A

PROJECT REPORT

ON

CLOUD BASED MOBILE APPLICATION TO ENSURE INDIVIDUAL'S SECURITY IN CRITICAL SITUATIONS

SUBMITTED BY

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UNDER THE GUIDANCE OF

PROF. M. S. OTARI

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

P.N.E.S.P.'S

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AFFILIATED TO
DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY LONERE

CERTIFICATE

This is to certify that the Project entitled "**CLOUD BASED MOBILE APPLICATION TO ENSURE INDIVIDUAL'S SECURITY IN CRITICAL SITUATIONS"** is completed by the following students of B.Tech. CSE class in a satisfactory manner under the guidance of **Prof. M. S. Otari**

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The Project is found to be complete in partial fulfillment for the award of Degree of Bachelor of Technology in Computer Science and Engineering of DBATU University, Lonere.

GUIDE HOD PRINCIPAL

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Names	Signature
1) MR. ONKAR INGALE	
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(Name & Signature of the Student/s)

Place: NKOCET, Solapur

Date:

D E C L A R A T I O N

By the UG (B.Tech.) Students

We hereby declare that the Report of the UG. Project Work entitled "**CLOUD BASED MOBILE APPLICATION TO ENSURE INDIVIDUAL'S SECURITY IN CRITICAL SITUATIONS**". Which is being submitted to the Dr. Babasaheb Ambedkar Technological University, Lonere in Partial fulfilment of the requirements for the award of the Degree Bachelor of Technology in the Department of Computer Science and Engineering is a bonafide report of the work carried out by us. The material contained in this report has not been submitted to any University or Institution for the award of any degree.

Names	Signature
1) MR. ONKAR INGALE	
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Place: NKOCET, Solapur

Date:

PROJECT APPROVAL SHEET

The project entitled **CLOUD BASED MOBILE APPLICATION TO ENSURE INDIVIDUAL'S SECURITY IN CRITICAL SITUATIONS** is submitted by the following students –

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is hereby approved in partial fulfillment for the award of Degree of Bachelor of Technology in Computer Science and Engineering of Dr. Babasaheb Ambedkar Technological University, Lonere.

EXAMINERS

1. _____

2. _____

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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ACKNOWLEDGEMENT

Perseverance, inspiration, and motivation have always played a key role in any venture. It is not just the brain that matters most, but the ones which guide them are the character, the heart, generous qualities, and progressive forces. What was conceived just as an idea materialized slowly into concrete facts.

At this level of understanding it is often difficult to understand the wide spectrum of knowledge without proper guidance and advice. Hence, we take this opportunity to express our heartfelt gratitude to our project guide Prof. Manisha S. Otari who had faith in us and allowed us to work on this project.

We are thankful to the Department of Computer Science & Engineering, Nagesh Karajagi Orchid College of Engineering & Technology, Solapur for giving us the opportunity to undertake this project in their organization. We would like to mention our sincere gratitude towards our Principal Dr. J. B. Dafedar and H.O.D. Dr. V. V. Bag, Computer Science and Engineering Department, for giving us this opportunity to carry out this project.

We would like to thank all our mentors and colleagues for their immense interest, valuable guidance, constant inspiration and kind co-operation throughout the period of work undertaken, which has been instrumented in the success of our project. We also acknowledge our profound sense of gratitude to all the teachers and non-teaching staff, for their sincere help, efficient support, and moral support to complete the project with full understanding.

I express my deepest gratitude to my Parents, who have been a constant pillar and whose unconditional love and blessings have kept me going.

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ABSTRACT

The safety of all family members matters a lot to everybody. People want their family members to feel safe and comfortable wherever they are. People take care of and worry about their children, wives, husbands, parents, and all other members of their family.

India comes in list of worst countries for crimes like robbery, kidnapping, rape, and other forms of domestic abuse and has an abhorrent track record in all forms of sexual exploitation. It has been reported that thousands of children go missing annually, which can become a really serious problem. Senior citizens are most vulnerable to being the victim of any crime, since they are soft targets. These incidents spread a feeling of fear among society.

The primary issue in the handling of these cases by the police lies in constraints preventing them from responding quickly to calls of distress. These constraints include not knowing the location of the crime, and not knowing the crime is occurring at all: at the victim's end, reaching the police assuredly and discreetly is a challenge.

To aid in the removal of these constraints, this project introduces a mobile application that provides a reliable way to place an emergency call their loved ones.

By using this app people can travel anywhere at any time without having any trouble.

The user can explicitly interact with the user interface of the application via a simple press of a PANIC button on the screen. A message containing the geographical location of the user, as well immediately sent to their close contacts. This report describes the application, its development, and its technical implementation.

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CHAPTER ONE

INTRODUCTION

1.1 GENERAL INTRODUCTION

In today's time, safety and security has become a major issue among individuals as they cannot step out of their house due to a fear of attacks or violence. Even in the twenty-first century wherein the technology is swiftly developing, and new gadgets were advanced however still women and girls are going through troubles. Even these days in India, people cannot move at night in lots of locations or even at daytime crowded locations especially women because hundreds and thousands of incidents of abuse happen each day.

India ranks 79 in list of worst countries for crimes like robbery, kidnapping, rape, assault, child abuse and other forms of domestic abuse with a crime rate of 44.57%. About 10% of all crimes committed in the country are those of women abuse. The chances of being the victim of some form of violent crime in this country are disturbingly high. It has been reported that thousands of children go missing annually, which is a serious problem.

Senior citizens are the most vulnerable to being victim of any crime, since they are soft targets. These incidents spread a feeling of fear among society.

CHILD ABUSE:

Child abuse is the intentional inflicting of pain, injury, and harm onto a child. Child abuse also includes emotional, psychological, and sexual abuse, including humiliation, embarrassment, rejection, coldness, lack of attention, neglect, isolation, and terrorization. Child abuse almost always interferes with later relationships. Researchers have also noted a wide range of emotional dysfunction both during, soon after, and long after physical abuse, including anxiety attacks, suicidal tendencies, angry outbursts, withdrawal, fear, and depression.

SEXUAL HARRASEMENT:

Sexual harassment is legally defined as unwanted sexual advances, suggestions, comments, or gestures. Women are most often the objects of sexual harassment, especially in the workplace. One review of a study found that 42 percent of women reported having experienced some form of sexual harassment at work,

The effects of sexual harassment can be numerous and long-lasting. With good jobs at a premium, the possible financial effects of resisting sexual harassment on the job—demotions, pay reductions, and even termination, can be devastating. The psychological effects of sexual pressure on the job, at school, in the doctor's office, or wherever—anxiety, fear, depression, repressed anger, and humiliation can be equally devastating.

Guilt and shame are also common because victims of sexual harassment, like victims of rape, may somehow feel responsible. They fear that their dress and/or mannerisms may be bringing on unwelcome sexual attention.

ASSAULT:

Assault is a crime against a person that involves causing or attempting to cause physical harm to another person. Typically, when a person is seriously injured or the crime involves a deadly weapon, such as a gun, then it is considered an aggravated offense and the level of crime is enhanced and the punishment is more severe. An assault is considered a criminal offense that is punishable by jail or prison time. An assault can also include a threat of physical harm.

STALKING:

Stalking is a type of crime against a person that is an unwanted pattern of contact with another person. Stalking is made up of a pattern of contact, such as sitting outside of someone's house, following them, sending them letters, making phone calls or otherwise threatening them.

Stalking puts the victim in fear for his/her safety since the other person is incapable of leaving them alone. An example of stalking would be if a man spent a significant number of hours every day following a woman. He may

call her, follow her home from work, send her emails and sit outside her house. He knows that this contact is not wanted and puts the woman in fear for her safety. This man could be charged with stalking.

CRIME AGAINST THE ELDERLY:

According to NCRB (National Crime Records Bureau), 2021 saw 1,167 cases of crime against senior citizens (aged 60 years and above), 2020 recorded 919 cases and 2019 saw 1,076 cases. The data showed most of the cases were related to theft (659), followed by forgery, cheating and fraud.

Unfortunately, the situation is scarier as many crimes against senior citizens are not reported. Urbanisation and hostility against the elderly have been synonymous. In metro cities, they are often subjected to multiple abuses, which are crimes against them committed by near and dear ones.

The proposed project is being developed to try to reduce such unfortunate incidents to ensure that people do not have to suffer due to such situations.

1.2 LITERATURE REVIEW

1.2.1 Existing Systems

In today's world, people using smart phones have increased rapidly and hence, a smart phone can be used efficiently for personal security or various other protection purposes. The number of users having smartphones equipped with GPS has increased rapidly. Hence, it can be used efficiently for personal security or various other protection purposes.

There are a variety of general-purpose and specific mobile applications for GPS tracking including Life 360’s GPS Tracking Pro, RunKeeper, Easy Tracker and much more. All of these have the main function to store and display the locations of the friends on a map.

There are various apps available on the Play Store that are useful when any Emergency Situations are encountered.

i. Personal Safety: A safety app for Pixel phones, Personal Safety enables you to stay connected with your emergency contacts and first responders. With it you can share your real-time location and set a time in your phone after which

the emergency sharing automatically starts.

ii. Guardians: The GPS location that you share could be seen by only your guardians. It shares your location with family, but our app gives you the option to select who is in your family list and broadcast if needed to radius.

iii. Women Safety: Women Safety app informs your loved ones in case you are in a troubling situation. The app is easy and fast and can send an email to your emergency contacts with your

location and 2 pictures and/or a video or audio message.

1.3 PROBLEM OF EXISTING SYSTEM

The above-mentioned applications have certain disadvantages that reduce their efficiency. Among all available applications in the market, the problem identified among them were,

- These applications do not broadcast the user's location and if no one from your family member is present in that area for e.g., if you are in another city then you will not get help.
- Most of the applications are only for women safety purpose.
- Some applications are exclusively for particular brand phones.
- Some of the applications are based on a monthly subscription model.

1.4 SUMMARY

A lot of NGOs, rehabilitation centers and helpline numbers have been made operational in the past years, but they are all cures to the harassment that has already happened and not the 'preventions' that we need. There are certain pre-existing apps that send a message to the saved contacts but none of them is effective and quick enough according to various surveys that have been conducted.

In various cases, victims do not file a complaint against the accused because of various reasons; for instance, not knowing the correct

authority to report it to or feeling ashamed/guilty about the incident.

To solve the above difficulties, we want to design an app that can help society to overcome these issues.

CHAPTER TWO

PROPOSED WORK

2.1 MOTIVATION

The victims of such crimes do not file a complaint against the accused because of reasons like not knowing the correct authority to report or feeling ashamed/guilty about it.

NGOs, rehabilitation centers and helpline numbers have been made operational who cures to the harassment that has already happened and not the ‘preventions’ that we need.

Our app aims to control vandalism before it can fully take place which can cause severe trauma mentally, psychologically, and physically and can also affect the victim’s family members.

Our application, having a lot of unique functionalities in contrast to similar applications in the market, is presented. Since mostly everyone travels with a smartphone, whether they travel alone or not, they can use their phone as a security guard for them. Most of the people are feeling unsafe during travel. Thus, our aim can ensure safe travel not only for the person who is travelling but also for the one who cares about the person.

It can help to protect a person facing a dire situation by sending a distress signal to family members, local police and the people nearby. These unfortunate incidents cause severe trauma mentally, physically, and psychologically. By using this app, we wish to avoid such harmful episodes which may scare them for a long time.

Everyone can use this app in a critical situation which will help your family members as well as the people nearby to locate the target person.

2.2 OBJECTIVE OF PROJECT

- The objective is to build practical, fast, and reliable applications that will provide 24/7 active help to enhance and ensure personal safety and security to every individual.
- These applications aim to empower individuals with the tools and resources necessary to navigate potentially dangerous situations with confidence and peace of mind.
- To provide contacts of nearby emergency services/facilities.
- To develop a sophisticated Continuous Integration and Continuous Deployment Service.
- To reduce the various crimes that are being perpetrated in society.
- Develop a system design in a user-centered-design process.
- An application that could be a serviceable tool in providing any assistance to the victims facing the crimes and help save their lives to certain an extent.
- Creating a Non-Profit app that deals with Social-Welfare.

2.3 PROPOSED SYSTEM

Our proposed system overcomes the drawbacks of existing systems in the market. It is a cloud-based application which enables the users to track their loved ones. Whenever critical situation arises, the user triggers the emergency request. In response our system notifies and broadcasts his/her location to the people in nearby radius who are using our application along with user's close contacts.

The request is passed to the server, and the server then sends the signal to people present in the nearby radius along with family-friends contact.

After the subsequent request is broadcasted, any user within the nearby radius can accept the request.

As soon as the request is accepted, the person in need of help will be notified that someone near him/her is going to them and the location of the helper person is tracked to know the movements of the helper towards the person in need.

