.

3.2. Hardware Interfaces

The inbuilt features/hardware of the smartphones which are required for the application to function:

Android Hardware Feature	**What It Does**
Accelerometer	Indicates whether the phone is moving
Compass	Indicates in which direction the user is heading
Network	Internet connection and signal is required to send the messages, audio, the user's location and then accesses the web to determine the nearest hospital, police station, fire department and ambulance.
Camera	Take pictures and record video using front and rear camera
GPS receiver	Indicates the user's exact location
Flashlights	Many phones include **a small, bright white LED that functions** as a flashlight. A **flashlight**, or torch is a portable hand-held electric light.
Microphone	A microphone is a device that **translates sound vibrations in the air into electronic signals or scribes them to a recording medium**. Microphones enable many types of audio recording devices for purposes including communications of many kinds, as well as music and speech recording.

3.3. Software Interfaces

- Our application will be compatible with Android and iOS.
- Technologies to be used are UML, J2EE, XML, AJAX, Spring, Struts, Hibernate, Java, C, C++, MySQL and tools to be used are ROSE/RSA / WebSphere Modeler, Jenkins/GitHub/Canva.
- These tools are mainly used for styling of the page. The information of the users and also the details of sent messages, audio, pictures and history of places are stored in a database using SQL queries.
- Each and every command is based on the coding for which the action takes place.
- The application is designed using html in such a way that when user enters the details, the details get stored in the database tables. By this way these tables are created using My SQL to store the user's information.

3.4. Communications Interfaces

Users can download the app and register their name, their personal details, medical records and emergency contacts. The user will have to make sure of having a good internet connection and network.

4. System Features:

4.1. System Feature 1: App Installation

4.1.1 Description and priority:

It is a necessity for the user to have an android or an apple phone which enables them to install the app, from the play store(android) or the app store (iOS). The user must have a stable internet connection for uninterrupted downloading and installing purpose.

4.1.2 Response sequences:

This app occupies a certain memory in the phone, the app icon is displayed along with other apps on the phone, the app creates its own database on phone, which enables the app to work to its fullest.

4.1.3 Functional Requirements:

The user must be an android or iOS user. The internet is required only for the downloading purposes, sending location, messages, pictures, audio, etc, can be sent without the help of internet (Note: But the network (signal/tower must be strong/stable enough to send the necessary information). Provides a full experience to the user on their iOS or Android smartphone. Most responsive option that is key to usability.

- ☑ App users must log in by entering their username and password the first time they open the app on their device. Then it stays with the application until explicitly logged out.
- ☑ Users without an account can register from the login screen.
- ☑ Users can also choose to reset their password if they forget their password. A new password has been set for the user and an email with this new password is sent to the registered email ID.

4.2. System Feature 1: Permission /Access

4.2.1 Description and priority:

It is needed to identify who is using the application and to keep track of their activity, as well as improve the user experience by making it easier to look through and customize the app without any complicated issues in just a click.

The user can also change the permission/ access whenever they want, it's purely customized by the user.

4.2.2 Response sequences:

When the application is opened, the tracking elements which includes GPS, microphone, camera (front and rear), contacts (NOTE: all these must be given permission at the starting of the installation so that whenever the user, uses the app all the necessary elements will automatically enable themselves.) must be activated and ready to use. The application secured under the customer's account cannot be opened if no emails or phone number is linked with the app to ensure the information security of user and to confirm the identity of the user. This is an especially important feature for an application for having a secured access. Security is important and hence it comes to top priority. The user must grant all the access permission for the efficient use of this app during emergency.

4.2.3 Functional Requirements:

The user can avail the services of the app if and only if he has an account and granted permission to access all the specified condition. The user must provide an access to the contacts, Location, Flashlight, speaker, and GPS (Global Positioning System) tracker so that he/she can choose their emergency contacts to send message or recording, share location with them in case of any emergency

The user will also have the option to **activate the front and rear camera of phone** to capture pictures, videos with audio as soon as they click on the **"Record surroundings"** which is sent to the emergency contacts.

- ☑ A home screen widget that can be used as a triggering point to send panic notifications. A user would then not have to open the app to send these panic notifications.
- ☑ Initiating a call to a number set from within the application when the user presses the panic button.

4.3. System Feature 3: User Database

4.3.1 Description and priority:

For the proper functioning of the app the user must enter all his specific health issues and other details like name, email, alternate number so that this app also helps the user to track his/her health condition. The user can also update the user database whenever they want, it is purely customized by the user.

4.3.2 Response sequences:

This can update the user about their health condition, and its increases the ease for the user to work on this app.

