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Women Security using Android App

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A B S T R A C T

Now-a-days women harassment is increasing and women and children safety is a big question mark. To overcome this problem, this paper explores the IOT concepts such as measuring the body temperatures, heart beat rates/pulse rates by sensors to monitor their conditions and alerts nearby location police station or relatives. Since, there are some web or mobile applications for women safety and emergencies, it does not work at all situations. The lady cannot stay on the gadget at all the time. Instead, she could be monitored by wearing smart watches, etc. It could be accessed by wireless technologies like GPS, GSM, GPRS, and Wi-Fi and monitored by nearby devices.

1. INTRODUCTION

A wide range of tracking systems has been developed so far tracking vehicles and displaying their position on a map, but none of the applications has been developed so far which tracks the mobility of a human being. Now a day's tracking a person's mobility has become a crucial issue these days, system which is cost effective and can be used for tracking a human being using a GPS and GPRS equipped mobile phone rather than using a handheld GPS receiver. "The main focus of our project is to reduce the overall cost of tracking based on GPS system which is a satellite-based service which is available 24X7 everywhere in the whole world. GPS system can be used to get location which includes details like latitude, longitude and altitude values along with the timestamp details etc. it a free of cost service available to every individual. In order to track the movement of the person we have used Google Maps for mapping the location sent by the mobile phone. The mobile phone which fetches the GPS location communicates with the server using General Packet Radio Service (GPRS). This service is a low-cost service provided by the service providers which is a wireless data communication system. Mobile phones equipped with GPS receiver are easily available in the market these days and is a booming technology these days. This cell phone technology has enabled us to communicate almost every part of the world across the boundaries. The GSM/GPRS is one of the best and cheapest modes of communication present these days and in future.

We are all aware of importance of women's safety, but we must realize that they should be properly protected. Women's are not as physically strong as men.In an emergency situation a helping hand would be a relief for them. The best way to minimize your chances of becoming a victim of violent crime (robbery, sexual assault, rape, domestic violence) is to identify and call on resources to help you out of dangerous situations. Whether you're in immediate trouble or get separated from friends during a night out and don't know how to get home, having these apps on your phone can reduce your risk and bring assistance when you need it.

Here we introduce an app which ensures the safety of women. This helps to identify and call on resources to help the one out of
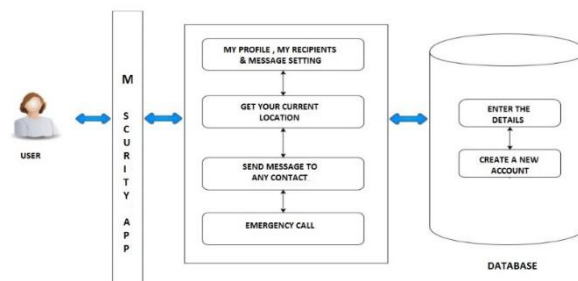
dangerous situations. These reduce risk and bring assistance when we need it and help us to identify the location of the one in danger. This app designed to provide security towomen main purpose of this app to provide the awareness on the time of critical situation for women. Generally, you can active this service by clicking on SAVE ME. To do so, you just need to open the app whenever you feel you are in danger and just need to click save me button available in the dashboard. When you click on this button, it opens a new pop-up screen which asks your confirmation and send SMS to those contact which you saved at the time of registration the SMS contain your message and your current location. This app helps you to know about your family, whether they are safe or in trouble.

1.1. Research Objective

To develop an adaptive system for the End-users that support the system support features. It should be highly secured authentication system. It maintains privileges among set of users. The emergency alert feature activates with the user's command and the system is protected after the alert process. Functionality will be transparent to end user and easy to use.

1.2. Motivation

In today's world, it is not safe for a person to travel alone at night especially for women.It will be unsafe to travel alone because a woman is not highly strong as men. To provide safety for women the good way to reduce chances in becoming a victim of violent crime is to identify and call on resources to help you out of unsafe situations. Having safety app on your phone can diminish our risk and bring assistance when we require it. Unlike the other applications available, which work only at the time of Emergence or Danger, this app can be used as a safety or precaution measure. As it is said that precaution is better.