2.4 SCOPE

The app can have an emergency button that, when activated, sends an immediate alert to nearby people who are using our app and close contacts, along with the user's location information. The app can allow users to connect with friends and family members, so that they can feel safer and more connected when traveling or walking alone. Overall, the scope of a cloud-based individual safety app is to provide users with a comprehensive safety solution that combines real-time tracking, emergency alerts, and other features to help them feel more secure and protected.

2.5 PROJECT ANALYSIS

The project aims to develop a Cloud Based Mobile Application for ensuring individual safety in critical situations. This app can provide real-time alerts and notifications to helpers in case of emergencies, allowing them to take necessary precautions and actions. For instance, if a person finds themselves in an unfamiliar or potentially dangerous location, the app can alert nearby people who are using our app and close contacts.

2.6 SUMMARY

In this chapter, we have discussed the motivation, objective and how the application overcomes the problem of the existing application. The scope of the system will give more ideas about the application.

CHAPTER THIRD

REQUIREMENT ANALYSIS

3.1 SOFTWARE REQUIREMENT SPECIFICATION

To make this project successful there are some hardware and software requirements are necessary. This specification makes the project implementation and use easier.

3.2 CONSTRAINTS

1. If no person is found within the radius of connectivity and no family/friend network is active, we can only provide a certain helpline number.
2. If network connectivity is not available, then the person wouldn't be able to use the service.
3. Whenever the remaining power of battery is low, user wouldn't be able to send the further location to the servers.

3.3 FUNCTIONAL REQUIREMENT:

1. Broadcasting the user location after click on emergency button
2. Notify the users present in the radius and closed contacts.
3. Show the user which volunteers accepted the notification request.

3.4 INTERFACES

i. Hardware Interface:

- Above Android 11
- Memory: 3GB RAM
- Server Machine: 64bit Ubuntu
- Processor: Any Server Grade Processor with minimum 4 cores.
- Ram: 8 GB or more

ii. Software Interface:

- PostgreSQL
- PostGIS
- Firebase
- Springboot

3.5 OTHER REQUIREMENTS

3.5.1 Security Recoverability and Usability

Since all the data obtained from the user, which is contained in the system is sensitive such as user information and location etc. Therefore, we use a highly secure database. Also, user verification is required so we use mobile verification, so data of user not hampered by random person. Hence, the information of the users is secured. Also, our application is easy to use and makes it highly usable.

3.5.2 Maintainability

The entire system has been built in a modular fashion with some interdependencies between the modules. In this, each module can be updated independently without causing any interference with other modules or the system.

So, the system is highly maintainable.

3.6 SUMMARY

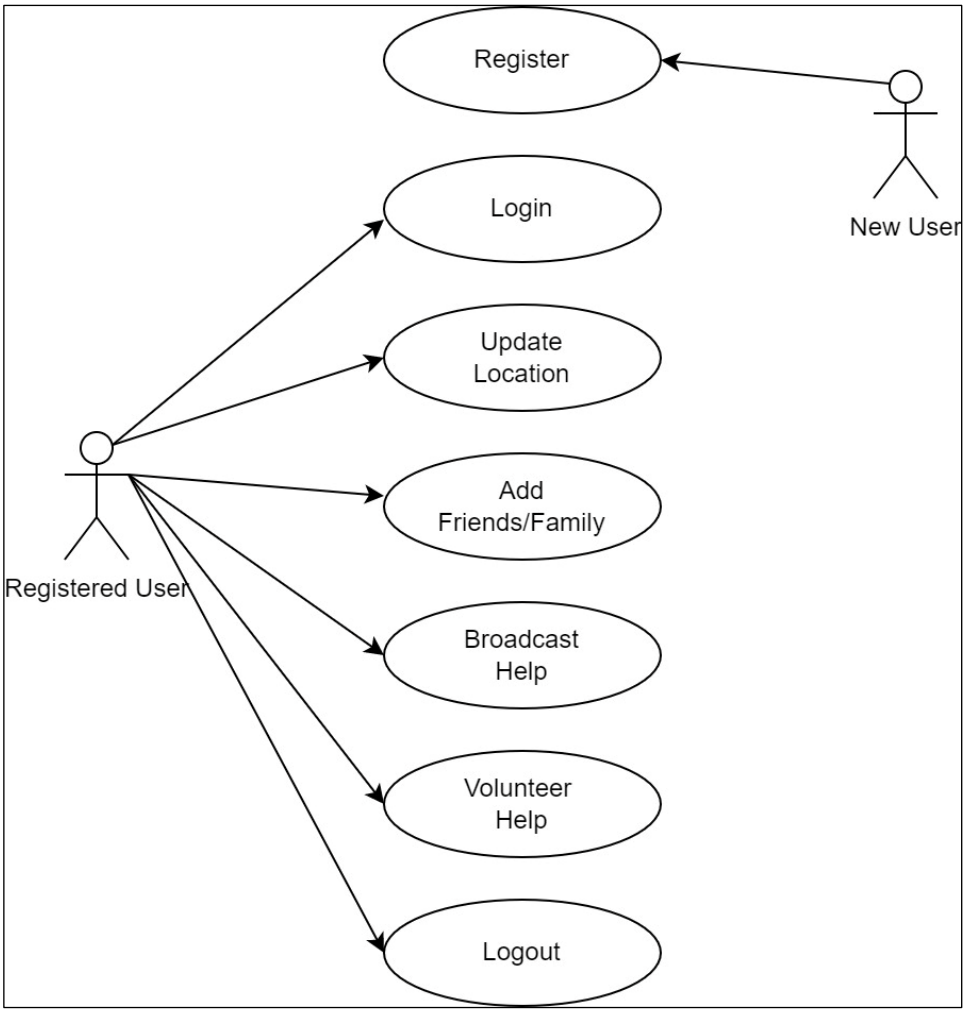
According to our Study and Research the proposed platform requires the above-mentioned Hardware and Software Specifications. Also, this chapter describes the requirements of user and application.

CHAPTER FOUR

SYSTEM DESIGN

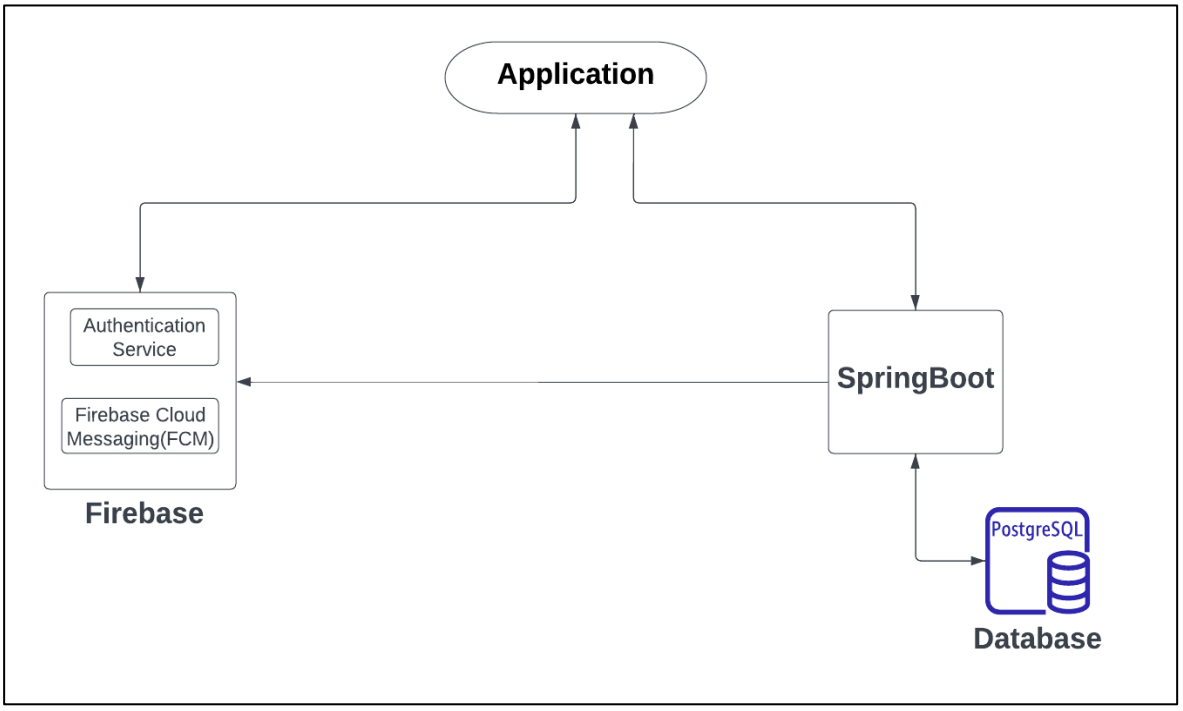
4.1 USE CASE VIEW

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.



4.1 Use Case View

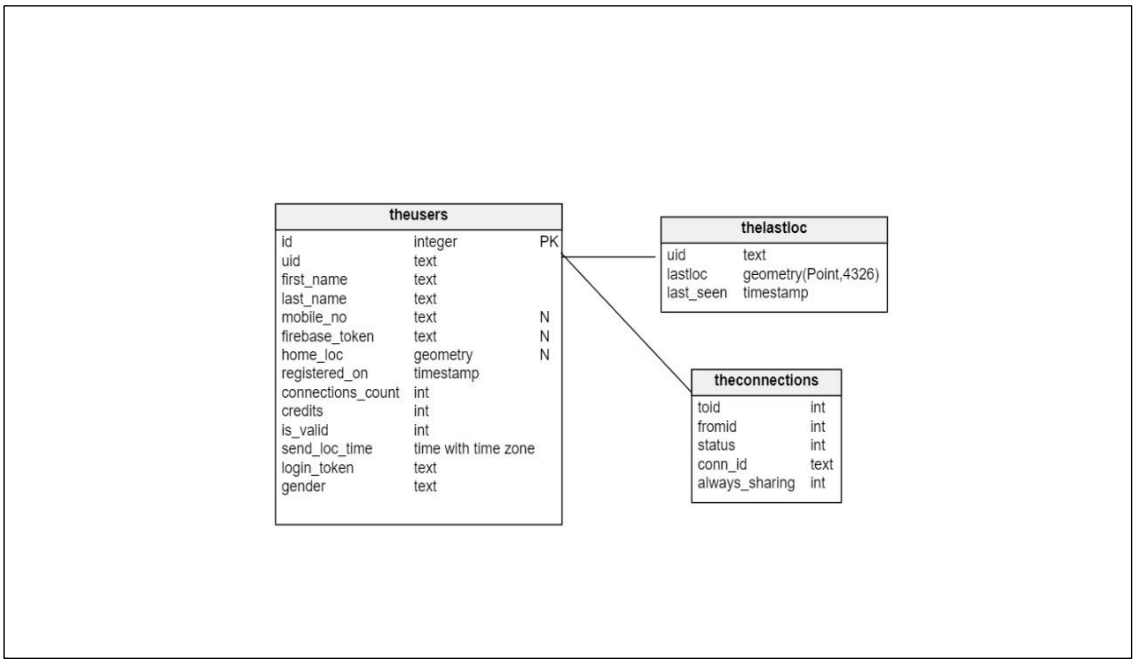
4.2 PROJECT ARCHITECTURE:



4.2 Project Architecture Diagram

4.3 CLASS DIAGRAM

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.



4.3 Class Diagram

4.4 SUMMARY

The chapter covers the design of the proposed system using different diagrams. The design is explained using use case and class diagrams. This covers functional as well as a procedural modal of the system.

CHAPTER FIVE
IMPLEMENTATION

5.1 Implementation

An implementation is the realization of a technical specification or algorithm as a program software component or other computer systems through computer programming and deployment. Implementation is the carrying out, execution, or practice of a plan, a method, or any design for doing something. As such, implementation is the action that must follow any preliminary thinking for something to happen. In an information technology context, implementation encompasses all the processes involved in getting new software or hardware operating properly in its environment, including installation, configuration, running, testing, and making necessary changes. The word deployment is sometimes used to mean the same thing.

5.1.1 Technology Endorsed

5.1.1.1 PostgreSQL

PostgreSQL is a powerful, open-source object-relational database system with over 35 years of active development that has earned it a strong reputation for reliability, feature robustness, and performance.

PostgreSQL is an advanced, enterprise class open-source relational database that supports both SQL (relational) and JSON (non-relational) querying. It is a highly stable database management system, backed by community development which has contributed to its high levels of resilience, integrity, and correctness. PostgreSQL is used as the primary data store or data warehouse for many web, mobile, geospatial, and analytics applications.

PostgreSQL features transactions with atomicity, consistency, isolation, durability (ACID) properties, automatically updatable views, materialized views, triggers, foreign keys, and stored procedures. It is designed to handle a range of workloads, from single machines to data warehouses or web services with many concurrent users.

PostgreSQL includes built-in binary replication based on shipping the changes (write-ahead logs (WAL)) to replica nodes asynchronously, with the ability to run read-only queries against these replicated nodes. This allows splitting read traffic among

multiple nodes efficiently.