4.3.3 Functional Requirements:

The user must ensure all the details he/she enters is accurate for proper care in emergency times (E.g.: allergies known, medical conditions etc.). The user must spend some valuable time in creating a proper database, as this the core of the app and if entered any erroneous information about the medical conditions or any as such might lead to unwanted seriousness while tending the user to care/hospital, the app may not function according to the user. Its compulsory for the user to enter his/hers Name, Residential address, work address, nature of work, phone number, Emergency contacts, Blood group, any medical conditions that is concerned, organ donor, medical notes, and address of the emergency contact (all these details must be entered without fail).

Other options are also given which are optional such as known allergies, threats in current or past, medical records, family details, etc.

☑ Users can activate the option to initiate location tracking. When this option is selected, the application will fetch the location of the device (approximately every 15 minutes) and store it in an external database.

4.4. System Feature 4: Track Me

4.4.1 Description and priority:

Another unique feature of this application is that when the user activates **"Track Me"**, it automatically sends their current location to any two members of the emergency contacts during every interval of time

4.4.2 Response sequences:

On enabling track, me, automatically the user's location is shared to all the members of the emergency contacts during every interval of time, this helps the emergency contacts to locate the user and user activities in case of emergency.

4.4.3 Functional Requirements:

The user must enable the **"Track Me**" option available exclusively for all app users, the user must set a time slot, so that during every interval of time

The user's location is shared with all the members of the emergency contacts which the user must choose while giving access to his/her contacts (must be filled during permission/ access stage)

- ☑ The user of the application should be asked to log in only the first time he uses the application on his device. The user must see the main page of the app (with the buttons to send notifications) for every other time he opens the app.
- ☑ The user shall be able to send notifications with the tap of a single button. Separate buttons should be available for sending panic messages, I am OK signal and making a call to 100, 101, 102.
- ☑ An option must be provided to enable/disable these buttons to avoid pressing them by accident.
- ☑ The user shall be able to see their current location.
- ☑ The user shall be able to set the contacts to send text message and email from within the application. The user must also be able to set the contents of the messages. Also, the user may select these contacts from the contact book or enter them manually. You can also set text messages and email messages to be sent.
- ☑ If location tracking permission is granted, the user can later see other locations that have been there during a specific time interval on a specific date. He will be given a map showing these locations. Users can click on a marker for that place to see the address and time they were there.

4.5. System Feature 5: History/Clear History

4.5.1 Description and priority:

The user can click on **"History"** where he/she can view the history of locations, pictures, messages, and recordings.

4.5.2 Response sequences:

Clicking onto **"History**," it displays the visited locations of the user, pictures, messages, or recording taken by the user.

The user is also given with an option to clear their history which completely deletes all the data in history database.

4.5.3 Functional Requirements:

On using the app to track the surrounding, all these data are stored with prominent level of security in the database in the name of HISTORY and secures some space for this purpose. If the user wished to delete them all, those data/records in the database are completely deleted, which frees some virtual space it occupies.

☑ The user shall be able to start/stop location tracking. They must also be able to see their location history from within the application.

4.6. System Feature 6: Update Notification

4.6.1 Description and priority:

This feature mainly focuses when there are any updates, or additional features added to the app. The newly added features will be explained in email.

4.6.2 Response sequences:

The user will be notified of any new updates via SMS and email. The user can click on the link given in the mail or the SMS which will directly lead them to the play store (Android user) or the App Store (iOS user) where, they'll see the "Update" option. These updates might take very less space if needed. After installation, the user can explore and enjoy the newly added features.

4.6.3 Functional Requirements:

During updating, the user may need to accept to the terms and conditions before installing. He/she might also need to enable if any other permissions are required for the new update.
NOTE: The user will enjoy all the previously added features until updating the app. There won't be any disruptions or glitches if the user does/decides not to update the app, it will work perfectly fine with the before features.

☑ The application can be updated whenever there is a new change made in the interface according the change in technology and needs of emergency.

5.Other Non-functional Requirements

5.1. Performance Requirements

The application must not have any glitches, should work smoothly and efficiently. In case of any more updates and feature, the older version of the app will fully be functional until updated. The user will be notified to update the app via email or notification from the app. This app is created mainly for the safety of the user and for easy-use in case of any emergencies or panic situations. The rescue departments can be called just by a click without any delay.

5.2. Safety Requirements

The main objective of this application is to make sure the users are safe. The user's information will always be completely protected. All the details of the user are solely for emergency situations only and the privacy of the user will not be violated in any way.