2. LITERATURE REVIEW

2.1 Sauver: An Android Application for Women Safety

Description

This app can be activated by a single click when the user feels she is in danger. This application communiques the user's location to the registered contacts for every few seconds in the form of message. Thus, it acts like a sentinel following behind the person till the user feels she is safe. The key features of this application are along with the user's location, one of the registered contacts gets a call. Also, the registered contacts and GPS location are saved from time to time in a database.

Pros and Cons of this app

This app continuously fetches the location for an interval of every 30 secs and send it to registered contact. So, we can easily track the user and it will also send the location in form of URL

This app will work at the time of the danger so it is not that feasible for a user to instantly react if he or she is in trouble. The whole process of the system is done only when the device is connected to proper mobile network, data connection of the device is on and location service in the device is switched on (GPS).

2.2 A Mobile Based Women Safety Application (I Safe App)

Description

The personal safety application requires the name and number of the person who is to be contacted in times of emergency. Users can add multiple people in the emergency contacts list. These are the people who will receive notifications or SMS in case of an emergency. All it requires is the user's action to trigger an SOS button provided and it shoots messages as fast as the device can manage. Once the SOS button is hit, the people in the emergency contacts will get a message like: I am in an emergency; followed by another message, which has the exact or approximate GPS location of the cell phone. The user can also make audio or video call. This app also provides necessary first aid measures that should be taken at the time of emergency situations.

Pros and Cons of this app

In this app user can add multiple contacts, all we need is just to trigger the SOS button and it will start shooting emergency messages as fast as device manage.

Declare an emergency whenever you sense a danger which is not feasible. Continuous Internet accessibility which always not possible due to network issues.

2.3 Abhaya: An android app for the safety of women

Description

This paper presents Abhaya, an Android Application for the Safety of Women and this app can be activated this app by a single click, when ever need arises. A single click on this app identifies the location of place through GPS and sends a message comprising this location URL to the registered contacts and also call on the first registered contact to help the one in dangerous situations. The unique feature of this application is to send the message to the registered contacts continuously for every five minutes until buttons in the application is clicked. Continuous location tracking information via SMS helps to find the location of the victim quickly and can be rescued safely.

Pros and Cons of his app

This app continuously send message for every 5 mins until the user click the stop button. The message contains the location URL and it also call on the first registered contact.

The working of this app is quite lengthy, though it provides continuous location of the user but the continuous access to the Internet is required. Any trouble in network will lead to big problem since the only way to give the information to our registered number is through Internet and if at all the Internet accessibility is not possible then it will not help in any way.

2.4 Safetipin- Complete Safety App

Description

The is a privacy security app having the troop of features; GPS tracking, emergency, important contact numbers, directions to safe locations, pins displaying unsafe and free from danger areas and a Safety Score. It drives in advance of exemplary women safety apps, and presents a vast range of features, so that they will help to practically plan and can give a counter attack to those spots in the locality. When a person is going to move to a new locality that is unknown to him and if he or she want to know the safe areas, then this app will be much helpful providing the user a map-based view of the locality along with its safety score. Also, the person can select the areas on those he or she excited to go and can get knowledge about the risks of hassles about the area, so they can finally take safety measures.

Pros and Cons of this app

This app provides numerous feature such as GPS tracking, important contact numbers, directions to safe location, pins displaying unsafe and free from danger areas.

This app will only provide the details of unsafe locations when user access it. It will not give any sort of help when user is in trouble or danger and he/ she actually needs help.

How we overcome those problem in Project
In future we can collaborate our application with this providing extra precautionary measure by providing details of a specific location, about its safety.

2.5 M-Security

Description

The key feature of the app is: the user has to save some details. These details include: Name, Mobile no, blood group, date of birth, Address of the recipient and a text message. Then, app is loaded as so that when the user touches the app, it alerts the recipient. Another key feature of this app that we can call to one recipient whose no we can save on first no of my recipients contact list. This recorded voice, text message containing location co-ordinates of the user is sent to the recipient mobile number.

Pros and Cons of this app

The key feature of this app that we can call to first recipient whose number we can save in my contact list and we can send message to the five recipient whose number we can save in my recipient contactIf there is no balance in your mobile then message is not sent. When message receiver get the message at that time for finding the location of the person we need internet.