5.1.1.2 PostGIS

PostGIS is a spatial database extender for PostgreSQL object-relational database. It adds support for geographic objects allowing location queries to be run in SQL. In addition to basic location awareness, PostGIS offers many features rarely found in other competing spatial databases such as Oracle Locator/Spatial and SQL Server.

It is an open-source software program that adds support for geographic objects to the PostgreSQL object-relational database. PostGIS follows the Simple Features for SQL specification from the Open Geospatial Consortium (OGC).

The PostGIS implementation is based on "lightweight" geometries and indexes optimized to reduce disk and memory footprint. Using light-weight geometries helps servers increase the amount of data migrated up from physical disk storage into RAM, improving query performance substantially.

PostGIS features include high performance, data integrity, spatial query, spatial analysis.

It adds spatial functions such as distance, area, union, intersection, and specialty geometry data types to PostgreSQL. Spatial databases store and manipulate spatial objects like any other object in the database.

5.1.1.3 Firebase

Firebase is an app development platform that helps you build and grow apps and games users love. Backed by Google and trusted by millions of businesses around the world.

Firebase is a set of backend cloud computing services and application development platforms provided by Google. It hosts databases, services, authentication, and integration for a variety of applications, including Android, iOS, JavaScript, Node.js, Java, Unity, PHP, and C++.

Using firebase, we can install pre-packaged, open-source bundles of code to automate common development tasks. Developing robust and high-quality mobile applications is a proposition that requires a lot of dedication, but more importantly, a powerful and feature-rich development platform.

Firebase from the Google stable is one such platform that has won over developers

across the globe. Firebase gives developers many options for creating highly functional and versatile web, Android, and iOS platform applications.

Firebase aims to solve three main problems for developers: Build an app, fast release and monitor an app with confidence and engage users.

Features of Firebase are:

▪ Real-time Database: Firebase supports JSON data and all users connected to it receive live updates after every change.

▪ Authentication: We can use anonymous, passwords or different social authentications.

▪ Hosting: The applications can be deployed over a secured connection to Firebase servers.

5.1.1.4 Spring Boot:

Spring Boot helps to create Stand-alone, production-grade Spring-based applications that you can run. It is a project that is built on the top of the Spring Framework. It provides an easier and faster way to set up, configure, and run both simple and web-based applications.

It is a Spring module that provides the RAD (Rapid Application Development) feature to the Spring Framework. It is used to create a stand-alone Spring-based application that you can just run because it needs minimal Spring configuration.

Spring Boot is the combination of Spring Framework and Embedded Servers**.**

Goals of Spring Boot:

- Provides a radically faster and widely accessible getting-started experience for all Spring Development.
- Be opinionated out of the box but get out of the way quickly as requirements start to diverge from the defaults.
- Provide a range of non-functional features that are common to large classes of projects (embedded servers, security, metrics, health checks, and externalized

configuration)

- Absolutely no code generation (when not targeting native image) and no requirement for XML configuration.

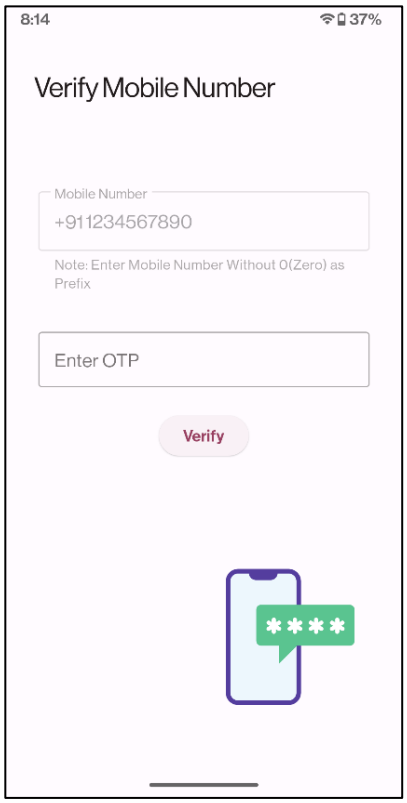
System Requirements:

Spring Boot 3.0.6 requires Java 17 and is compatible up to Java 20. Spring Framework 6.0.8 or above is required.

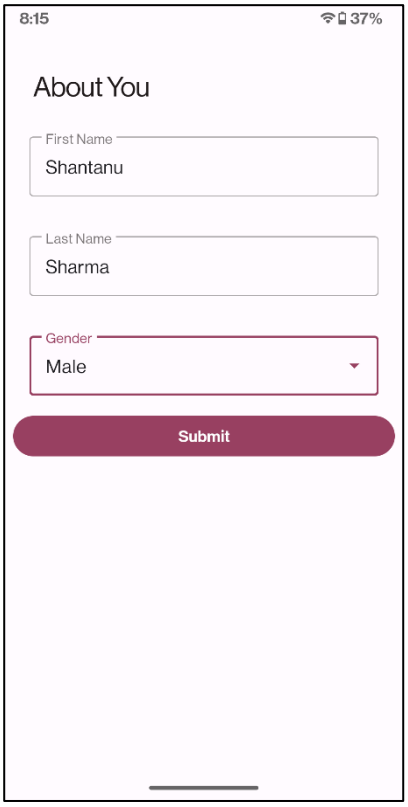
5.2 MODULE DESCRIPTION

5.2.1 Registration Module:

The registration module takes the user's mobile number to validate whether the given mobile number is valid or not. If it is valid, then upon submitting the mobile number, a unique OTP is generated by the system and sent to the user via SMS. The OTP gets automatically filled, and the registration process proceeds. After this, the user fills their personal details like first name, last name, and gender. Once it is completed, registration of the user is complete. The following screenshots shows registration module.



Screenshot 5.1 Verification Page

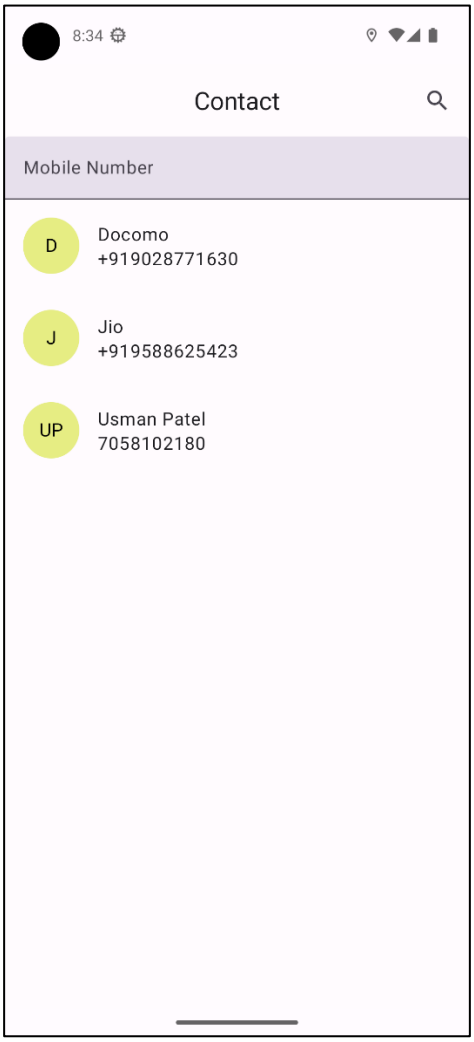


Screenshot 5.2 Enter details

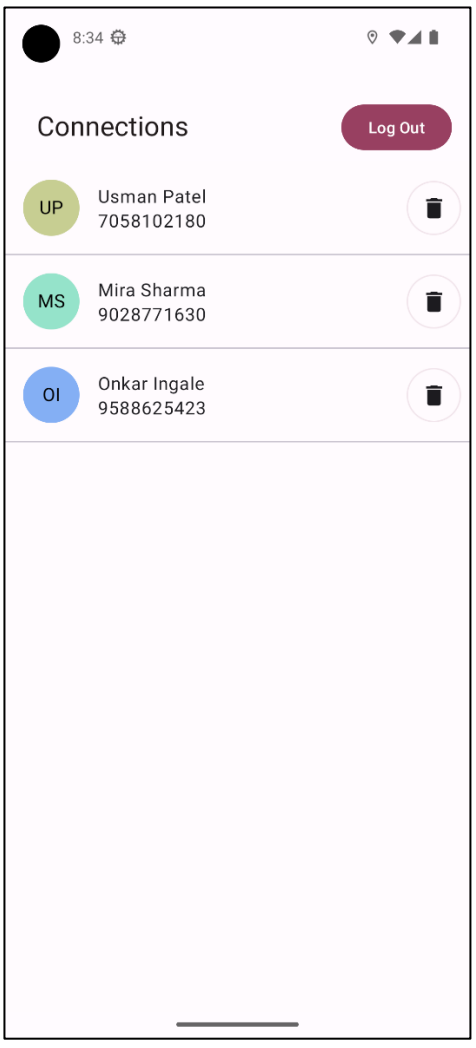
5.2.2 Connections Module

After the user registration process, the app is redirected to the home page which displays the user's location on the map.

Our android application can access the saved contacts of the user from their phone from which he/she can add people they want to be connected with. The user can send a connection request to a particular contact that they want to connect with. The connection request is received by the user's respective contact which they can either accept or decline. After the request is accepted by the respective contact of the user, they become a connection with the user. There is a button at the top right corner which allows us to view all the connections. Also, if user doesn't want a connection with a contact, then he/she can remove that connection from all connection's lists.



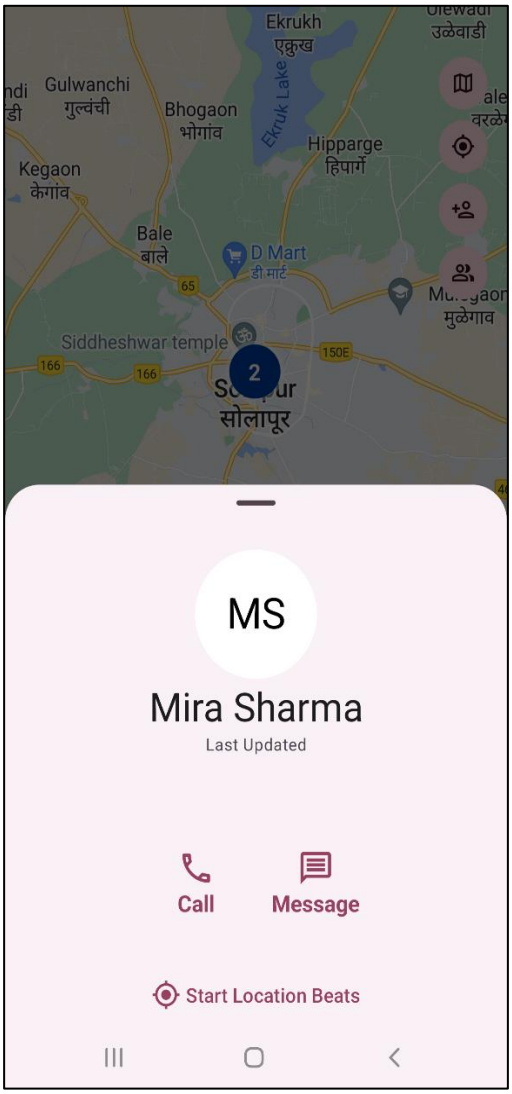
Screenshot 5.3 Contact List



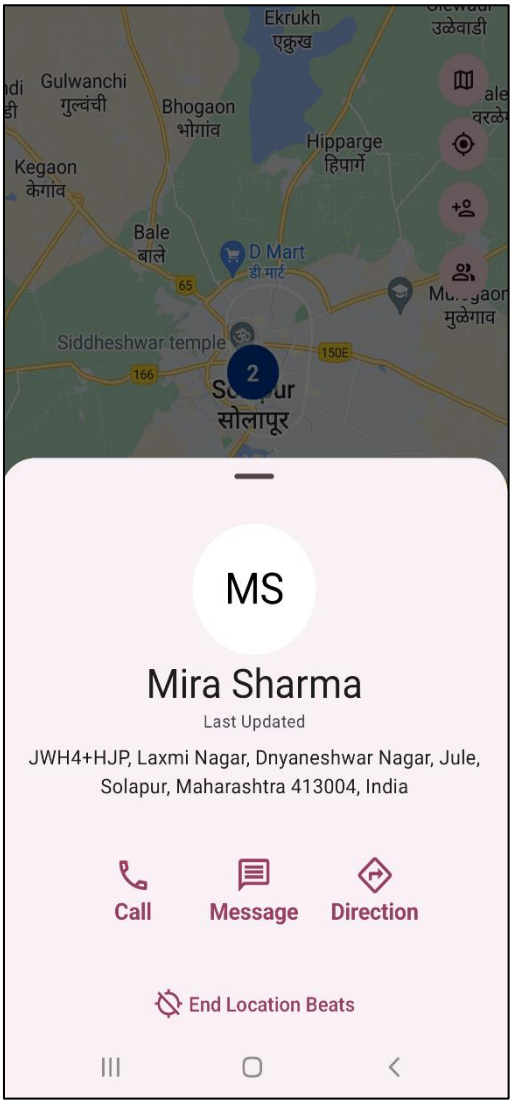
Screenshot 5.4 Connection List

5.2.3 Location Beats Module

If the user wants his loved ones to always watch over him then he can forever share his location using a feature called location beats. To trigger this, the user must click on "**start location beats**" present in the profile information of the connection.



