



SUROKKHA: A WOMEN SAFETY PROVIDER APP

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This project report has been submitted in fulfilment of the requirements for the degree
of **Bachelor of Science in Software Engineering**

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APPROVAL

This project titled on "SUROKKHA: A Women Safety Provider App", submitted by **Khadizatul Kubra (ID: 221-35-868)** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering and approval as to its style and contents.

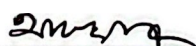
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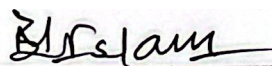
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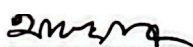
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SUPERVISOR'S DECLARATION

I hereby declare that I have checked the project Surokkha: Women Safety Provider App thoroughly and, in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Bachelor of Science.



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Date :

STUDENT'S DECLARATION

I hereby declare that the work in the project Surokkha: Women Safety Provider App is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Daffodil International University or any other institution.

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SUROKKHA: A WOMEN SAFETY PROVIDER APP

Khadizatul Kubra

Project submitted in fulfillment of the requirements
for the award of the degree of
Bachelor of Science

Department of Software Engineering

DAFFODIL INTERNATIONAL UNIVERSITY

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First of all, I am grateful to The Almighty Allah for making me eligible to complete this project. Then, I would like to thank my supervisor “Afsana Begum”, “Assistant Professor & Coordinator M.Sc.”, Department of Software Engineering. I am very much grateful and indebted to her for her expert, sincere and valuable guidance and encouragement extended toward me. I would like to thank my classmate and all those people who help me in this project

I am extremely thankful to all the faculty members of the Department of Software Engineering for their help and encouragement. At the end, I would like to thank to my parent, for their unconditional support, love and without this I might not have come this far.

DEDICATION

I therefore declare that I have done this project under the oversight of “**Afsana Begum**”, “**Assistant Professor & Coordinator M.Sc.**”, Department of Software Engineering, Daffodil International University. Also declare that neither entire record nor any portion of this record has been submitted somewhere else for my degree.

ABSTRACT

The Surokkha: Women Safety App is a mobile app that designed to enhance the personal safety and security of women in emergency situations. The primary objective of this application is to provide an immediate and reliable communication channel between users and their trusted contacts or authority or emergency services. The system is mostly based on modern smartphone technologies such as live location tracking, voice-triggered or button pressed emergency calling, and place reviewing option to rate about the visited places that are safe or dangerous. The app is developed using the Flutter framework and Firebase backend, the app offers a user-friendly interface, efficient data handling, and easy to navigate system. Key features include user registration and authentication, emergency contact management, live location share, voice or button pressed auto call and admin monitoring capabilities. There is various type of women safety app but featuring all there feature together into one system for batter navigation and access can easily done by Surokkha. Within careful design, testing, and validation, the project shows how mobile technology can play a vital role in improving women's safety and empowering them to act quickly during emergencies. The Surokkha App represents a step toward the safer digital ecosystem where technology actively contributes to social well-being and personal protection.

Keyword: Women safety, Flutter, Firebase, Mobile App, Location tracking, Voice-calling, Interface.

TABLE OF CONTENT

DECLARATION
TITLE PAGE

ACKNOWLEDGEMENTS	II
DEDICATION	III
ABSTRACT	IV
TABLE OF CONTENT	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	x
CHAPTER 1 INTRODUCTION	11
1.1 Background	11
1.1.1 Context and Relevance	11
1.1.2 Problem Identification	11
1.1.3 Purpose and Justification	11
1.1.4 Scope	12
1.2 Project Planning and Initiation	12
Feasibility Study (Step-by-Step)	12
1.3 Target User Profile and Tentative Elicitation Process	13
1.3.1 Target User	13
1.3.2 User profile	14
1.3.3 Elicitation Process	17
1.4 Project Block Diagram	17
1.5 System Requirements	18

1.5.1 Hardware Requirements	18
1.5.2 Software Requirements	18
1.5.3 Constraints and Dependencies	18
1.6 Project Scheduling	18
1.7 Summary	19
CHAPTER 2 DESIGN AND IMPLEMENTATION	20
2.1 Introduction	20
2.2 Functional Requirements	20
2.3 Non-Functional Requirements	22
2.3.1 Performance	22
2.3.2 Availability	22
2.3.3 Usability	22
2.4 Object-oriented System design using UML	23
2.4.1 Use Case Diagram	23
2.4.2 Case Description	24
2.4.3 Activity Diagram	33
2.4.4 Sequence Diagram	39
2.4.5 Class Diagram	44
2.4.6 ER Diagram	45
2.6 Summary	45
CHAPTER 3 SOFTWARE TESTING	46
3.1 Introduction	46
3.2 Testing Features	46
3.2.1 Feature to Be Tested	46
3.3 Testing Strategies	46