Apps Name	Requires Internet	Alert	Send SMS	Easy to Understand	without Internet
Sauver app	Yes	Yes	Yes	No	No
ISafe app	Yes	Yes	Yes	No	No
Abhaya app	Yes	No	Yes	No	No
SafeTpin app	Yes	No	Yes	No	No
M Security app	Yes	Yes	Yes	Yes	No

Table 2.1: Literature Review

The key feature of this app that we can call to first recipient whose number we can save in my contact list and we can send message to the five recipient whose number we can save in my recipient contactIf there is no balance in your mobile then message is not sent. When message receiver get the message at that time for finding the location of the person we need internet.

3. TECHNOLOGICAL REVIEW

3.1   Java

Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that compiled Java code can run on all platforms that support Java without the need for recompilation. Java applications are typically compiled to byte code that can run on any Java virtual machine (JVM) regardless of computer architecture.

3.2   XML

Extensible Mark-up Language (XML) is a mark-up language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. Basically, XML is used for layout designing. All the UI and layout of your app is designed using XML. Unlike Java (which is Back Bone of your app), XML helps you to design your app, how it will look, how components like buttons, text view, etc. will be placed and their styling.

3.3   SQLite

SQLite is an open-source social database i.e. used to perform database operations on android gadgets, for example, putting away, controlling or recovering relentless information from the database. It is implanted in android by default. In this way, there is no compelling reason to play out any database setup or organization assignment. Here, we are going to see the case of SQLite to store and get the information. Information is shown in the logcat. SQLite Open Helper class gives the usefulness to utilize the SQLite database.

4. OVERVIEW OF EXSTING SYSTEM

Women's safety includes protection from rape, date rape, stalkers, and domestic violence.

Problem Definition

In Previous application login and logout pages are provided which will time consuming at the time of emergency. These applications are critical or difficult to understand their user interface. In previous app there is no such function provide for call. In this app there is no facility provide it to find nearby hospitals, police stations in emergency situation.

The Problems with Existing System

1. The Drawbacks of the existing system is when emergency situation occurs the user cannot set the alert function.

2. You cannot send message if there is no balance in your mobile.

3. If there is no internet connection in message receiver phone then he could not search the location of that person who will be in trouble.

4. It does not send voice recording and does not takes any photographs video during the panic situation.

5. SYSTEM DESIGN OF PROPOSED SYSTEM

5.1 Design Approach

Design is the first step in the development phase for any techniques and principles. Once the software requirements have been translated and specified the software design involves the technical activities
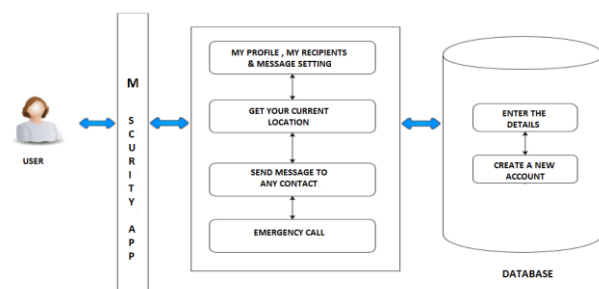
design, coding, implementation and testing that are required to build and verify the software. The design activities are of main importance in this phase, because in this activity decision ultimately affecting thesuccess of the software implementation and its ease of maintenance are made. Design is the place where quality is fostered in development.

5.2 System Architecture

Every software has a model. Before the implementation of the software, architecture is drawn in the form of any model or any diagram. So, it become quite easier to understand the flow of the software and it also help in the easier implementation of the software.

Using android, we are going to implement GPS location. Through GPS, the current address of the user will be fetched and SMS can be sent to five contact depending on the user. And we can call to any one number which will save in my contact on the first position and we can find the nearest hospital and police station from our current location.