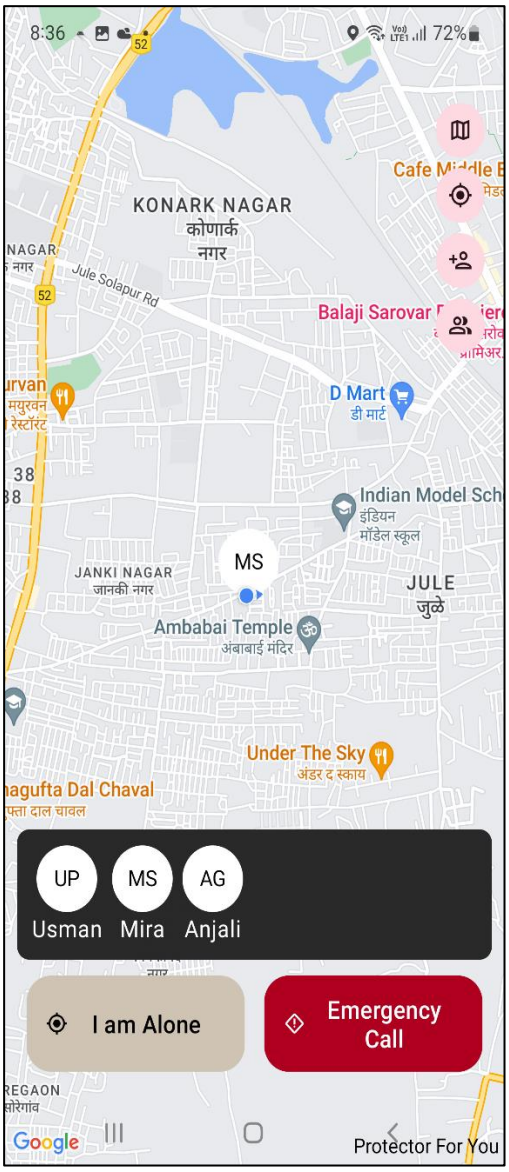
Screenshot 5.5 Start Location Sharing



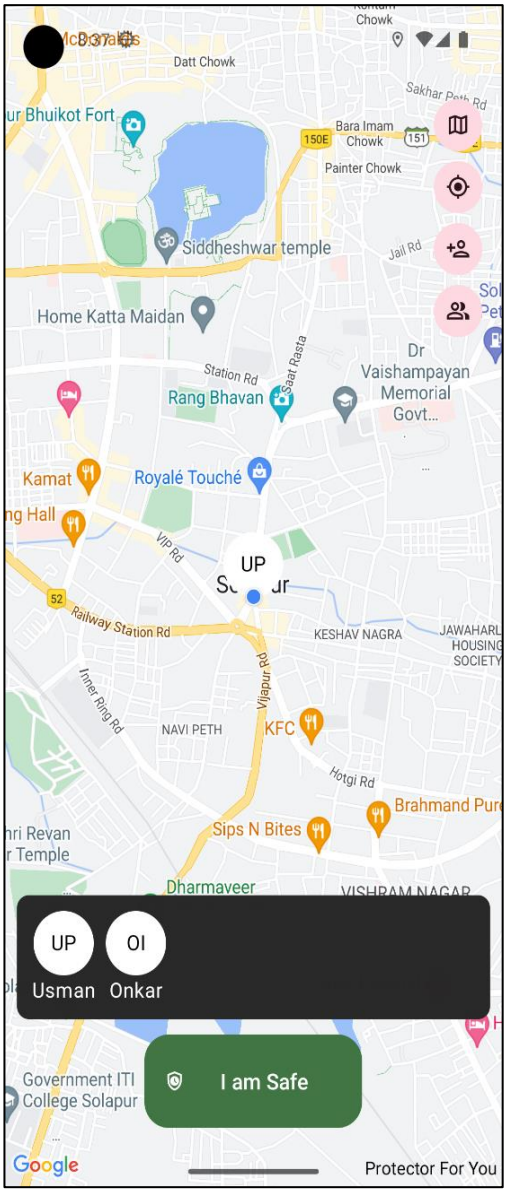
Screenshot 5.6 End Location Sharing

5.2.4 I am Alone Module

Whenever the user feels unsafe in an environment and feels the need to be watched over, he/she can click the button labeled “I am Alone", which is present on the Home Page at left corner below. This will trigger a request. This request is passed to the server and in response our system notifies the connections of the user to keep a watch over the user and ensure safety of the user.



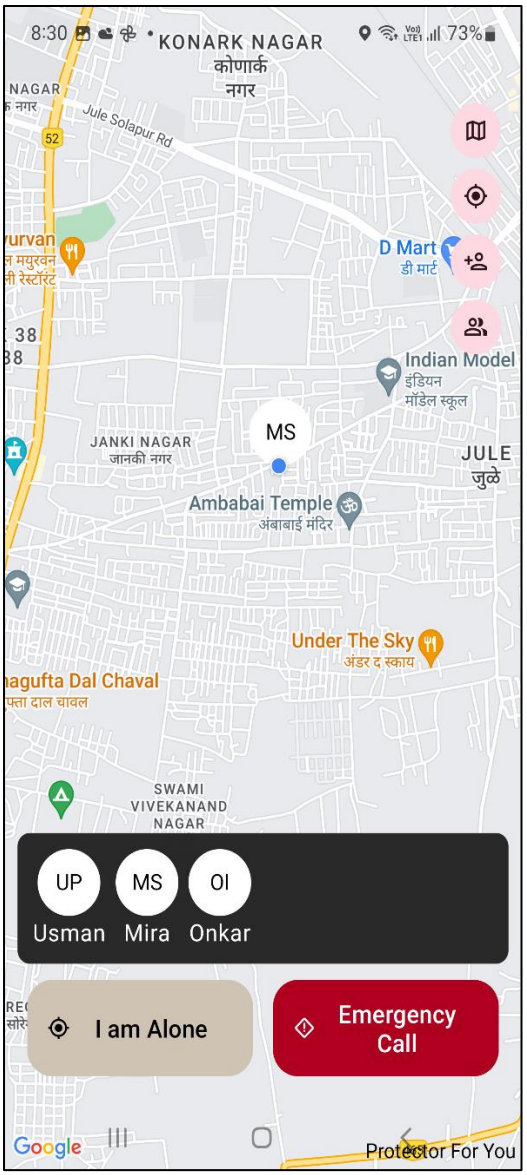
Screenshot 5.7 Home Page



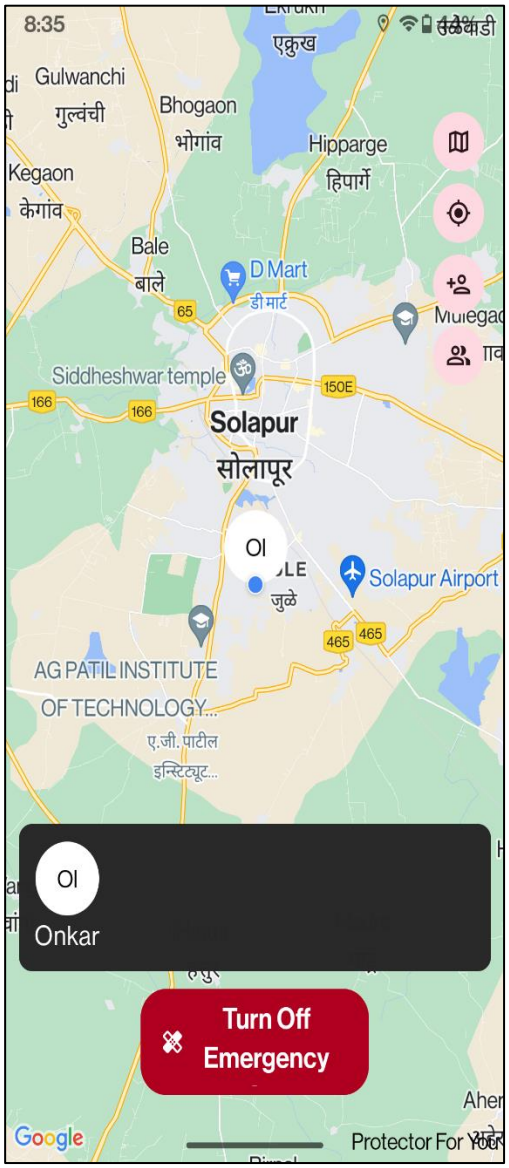
Screenshot 5.8 Safe Button Page

5.2.5 Emergency Module:

This module gets activated when a user is in a critical situation, and he/she clicks on the Emergency button present on the right corner of the home page. This will trigger a request to the server and in response to this request the server broadcasts the user's location to the people who are present in the 8km radius and the user's connections. The people and connections get a call notification on their phones with the option of whether they can help the user or not. They have two buttons on their screens as accept or decline. If they click on accept, then the user can view their locations on his screen so now they both can run towards each other which reduces the chances of the crime. If the user is safe now, then he/she has the option to turn off the emergency module.



Screenshot 5.9 Home Page



Screenshot 5.10 Off Emergency Page

5.3 TESTING:

5.3.1 System Testing:

System testing, or end-to-end, tests a completely integrated system to verify that it meets its software requirements. In our case, we need to check whether the system is working properly or not. We need to check how the system responds to different actions performed by the user. It simply means that every module responds correctly and does the work for what they created. The software testing should ensure that the program, as well as working as expected.

5.3.2 Test Cases:

Module	Test Case Description	Expected Outcome	Actual Output	Test Result
Registration	If User entered invalid Mobile Number	Message should be displayed Enter valid mobile number”	Message should be displayed Enter valid mobile number”	Pass
	If User enter valid mobile number	Generate OTP	Generate OTP	Pass
	OTP Generated	User verified	User verified	Pass
Home Page	Display user location	Location is displayed	Location is Displayed	Pass
	Show Contact list to User	Contact list is displayed	Contact list is displayed	Pass
	Send Connection Request to Respective Contact	Request is sent	Request is sent	Pass
	Display connection request	Request is displayed	Request is displayed	Pass
	Display all	Connections are	Connections are	Pass

	connections	displayed	displayed	
	If user clicks on “I am Alone”	Send notification to the Connection to watch over the user	Send notification to the connection to watch over the user	Pass
	If the user clicks “Emergency”	Location is broadcasted to all connections and volunteers in 8 km radius	Location is broadcasted to all connections and volunteers. in 8 km radius	Pass
	Volunteers receives emergency request	Notification is displayed to the volunteer whether to accept or decline the request	Notification is displayed to the volunteer whether to accept or decline the request	Pass
	Volunteers list displayed to user	Accepted Volunteers list is displayed to user	Accepted Volunteers list is displayed to user	Pass

Table 5.1 Test Cases

5.4 SUMMARY:

This chapter introduces the implementation and the explanation of the application, and the various technologies used in the application. The implementation of the project code is displayed in this chapter.