5.3. Security Requirements

Whether you find yourself in an unfamiliar part of the city or have to cross the neighborhood at night, there are plenty of risky situations you need to be prepared for. Keep your **'Find-Me!'** app close and use the widget to immediately send a distress message to your loved ones so they can find you and ensure your safety. The **'Find-Me!'** is a simple and efficient solution for people who fall the victims of domestic abuse and violence, as their acquaintances, other family members or friends can take the proper measures for their safety.

5.4. Software Quality Attributes

This application can be used in all the smartphones. It can be installed from Android to iOS Mobile phones and even some of the latest smart watches where the user can install the app.

5.5. Business Rules

- In case of any unfortunate incidents for the user, the application or the company cannot not be responsible for the events.
- The information entered by the user for registering and their personal details will always be protected and will not be violated in any way. Secured way of transmission of locations, videos, messages and audios will be transmitted.
- We will not use the users details for any other purpose like advertising.
- This application is free of cost and can be installed in any smartphone devices.
- This application contains no advertisements or collaboration.
- Late arrival of the rescue department is not the fault of the application or the company. This application cannot not responsible.
- This application will only use the inbuilt features/Hardware of the phone such as camera, GPS system, Microphone Flashlights etc. to work efficiently.
- This application does not depend on any other software and can work independently.
- The medical reports and conditions entered by the user will not be violated in anyway and will always be secured.
- Any wrong information entered by the user about important medical conditions is completely on the user’s side. The application is not at fault.

6.Other Requirements

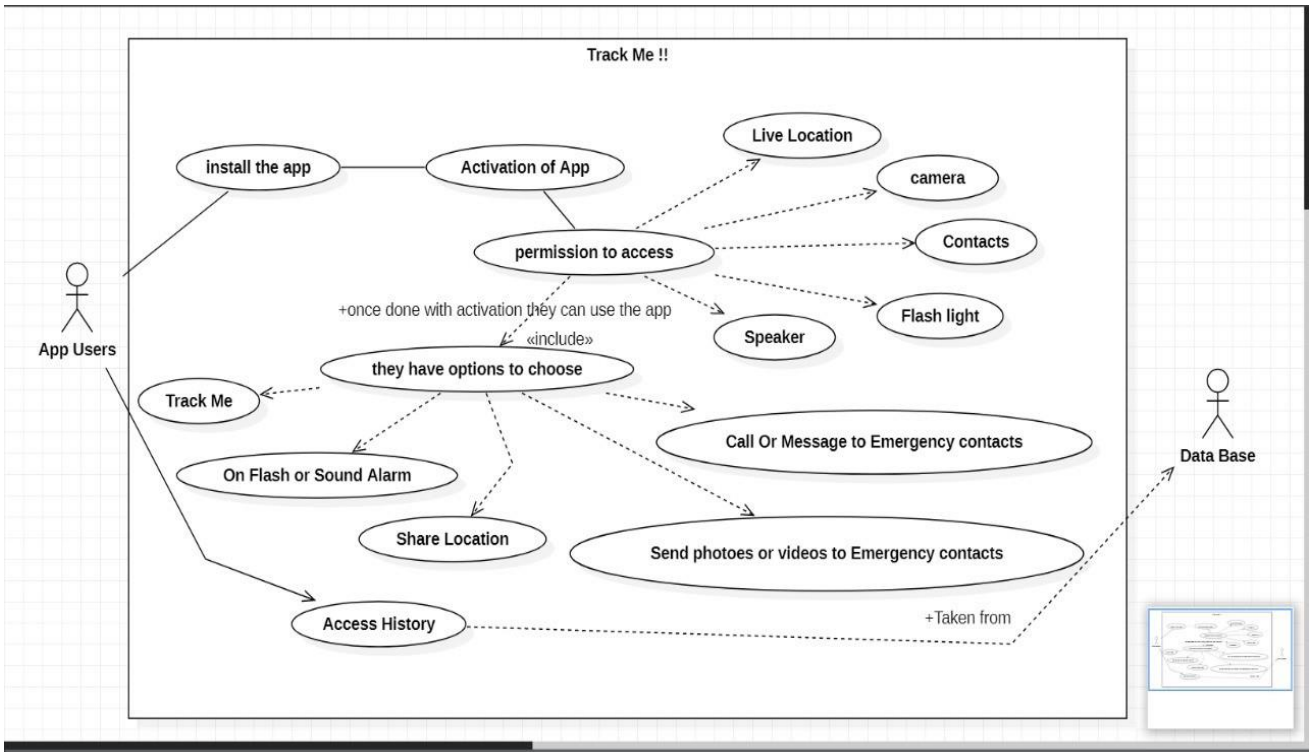
Another feature which can be included is that, this application can also be installed in laptops too. But for now, have considered the app to function only on smartphones as most of the people will surely carry phones with them. "FIND MY DEVICE" feature can be added for the mobile phone and laptop users.