The explanation of the above architecture is as follows:

System architecture of proposed method consists of mainly two tasks. In below architecture, we have a user with his/her smartphone by which user set GPS on, then the current location of user fetches. After this, now user will send an offline message to any of the contact in his/her list. He can also call to any one contact which he would save in my recipient on the first position.
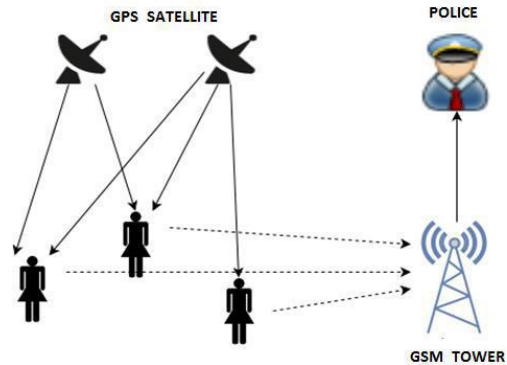
5.3 Working of System

The diagram 5.1 show working of proposed system. Location of victim find with help of GPS system. If GPS is not on in victim mobile the GSM tower location will add in to message.

Fig. 5.1 Working of System

5.4 Block Diagram, Use Case Diagram & Flow Chart

Block diagram Fig. 5.2 of project show two users one is victim (Women) and another one is relatives. Victim user long press volume key then first find location (Longitude and Latitude) and send Message with longitude and latitude to relatives. Report will be generating all the message details and relatives who receive message
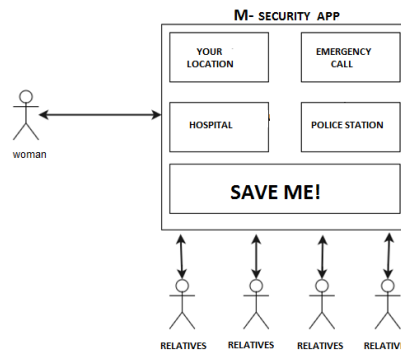

Fig. 5.2 Block Diagram

Use Case Diagram

Fig. 5.3 shows the functionality of our system to how to used our app sequentially.

First of all, actor can save its profile then he will save its recipients contact number. When user is in emergency, he can click help me button and message will send to five contacts number. And we can call to any one recipient.
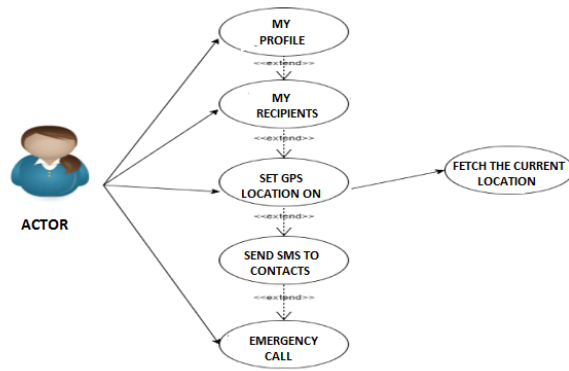
Fig. 5.3 Use case diagram

Flow-chart

Fig. 5.4, When we open the application, we can directly get the welcome screen then you need to register your personal details, contact no of recipients and a message. At that time your GPS location is on if it is off then you need to turn on the GPS.

GPS will fetch your current location and when you click on save me button message will send to your recipients. And you can call to any emergency contact by clicking on it. Then you exit this application by clicking on exit button of mobile.
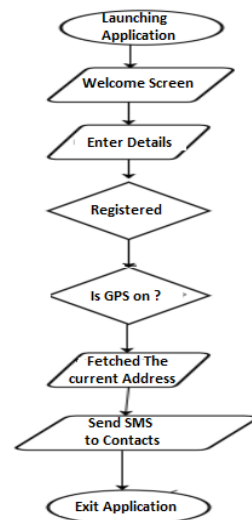
Fig. 5.4 Flow Chart

5. TOOLS USED

6.1   Software Requirement

SL. No.	Requirements	Tools Used
1	Operating System (OS)	Windows
2	Front-end	Android Studio • JDK (Java Development Kit 7) • JRE (Java Runtime Environment)
3	Back-end	SQLite

6.2   Hardware Requirement

SL.No.	Requirements	Tools Used
1	RAM	4 GB
2	HDD (Hard Disk Drive)/SSD	Min 250 GB SATA
3	Processor	i3 and above

6. IMPLEMENTATION

7.1 Assumptions and Dependencies

Assumptions

Following are the assumptions which were taken into consideration:The user interface should be simple and clean that allows soothing effect to end-user.