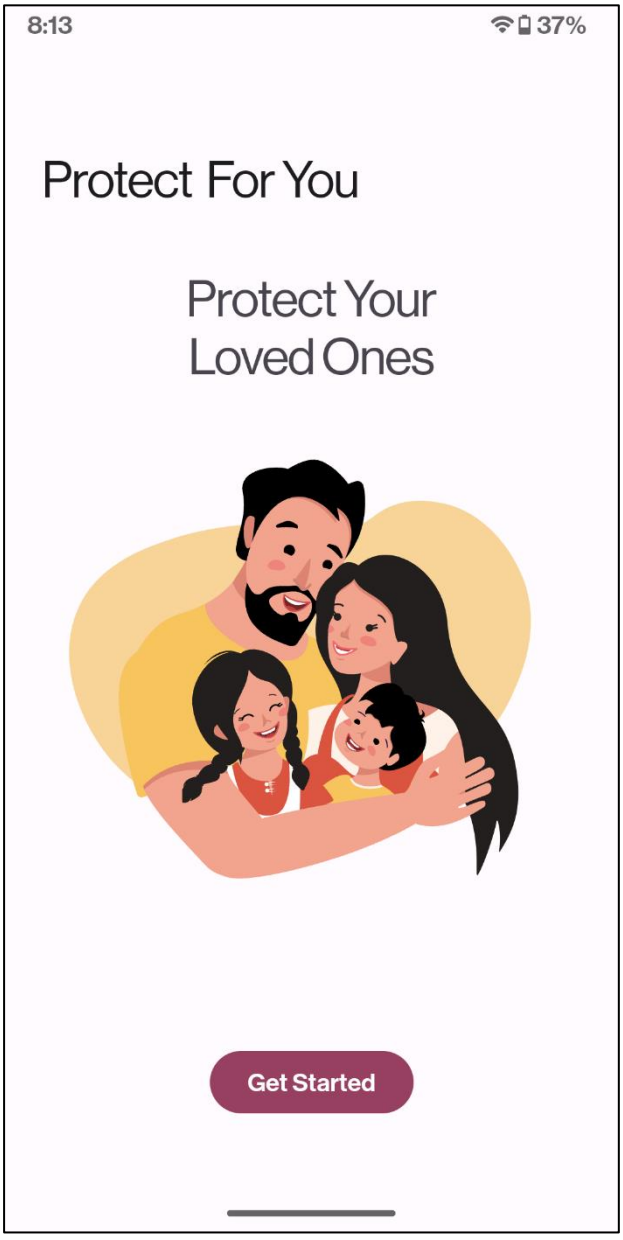
CHAPTER SIX

DEPLOYMENT

6.1 How to execute and use:

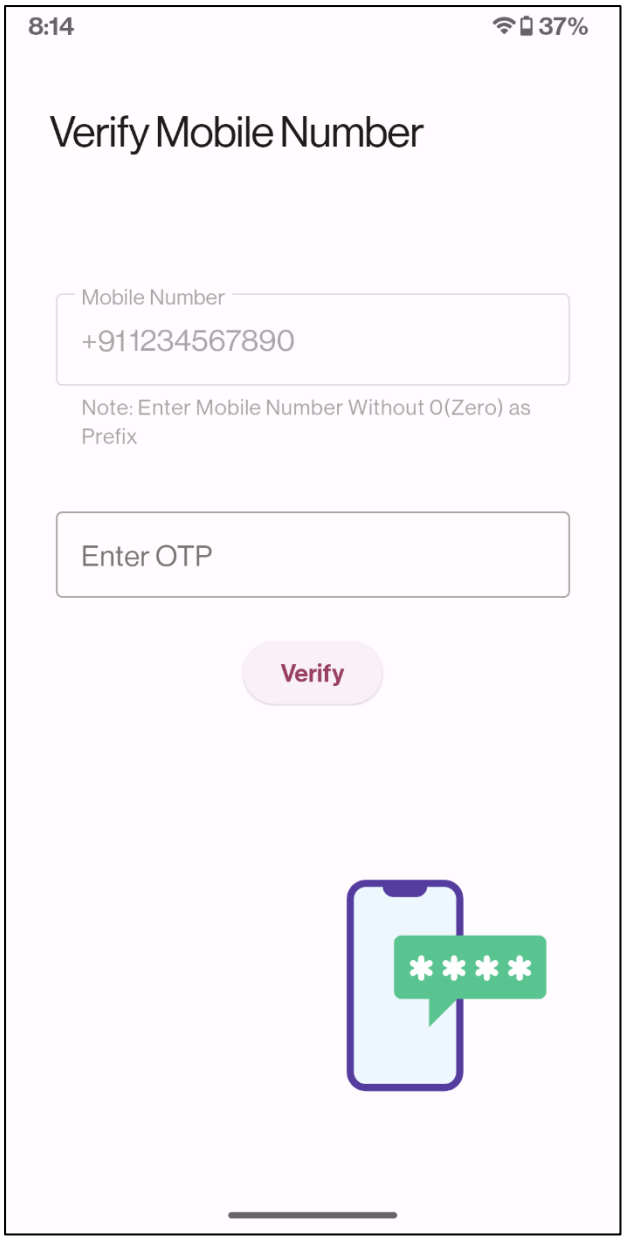
This application provides a facility to provide safety to the users. The user's location is also tracked using GPS. You need to install this application in your android mobile phone to use it.

After installation of application, when you open it, the following screen appears.



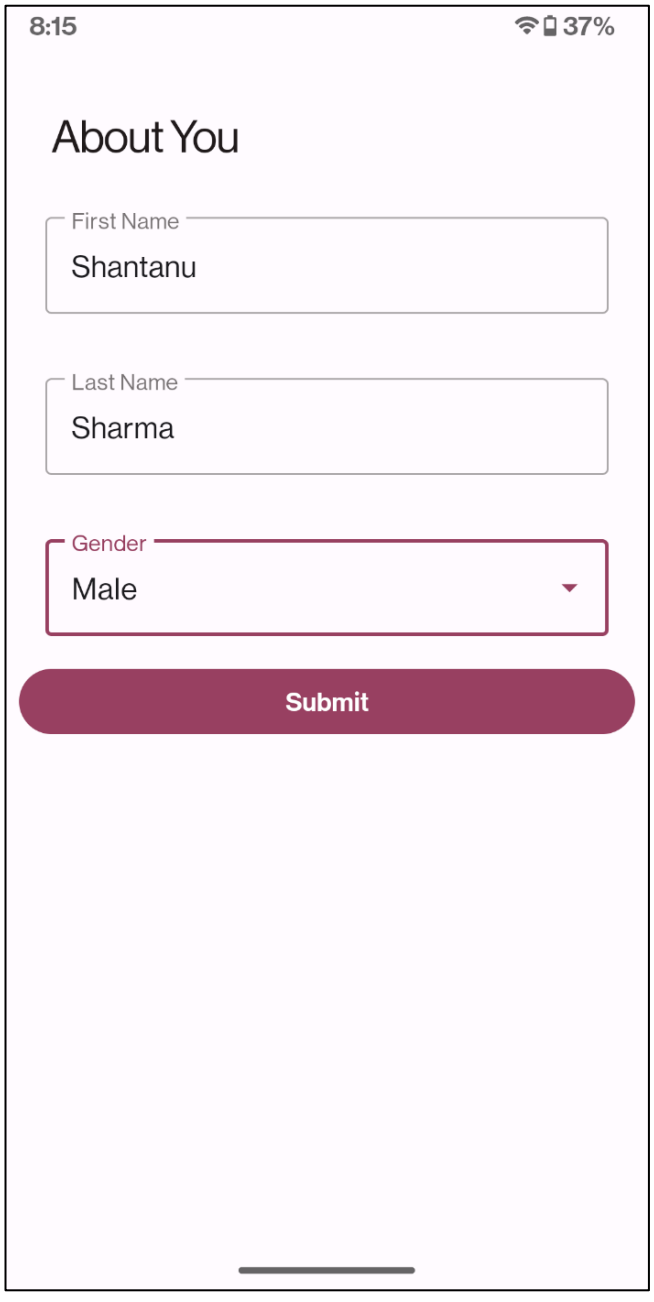
Screenshot 6.1 On Boarding Page

After Starting Page, users need to validate mobile number whether the given mobile number is valid or not. If it is valid, then upon submitting the mobile number, a unique OTP is generated by the system and sent to the user via SMS. The OTP gets automatically filled, and the registration process proceeds.



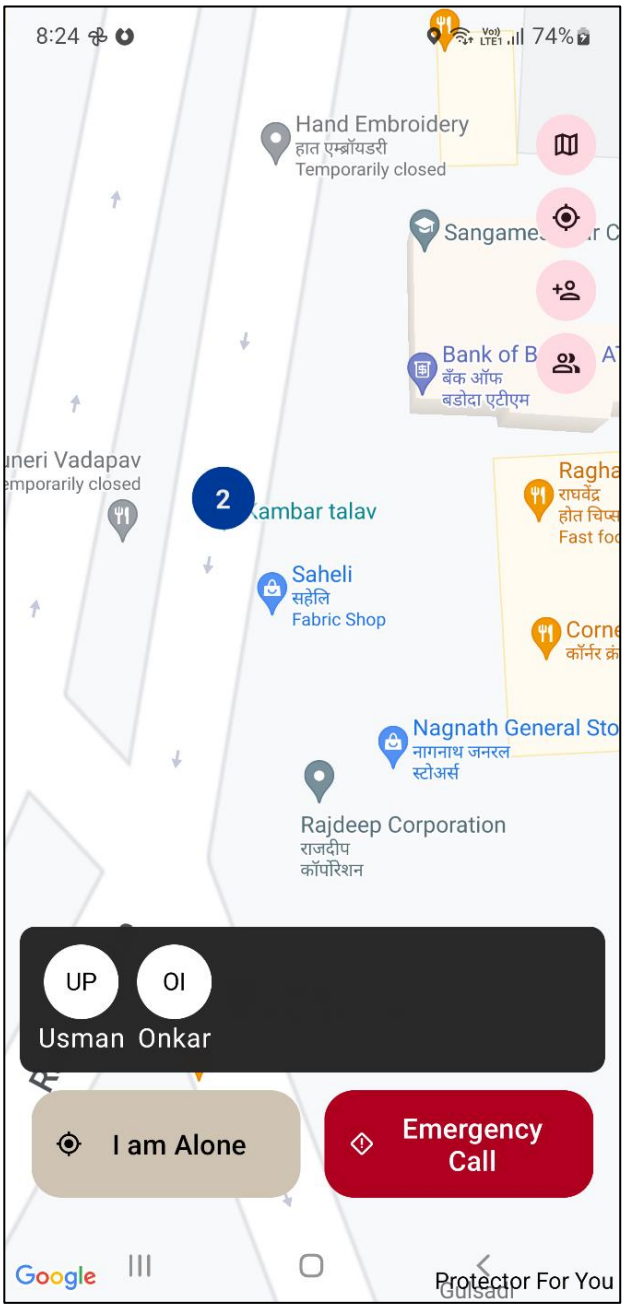
Screenshot 6.2 Verification Page

After Validation User need to fill their Personal Details like their First Name, Last Name and Gender.



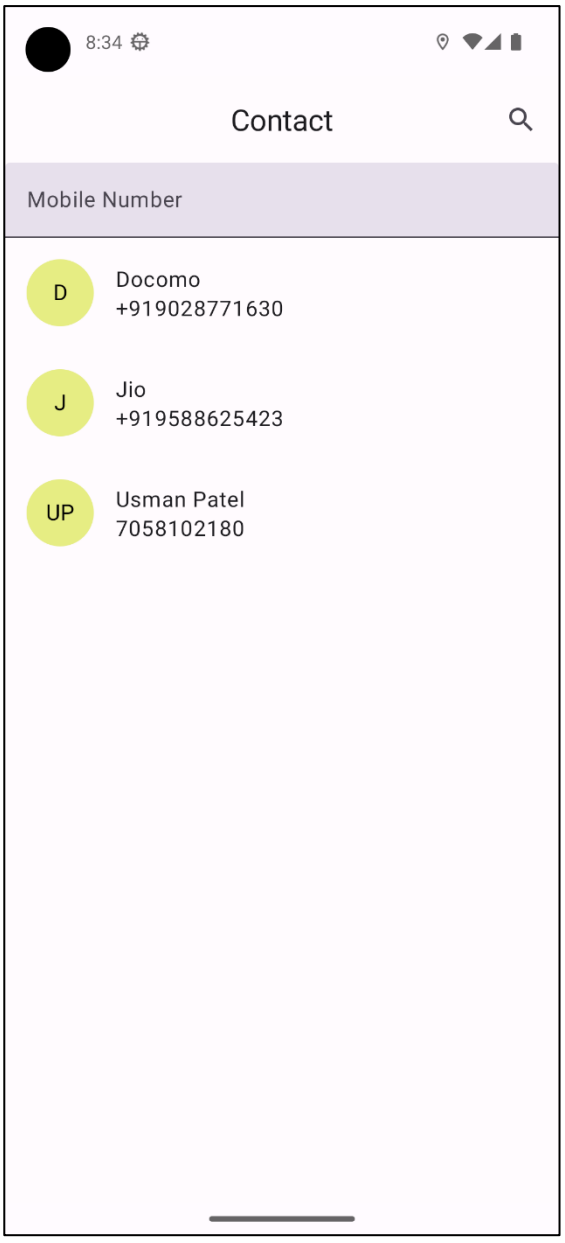
Screenshot 6.3 Enter details Page

After Successful Filling of their Personal Details, User is redirected to Home Page.



Screenshot 6.4 Home Page

User can access the saved contacts of their phone from which he/she can add people they want to relate to. The user can send a connection request to a particular contact that they want to connect with.