3.3.1 Test Approach	46
3.3.2 Pass/Fail Criteria	46
3.4 System Testing Reports	47
3.5 Summary	50
CHAPTER 4 DEPLOYMENT AND MAINTENANCE	50
4.1 Introduction	50
4.2 SRLC Phases	51
CHAPTER 5 USER MANUAL	51
5.1 Introduction	51
5.2 Project Functionalities	52
5.3 Summary	62
CHAPTER 6 PROJECT SUMMARY	63
6.1 Introduction	63
6.2 Project Limitation	63
6.3 Scope	63
6.4 Future Work	63
6.5 Conclusion	63
REFERENCES	64

LIST OF TABLES

Table 1: User Profile for Young Women	14
Table 2: User Profile for Working Women	15
Table 3: User Profile for Housewife/Homemakers	16

LIST OF FIGURES

Figure 1: System Block Diagram	17
Figure 2 Gantt chart	19
Figure 3: Use case Diagram	23
Figure 4: Class Diagram	44
Figure 5: ER Diagram	45
Figure 6: Software Release Life Cycle	51
Figure 7: User Registration	52
Figure 8: User Login	53
Figure 9: Profile Update	54
Figure 10: Homepage	55
Figure 11: Emergency Contacts	56
Figure 12: Location Share	57
Figure 13: Voice Auto-Call	58
Figure 14: Place Review	59
Figure 15: Settings	60
Figure 16: Admin Login	61
Figure 17: Admin Dashboard	62

LIST OF ABBREVIATIONS

WSA	Women Safety App
etc	And the rest
e.g.	Example gratia
API	Application Programming Interface
UI	User Interface
SRLC	Software Release Life Cycle

CHAPTER 1 INTRODUCTION

1.1 Background

1.1.1 Context and Relevance

In recent years, personal safety, especially women's safety, has become a critical social concern all around world. The rapid increase in smartphone usage and internet accessibility offers new opportunities to use technology for real-time protection and emergency response. Mobile applications designed for safety enable users to quickly contact authorities, share their live location, and alert trusted contacts during emergencies. The Surokkha: Women Safety App fits within this growing domain of mobile safety systems. It utilizes location tracking, emergency communication, and voice calling to provide women with instant access to help. With the integration of location sharing, calling features, and voice recognition, Surokkha aims to enhance the sense of security and reduce response time in problematic situations.

1.1.2 Problem Identification

Yes, there are several safety applications, many still face critical limitations such as delayed emergency response, manual activation during danger, lack of location accuracy, and poor data management. Often, users may not have the time or ability to use their phone and manually call someone in threatening situation. Existing systems also lack proper communication links between users and authority or do not provide automatic calling features. Therefore, there is a need for an efficient and user-friendly application that can very much recognize distress signals (such as voice triggers, button press), instantly alert emergency contacts and authorities, and share live location with trusted individuals.

1.1.3 Purpose and Justification

The primary goal of the Surokkha: WSA is to empower women by providing a reliable and efficient platform for emergency communication and real-time location sharing. The application aims to minimize response time during emergencies by enabling voice auto-calls, live location tracking, and instant sharing with emergency contacts or authorities. The app also includes features like profile update, emergency contact maintenance, location history, and place reviews to improve usability and awareness. By integrating these functionalities, Surokkha tries to creating a safer environment for women, along with mobile technology to offer immediate assistance and peace of mind.

1.1.4 Scope

This app will provide:

- Woman's safety will be insured by this app.
- Because of many of these similar app lack of robust and responsiveness, this is a major point to improve.
- Also feature like button press and voice recognition emergency call will provide extra layer of security.
- Lastly providing 24/7 services also a major part of the app.

1.2 Project Planning and Initiation

Feasibility Study (Step-by-Step)

The feasibility study evaluates the practical, technical, and financial aspects of developing and implementing the Surokkha: WSA. It helps determine whether the project can be successfully executed within the defined resources, time, and scope. The study is divided into four major phases as follows:

Phase 1 Preliminary Analysis & Project Scope Definition:

The preliminary analysis focuses on defining the core objectives and scope of the Surokkha project. The main goal is to develop a smart and efficient safety application that assists women in emergency situations through advanced communication and tracking technologies.

During this phase, the following elements were identified:

- The app will include real-time location sharing, emergency contact management, and voice-triggered auto-calling to ensure immediate action during emergencies.
- User-friendliness will make the app accessible to a wider audience, including those in rural or remote areas.
- An **admin panel** will be implemented for monitoring user activities and managing security-related reports.