Dependencies

The dependencies are as follows: For Backend processing, SQLite. Back bone structure of the system is developed by making SQLite and Android Studio. SQLite is one of the best RDBMS being used for developing web-based software applications.

7.2 Implementation Methodologies

Different modules to be used in our project:

1. Creating a GUI.

2. Taking input from user.

3. Performing the required function.

4. Display the output.

7.3 Analysis and Description of Project

1. Creating a GUI: First a user-friendly GUI is created, so that it is easier for the user to perform necessary operations. The GUI is created on android studio.

2. Taking input from user: The input is given by the user. The inputs are taken through the GUI placed on screen. Icons and bars are given as input.

3. Performing the required functions

All the things that user need to perform are provided in the GUI, the user just have to click them according to his/her requirements. After taking the input the required things are performed like, getting the current address, sending the text message etc. All the functions have been already discussed in the previous chapter.

4. Display the output: The output will be displayed in the text format i.e. current location which user can send to contact. And the confirmation message is also displayed on the screen after the message has been send successfully.

7. TESTING AND RESULT ANALYSIS

8.1 Front Page

Fig. 8.1 This is our first page, here we include five different modules first module will show your current location. In second module there are five contact are provided for any emergency situation. Third module in save me button by clicking this button message will send to five contacts. In fourth module from our current location nearest hospitals with their details can be provided by using GPS. In fifth module nearest police stations with their contact no are seen.

8.2 Setting Activity

Fig. 8.2 In Setting activity, we can provide three fields first field is my profile where we have provided our information like name mobile no address and so on. In second field we have provide recipients contacts number. In third field message setting where message will be saved which will send to your recipients in emergency situation. This data will be saved in database.
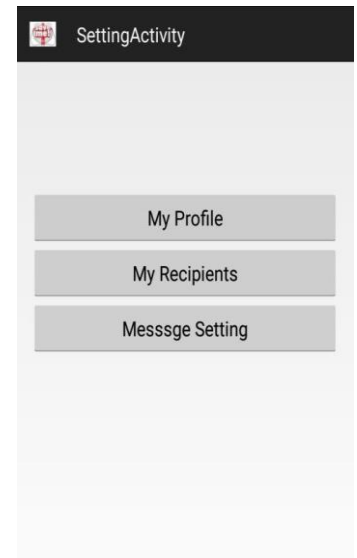
Fig. 8.1 Front Page   **Fig. 8.2 Setting Activity**

8.3 My Profile Activity and Recipients Activity

My Profile Activity

Fig. 8.3 This is the picture of my profile activity where we can save our information like name, mobile number, blood group, date of birth, address, using register button you can save this data and using reset button you can newly fill whole data
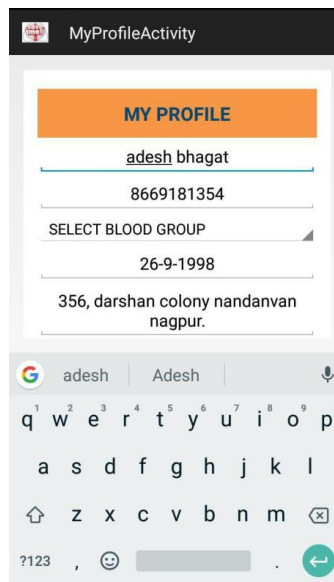
My Recipients Activity

Fig. 8.4 This picture is of my recipient's activity, where we have provided five fields to enter the recipients number. Using save button youcan save this numbers and using reset button you can reset our recipients number.
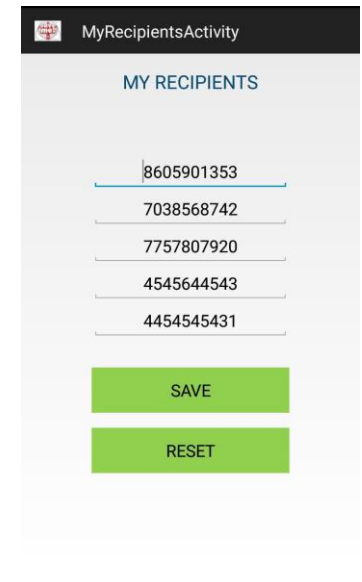