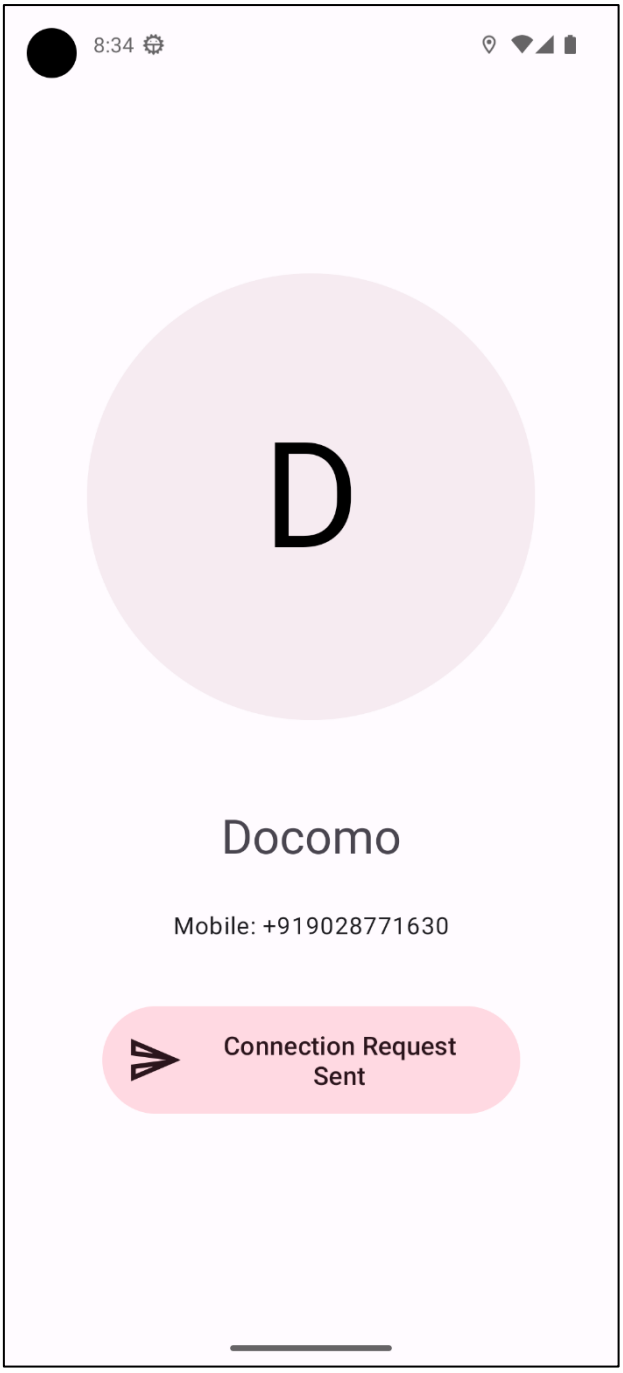
Screenshot 6.5 Contact Page

The android application can access the saved contacts of the user from their phone from which he/she can add people they want to be connected with. The user can send a connection request to a particular contact that they want to connect with.

The connection request is sent by the user to their respective contact

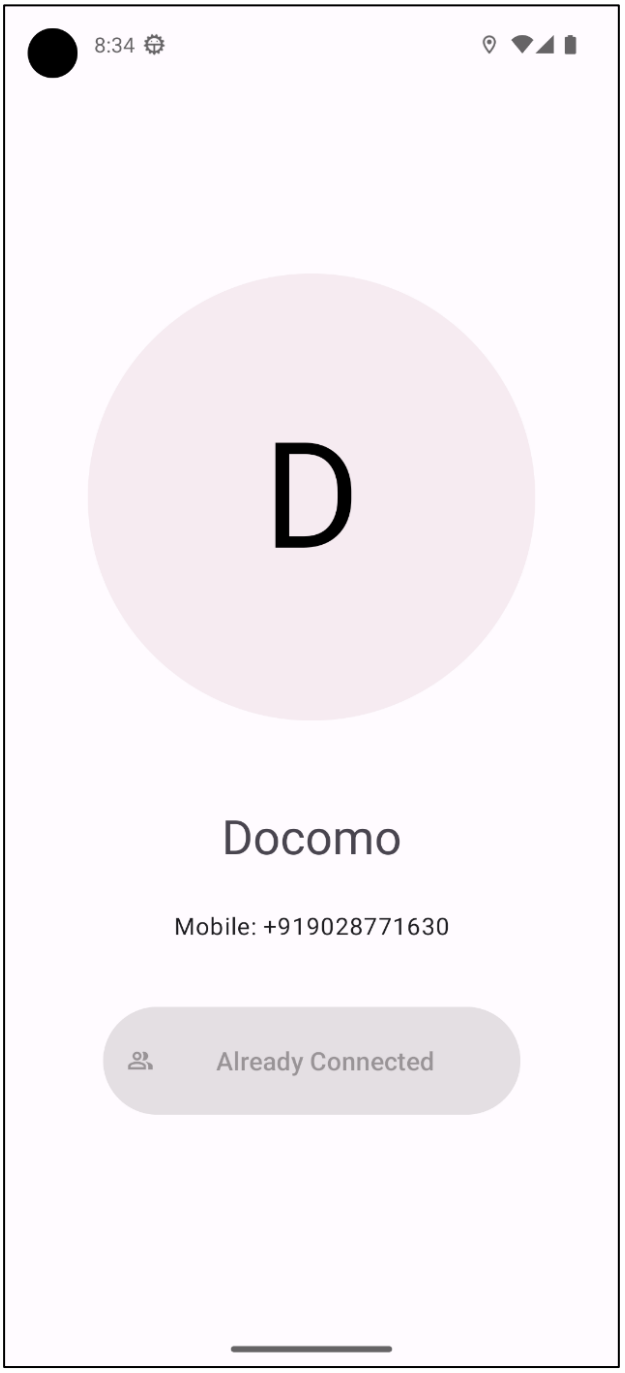
Screenshot 6.6 Sending Request

The connection request is received by the user's respective contact which they can either accept or decline



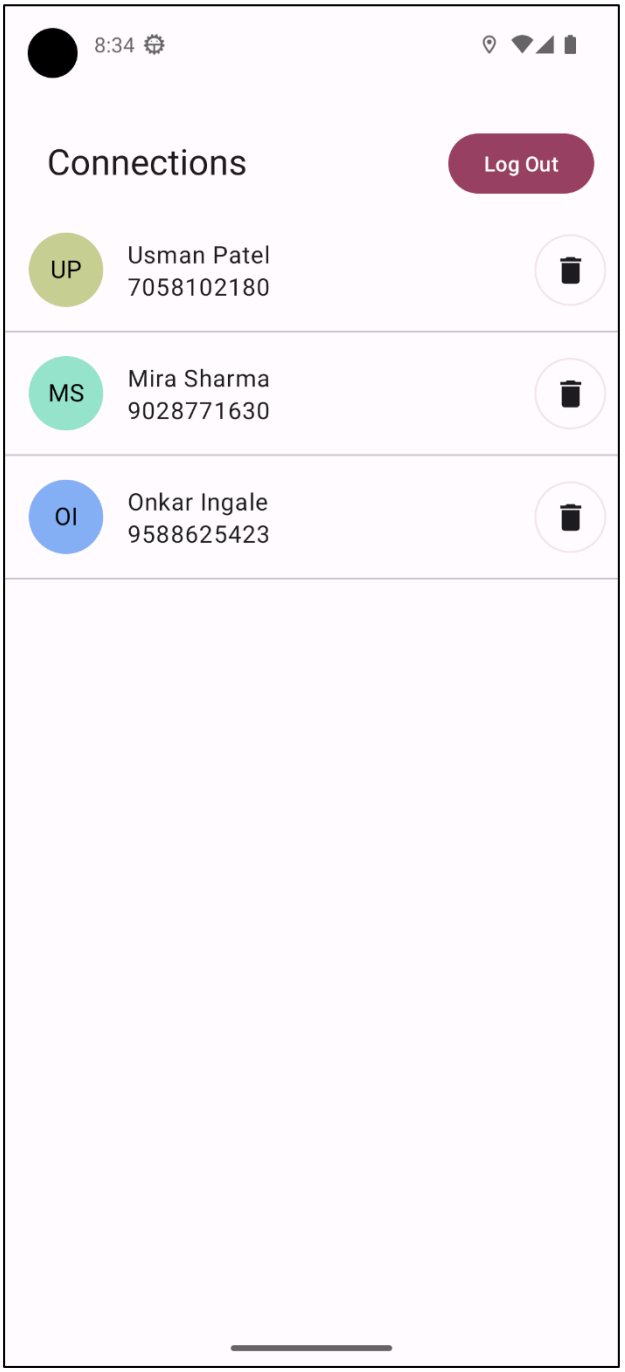
Screenshot 6.7 Request Sent

After the request is accepted by the respective contact of the user, they become a connection with the user.



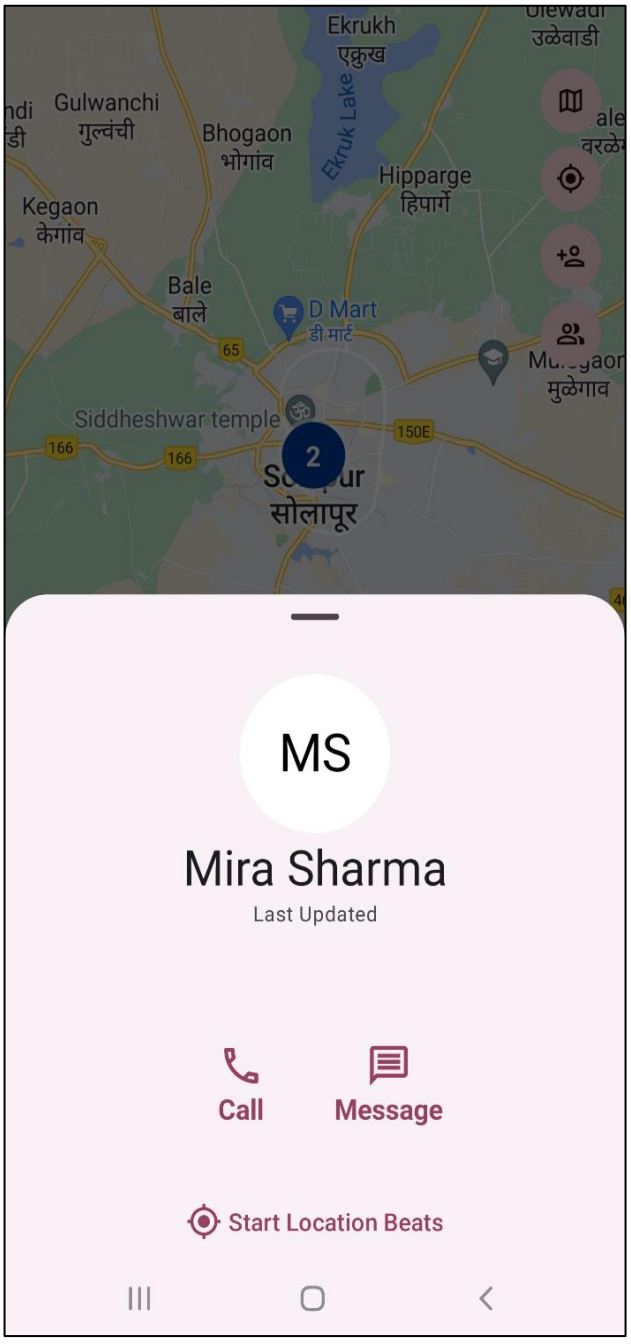
Screenshot 6.8 Users Connected

The list of connections is displayed to the user, if user doesn't want a connection with a contact, then he/she can remove that connection from all connection's lists.



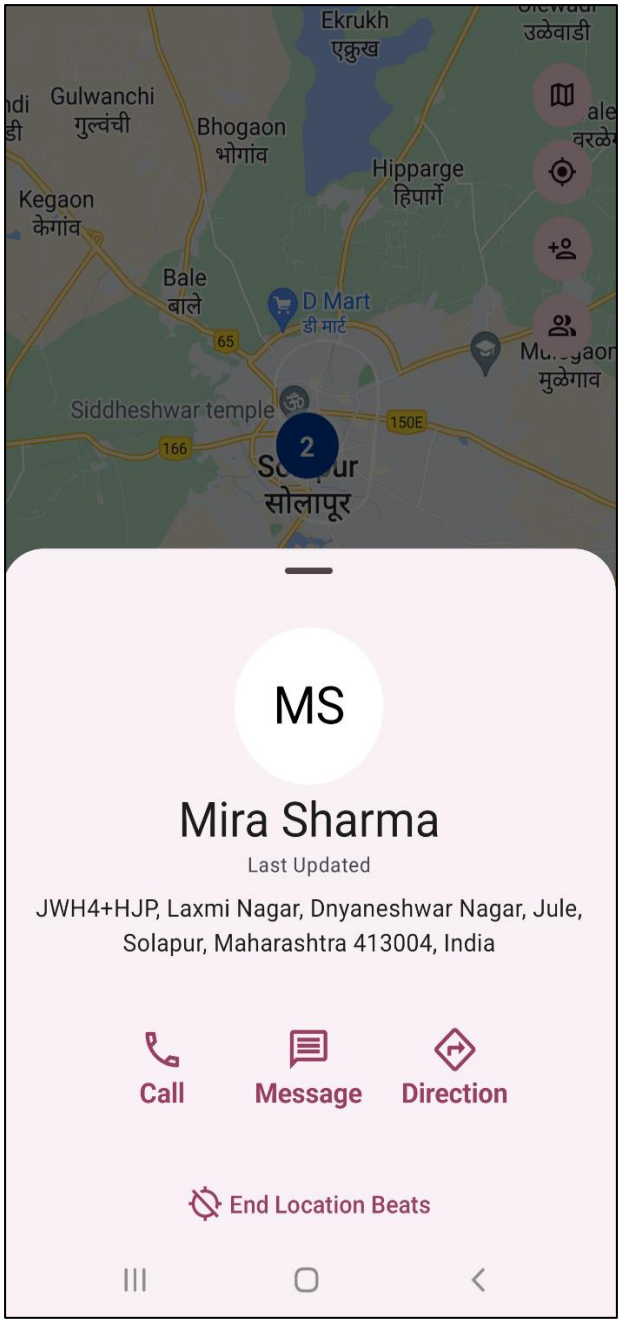
Screenshot 6.9 Connection List

If the user wants his/her loved ones to always watch over him then he can forever share his location using a feature called location beats.