Appendix A: Glossary

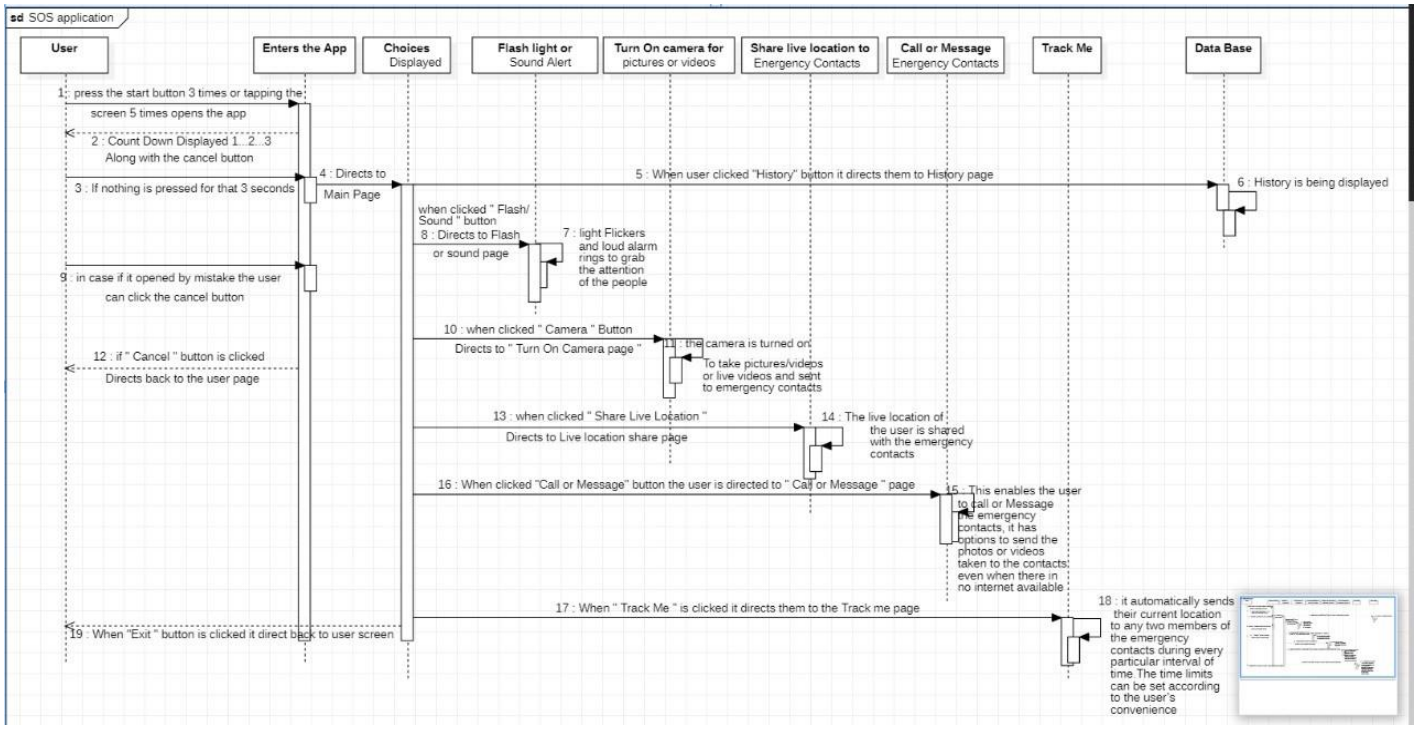
Term	Definition
User	A person who uses or operates something. (Here: the person who utilizes the app)
SOS	An international code signal of extreme distress, used especially at emergency situations. (Morse code: …_ _ _ …)
SOS Flashlights	SOS (Morse code: …_ _ _ …) is recognized as a standard distress signal that may be used with any signaling method. It has been used as a visual distress signal, consisting of three short/three long/three short flashes of light, such as from a survival.
SOS Sounds	Continuous repeating loud noise which represents the morse code of SOS: …_ _ _ …
Database	It is group of tables which stores the information of users
History	Where the user can view their recent or past activities made in the app.
Profile management	Profile management ensures that **the user's personal settings** are applied to the user's virtual desktop and applications, regardless of the location and end point device.
Emergency contacts	Emergency contacts means one of the individuals identified on the face sheet of the resident record to be contacted in the case of an emergency.
Emergency situation	An emergency is a situation that poses an immediate risk to health, life, property, or environment.

Appendix B: Analysis Model

USE CASE DIAGRAM



SEQUENCE DIAGRAM



7.Flow chart Diagram