Fig. 8.3 My Profile Activity   **Fig. 8.4 My Recipients Activity**

8.4 Message Setting Activity

Fig. 8.5 In message setting activity we have provided one field where you can save message which will send to your recipients in emergency when you click the 'save me' button. Using save button you can save this message and also you can change the saved message any time as per your wish.
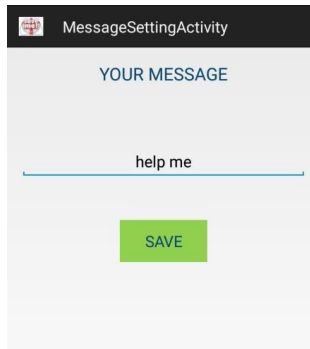
8.5 Message Conformation

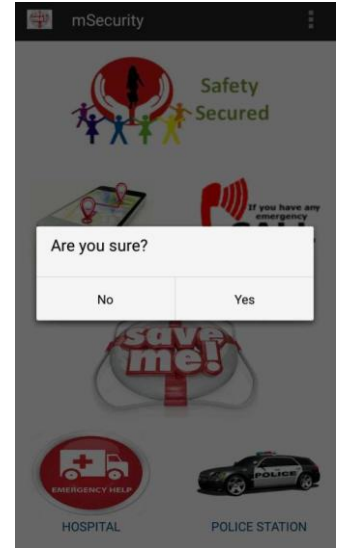Fig. 8.6 In message confirmation activity we have provide a popup message which will ask for confirm that we need to send this message or not.
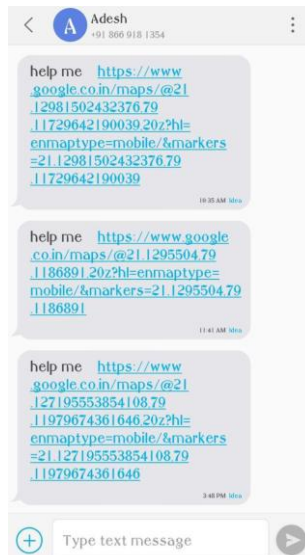
Fig. 8.5 Message Setting ActivityFig. 8.6 Message conformation

8.6 Receive message

Fig. 8.7 This type of message and location will send to your recipients when you are clicking on SAVE ME button. By clicking on location, you will get the current location of that person who will be in trouble

8.7 Emergency Call Activity

Fig. 8.8 In emergency call activity we have provide five fields for emergency contact. In first text field we have provide call fire brigade number. In second text field we have provide call highway police control number. In third text field we have provide call ambulance number. In fourth text field we have provide call police number. In fifth text field we have provide call emergency contact number. By clicking on this button, the call will connect to the number which we will provided in my recipients contact at first position.
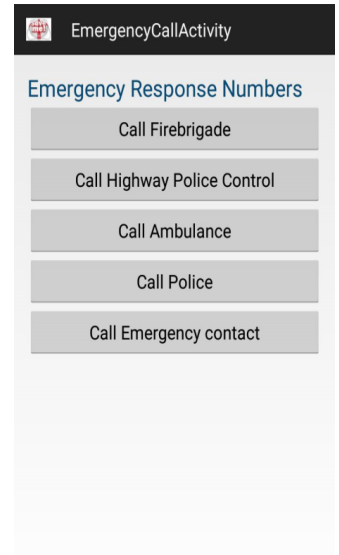
Fig. 8.7 Receive message   Fig. 8.8 Emergency Call Activity

8.8 Call Emergency Contact

Fig. 8.9 In call emergency contact your contact will connect to the number which you will provided in my recipients contact number at first position. Here by clicking on record button you can record the voice which will save in your mobile (recording facility depend on version and feature provided by mobile company).