Screenshot 6.10 Start Location Sharing

After the user feels that he/she has reached a safe location and does not require to be watched over any more, they can turn the location beats off.



Screenshot 6.11 End Location Sharing

Whenever the user feels unsafe in an environment and feels the need to be watched over, he/she can click the button labeled “I am Alone”. This will trigger a request, which is passed to the server and in response our system notifies the connections of the user to keep a watch over the user and ensure safety of the user.

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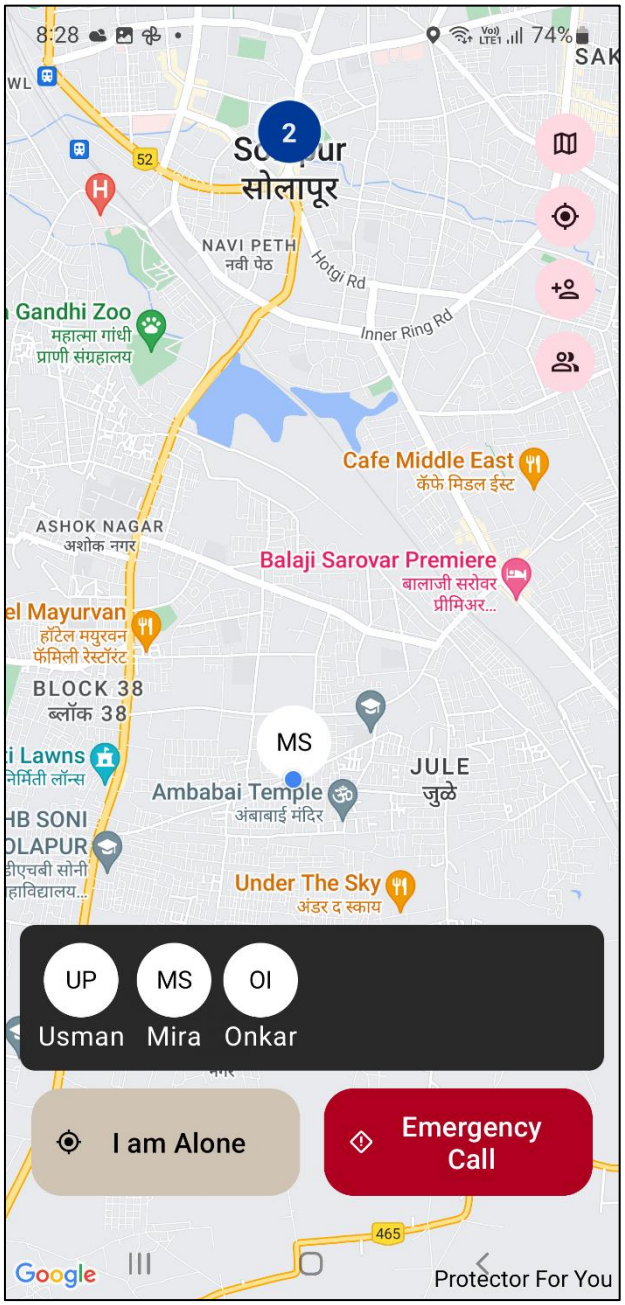
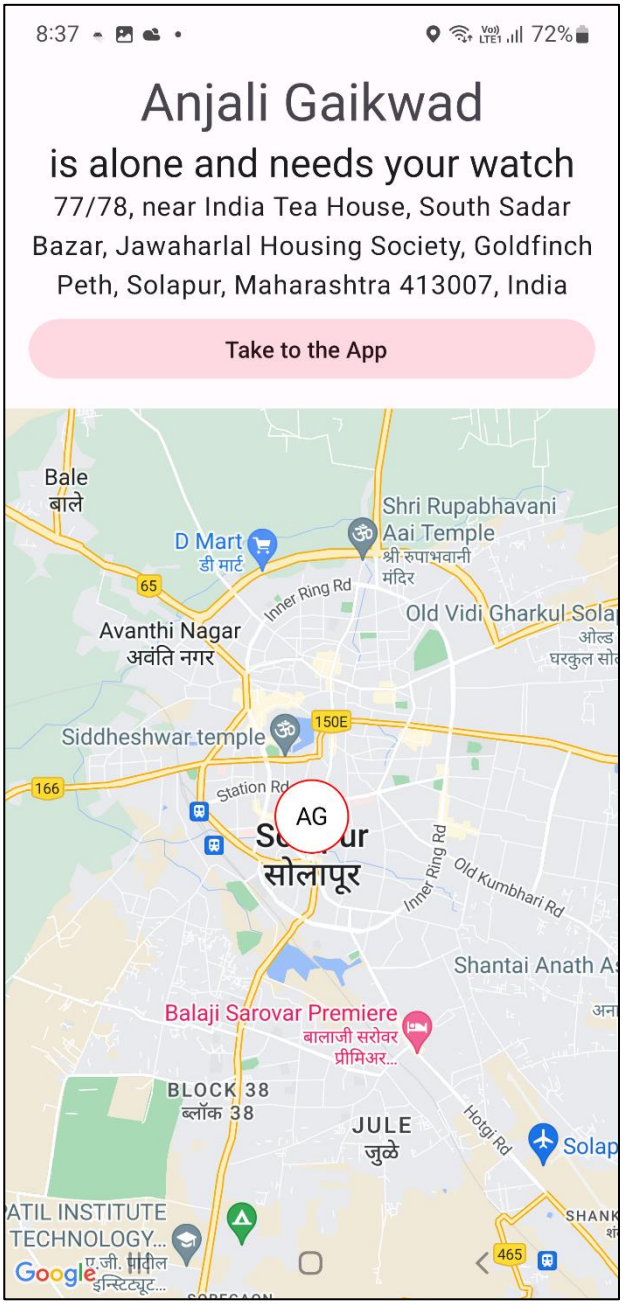


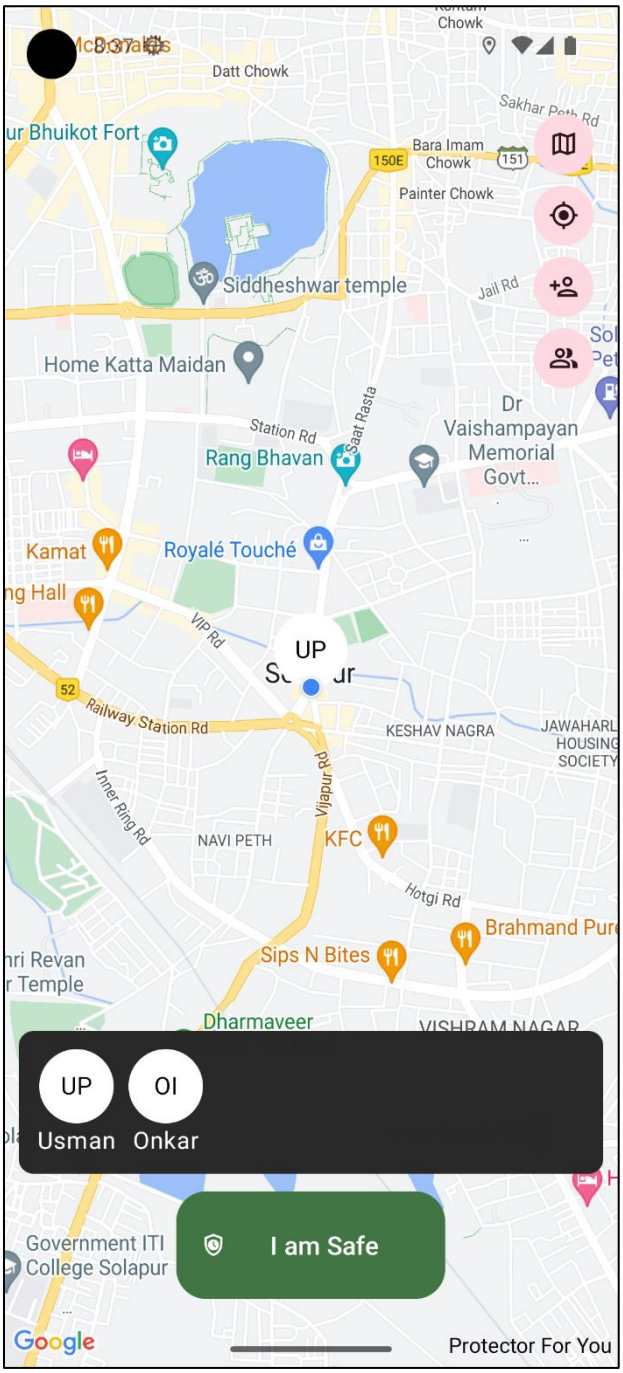
Screenshot 6.12 Home Page

The connections of the user receive a call notification on their phones which notifies them that the user needs to be watched over .



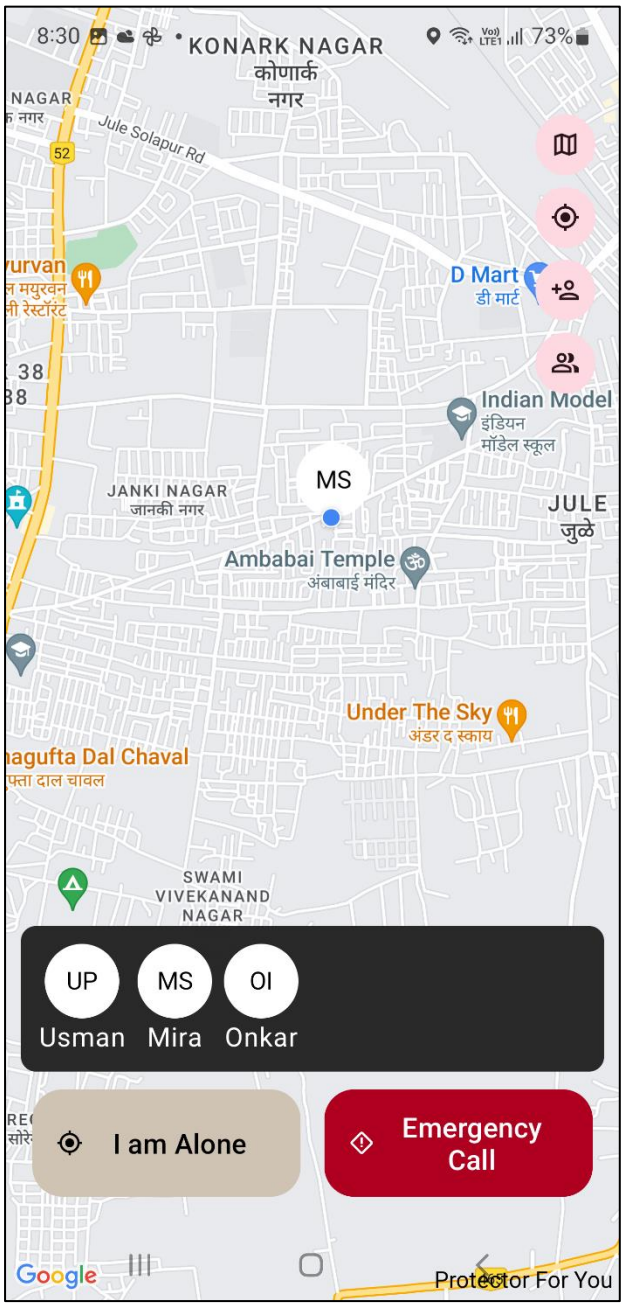
Screenshot 6.13 Alone Notification

After the user feels that he/she has reached a safe place and does not require to be watched over, they can click on “I am Safe”. This will notify the connections of the user that he/she is now safe.