8.9 Our Location

Fig. 8.10 In our location module we can see our current location by using GPS. And you can search any place here.
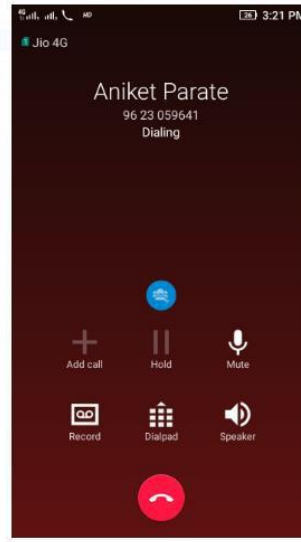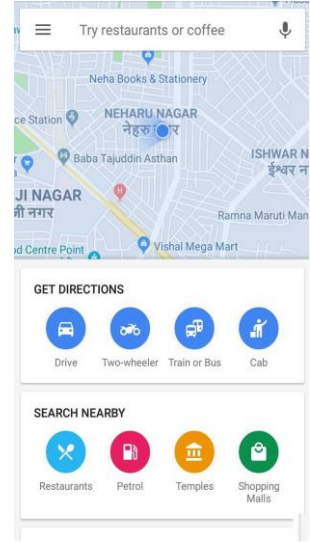
Fig.8.9 Call Emergency Contact   **Fig. 8.10 Our Location**

8.10 Nearest Hospital Location & Police station

Hospital Location

Fig. 8.11 In nearest hospital location we will get the location of nearest hospital from our current location with their address, ratings and contact number.

Police station

Fig. 8.12 In nearest police station we will get the location of nearest police station from our current location with their details and contact number
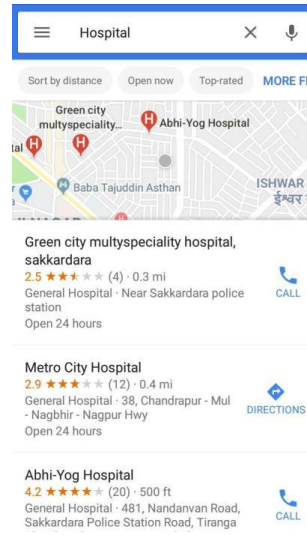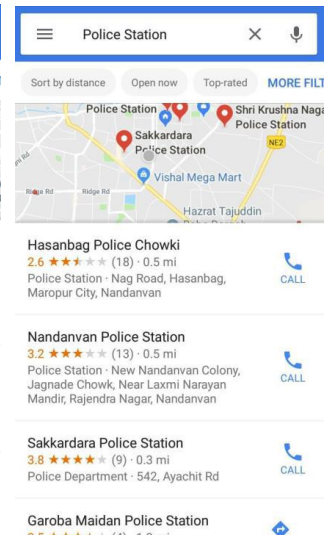
Fig. 8.11 Hospital Location   **Fig. 8.12 Police station**

8. CONCLUSION, LIMITATION AND FUTURE SCOPE

9.1 Conclusion

Unfortunately, the safety of women is in doubt and security is not concerned. Many headlines still coming across against women indicates that increasing trends of such sexual assault, rapes still happening in today's generation. Around 80 percent of women are losing confidence and have fear towards the realization of freedom. So, we are trying to contribute little efforts towards women which will ensure the safety and respect for women so that she can also have rights to grow equally like men.This mobile application is very much helpful for anyone. This application will help user to send the SMS and

currentlocation through GPS. The current address will be fetched and send it to any contact depending on user. Here the user can take precautions before coming to the actual danger.

9.2 Limitation

1. You can't send messages to any of the contacts if there is no balance.
2. If your mobile is not connected to network, the current location will not be fetched.
3. App will not function if there is no internet connection available.

9.3 Future Scope

As the technology emerges, it is possible to upgrade the system and can be adaptable to desired environment. Because it is based on object-oriented design, any further changes can be easily adapted.For future upgrades we will be linking our application with the databases of driver's details, i.e. if the driver is committing any sort of crime and he or she has gone missing so we would be able to trace him by the information provided in the databases. We will be updating this feature in our app so that app can save driver's detail which will contain information like photo, address of driver, contact details, batch assigned by the RTO and the certification of vehicle details as well. We will try to add more useful modules in this app so it will more adaptive.

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