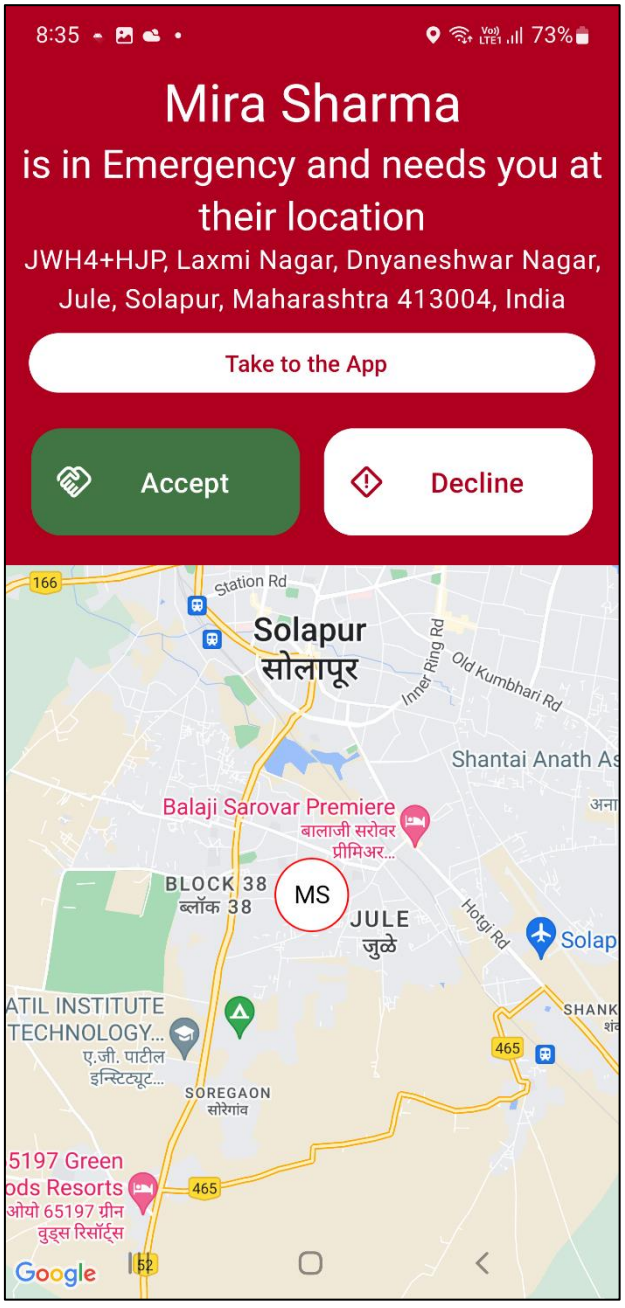
Screenshot 6.14 Safe Button Page

Whenever the user feels unsafe and requires immediate help, he/she can click on the Emergency Call button. This will trigger a request to the server and in response to this request the server broadcasts the user's location to the people who are present in the 8km radius and the user's connections.



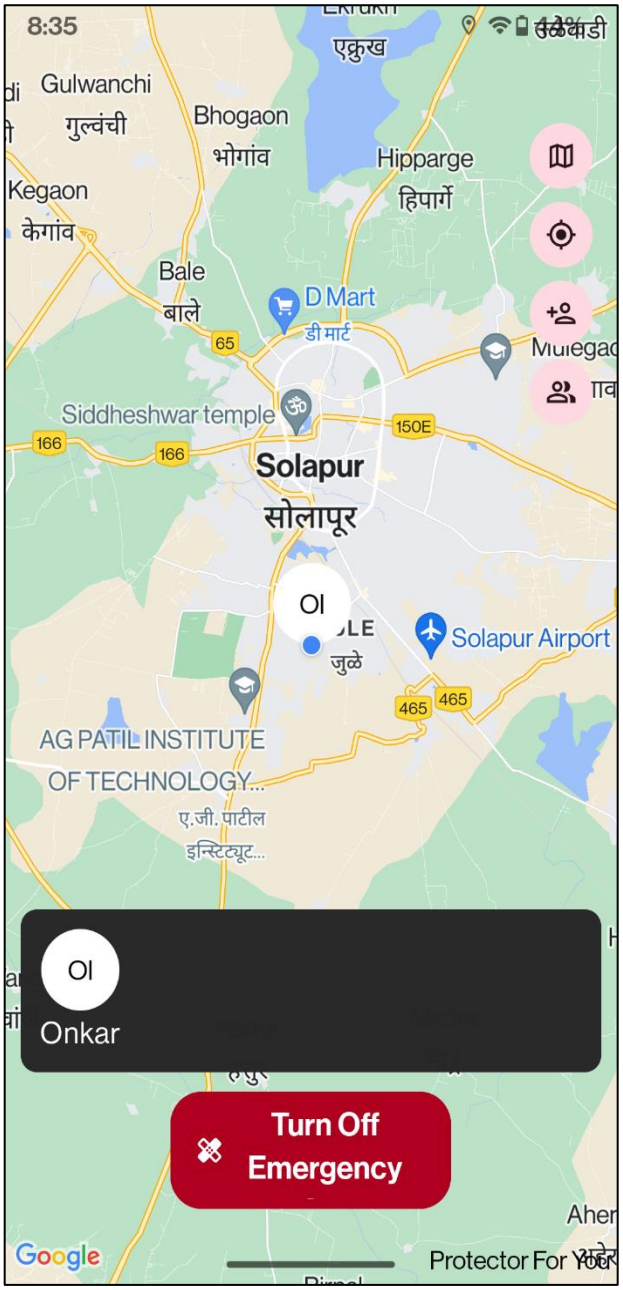
Screenshot 6.15 Home Page

The people and connections get a call notification on their phones with the option of whether they can help the user or not. They have two buttons on their screens as accept or decline. If they click on accept, then the user can view their locations on his screen and be assertive that someone is coming to help them which may reduce the chances of the crime.



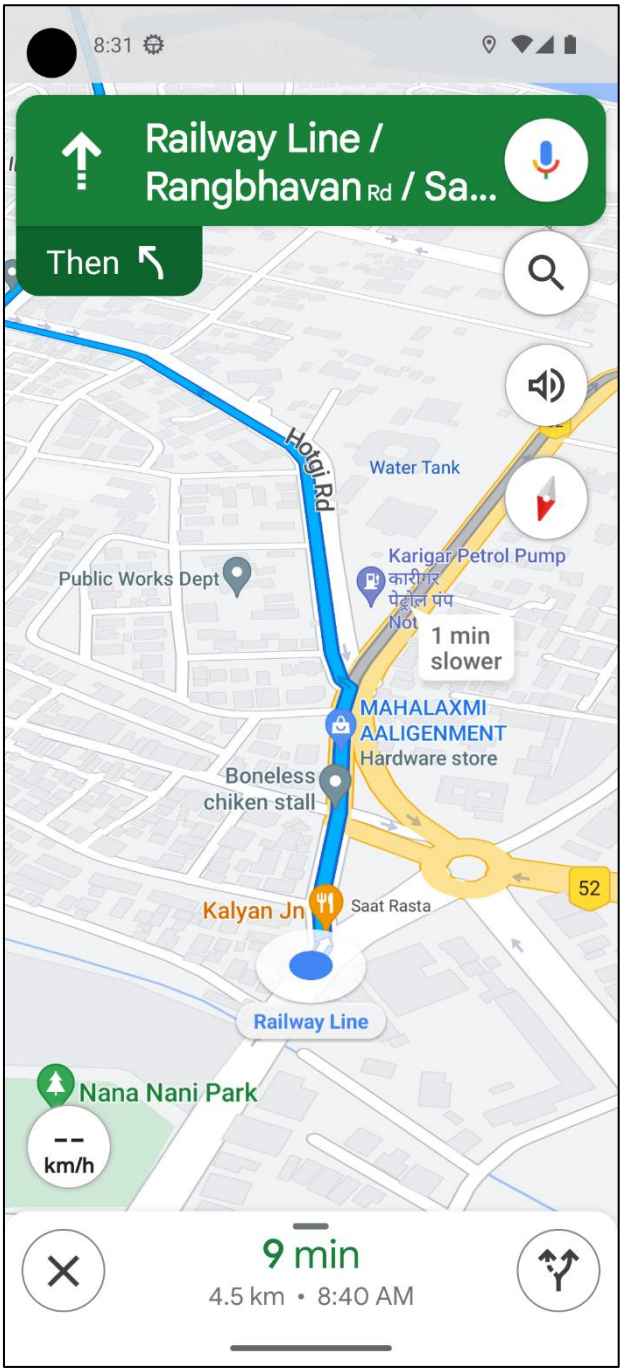
Screenshot 6.16 Emergency Notification

If the user is safe now, then he/she has the option to turn off the emergency request.



Screenshot 6.17 Emergency Turn off

The volunteer who has accepted the help request can see the user's location on the map and can reach him/her as soon as possible.



Screenshot 6.18 Direction for user

CHAPTER SEVEN

CONCLUSION

7.1 CONCLUSION

Even though there is no 100% guarantee against becoming a victim of violent crime, there are ways to protect oneself. But even then, there are situations where only the police or other emergency response services can help. We are looking to develop a Personal Safety App that alerts local emergency authorities, the victims close contacts as well as people nearby the victim when users find themselves in dangerous situations.

The proposed application is being developed to guard individuals from critical situations using Cloud services. This App will broadcast the location of the person in need whenever a distress signal is triggered. We are developing an app with a high accuracy rate that can give you the precise location with automatic scaling with multiple requests being processed in a single second. Automatic scaling of services by monitoring Daily Active Users, Intelligent Location Tracking and Peak Times will be achieved.

In this report, the application, has a lot of unique functionalities in contrast to similar applications in the market, is presented. Since everyone travels with a smartphone, whether they travel alone or not, they can use their phone as a security guard for them. Most people feel unsafe whenever they step out of their house. Thus, the proposed application can ensure safe travel not only for the person who is travelling but also for the one who cares for them and can guard them.

7.2 FUTURE SCOPE

Currently we have developed an android compatible version of the application. In the future we can build a practical, fast, and reliable application that will provide 24/7 active help to ensure security to individuals in need. Develop a Scalable System that can scale itself as the number of users increases. Develop the project using distributed architecture for increased scalability. In the future we are planning to develop application for iOS system.

CHAPTER EIGHT
REFERENCES

1. **A mobile application for Women's Safety: WoSApp:**
https://ieeexplore.ieee.org/document/7373171

2. **Design of a women safety device:**
https://ieeexplore.ieee.org/document/7906858

3. **Cheeka: A mobile application for personal safety**
https://www.researchgate.net/publication/261201836_Cheeka_A_mobile_application_for_personal_safety

4. **Safety App: Crime Prediction Using GIS**
https://ieeexplore.ieee.org/document/9137

CHAPTER NINE

ANNEXURE

9.1 COURSE OUTCOMES FOR PROJECT WORK

After completion of Project work students should be able to

CO1. Identify and formulate Engineering problems addressing needs of Industry & Society.

CO2. Conduct investigations of the Engineering problem formulated by using Engineering Sciences.

CO3. Design and develop solution(s) for Engineering problem with due consideration to

CO4. Create, select, and apply modern tools for investigating, designing, and developing solution(s) to engineering problem.

CO5. Work as individual and in team for communicating and managing the project work and its fiancés.

CO6. Apply professional ethics while identifying the problem, investigating the problem, designing a solution to the problem, working as an individual or team for communicating and managing the project work and its finances.

CO7. Develop ability for independent & lifelong learning.

9.2 CO-PO MAPPING FOR PROJECT

Pradnya Niketan Education Society, Pune.
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY, SOLAPUR
NAAC Accredited, Approved by AICTE, New Delhi & Affiliated to DBATU, Lonere
E-mail :office@orchidengg.ac.in, Website : www.orchidengg.ac.in, Phone : 9423084363
Post Box No. 154, Gut No. 16, Solapur-Tuljapur Road, Tale Hipparaga, Solapur- 413 002.

CO-PO Mapping for Project

Course Outcomes (COs)	
Students will able to:	
CO1	Identify and formulate Engineering problem addressing needs of Industry & Society.
CO2	Conduct investigations of the Engineering problem formulated by using Engineering Sciences.
CO3	Design and develop solution(s) for Engineering problem with due consideration to public health, safety, culture, society, environment and sustainability.
CO4	Create, select and apply modern tools for investigating, designing and developing solution(s) to engineering problem.
CO5	Work as individual and in team for communicating and managing the project work and its fiancés.
CO6	Apply professional ethics while identifying the problem, investigating the problem, designing a solution to the problem, working as an individual or team for communicating and managing the project work and its finances.
CO7	Develop ability for independent & lifelong learning.

Sr. No	Program Outcomes (POs)
1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2	Problem analysis: Identify, formulate, review research literature, and analyze. complex engineering problems reaching substantiated conclusions using firstprinciples of mathematics, natural sciences, and engineering sciences.
3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation ofdata, and synthesis of the information to provide valid conclusions.
5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modernengineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequentresponsibilities relevant to the professional engineering practice.
7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
9	Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in team, to manage projects and in multidisciplinary environments.

12	Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Outcomes (COs)	**Program Outcomes (POS)**											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3										
CO2		3			2							
CO3			2		3							
CO4	2				3							
CO5								2	3			
CO6								3				
CO7									1	2		3