Phase 2 Market Feasibility Analysis (or Market Research):

There is various similar app such as bsafe, Life360, MySafetipin, Noonlight etc. but not any of those provide needed features or you have to pay for that. So here, this app will provide Local language support, Offline SOS features, Auto voice calling. With this more people will be engaged with the app and we can assume that the success rate will be

higher than others. Also, various testing process will be happened for understanding if people want any changes or features in the app.

Phase 3 Technical Feasibility Analysis:

App will be primarily launce on android and further extend for Ios and Tablet variant. Also, technical features will be covered with great cautions. Software that will be used for this app are free for public use. And all the needed featured can be implemented and deployed.

Phase 4 Financial Feasibility Analysis:

All those resources needed to build this app are available for free or can be obtain with minimum cost. For software that will be used are free of cost for global uses also for hosting free hosting services will be used. Lastly, database and testing will be done with minimum cost.

1.3 Target User Profile and Tentative Elicitation Process

1.3.1 Target User

Primary Target Users:

- Young Women (Aged 18–25)
 - a. Demographic: High school and university students, early-career professionals
 - b. Needs: Quick SOS alerts, live tracking, safe route navigation, discreet help triggers
 - c. Pain Points: Unsafe commutes, night travel, harassment risk in public transport

- Working Women (Aged 25–40)
 - a. Demographic: Office workers, night-shift employees, field workers
 - b. Needs: Trusted contact system, real-time alerts, emergency calling, workplace safety tools
 - c. Pain Points: Traveling alone at odd hours, long commutes, isolated locations

- Mothers & Homemakers (Aged 30–50)
 - a. Demographic: Stay-at-home or part-time workers, often responsible for children's safety
 - b. Needs: Child monitoring features, location alerts, neighbourhood safety info
 - c. Pain Points: Concern about kids' safety, unfamiliar areas

Secondary Target Users

- Elderly Women (Aged 50+)
 - a. Demographic: Retired, possibly living alone
 - b. Needs: Simplified UI, large buttons, voice-activated alerts, emergency health + safety features
 - c. Pain Points: Slow response in danger, difficulty using complex apps
- NGOs / Law Enforcement
 - a. Demographic: Safety officials, helpline providers
 - b. Needs: Quick access to victim data, alert routing system
 - c. Pain Points: Delayed reporting, lack of verified location information

1.3.2 User profile

Table 1: User Profile for Young Women

User Class	Note on Characteristics
Type of user	Young Women
Age range	18-25
Frequency of use	High
Mandatory	Must have parent's permission
Computer experience	Moderate, comfortable using mobile apps and basic functions
Education	Secondary to university level students or young professionals
goal	Ensure personal safety, quickly access emergency help, notify trusted contacts, and locate nearby police/hospitals
Language skills	Primarily Bangla; basic understanding of English for app navigation
Number of users	Estimated large target group (thousands of young women)
Training	Minimal, users can easily learn app features through onboarding screens or quick tutorials.
Others system use	Regular use of social media (Facebook, Instagram), Google Maps
Way of working	Independent and mobile-oriented; rely heavily on smartphones for communication, navigation, and safety.

Table 2: User Profile for Working Women

User Class	Note on Characteristics
Type of user	Working Women
Age range	25-40
Frequency of use	Moderate to high
Mandatory	Must have smartphone with internet access.
Computer experience	Moderate to high, familiar with smartphones, office applications, and communication tools.
Education	College or university graduates, often employed in corporate, service, or educational sectors.
goal	Ensure personal safety while traveling, send alerts to emergency contacts, locate police stations or hospitals nearby.
Language skills	Fluent in Bangla, good understanding of English.
Number of users	Growing user group, hundreds to thousands of urban working women.
Training	Minimal, app designed for self-learning with guided prompts and easy navigation.
Others system use	Regular use of social media (Facebook, WhatsApp, Instagram), Google Maps
Way of working	Organized and time-bound; multitaskers who rely on technology for safety, communication, and daily routines.

Table 3: User Profile for Housewife/Homemakers

User Class	Note on Characteristics
Type of user	Housewife/Homemakers
Age range	30-50
Frequency of use	Occasional to moderate
Mandatory	Smartphone ownership preferred; sometimes shared with family members.
Computer experience	Basic, familiar with calling, messaging, and simple mobile app usage
Education	Primary to secondary education; some may have higher education.
goal	Quickly access help in emergencies, notify family or neighbors, and feel safer while alone at home or traveling.
Language skills	Primarily Bangla.
Number of users	Large potential user base across urban and suburban areas.
Training	May require short orientation or visual guide to understand key features.
Others system use	Regular use of voice calls, messaging apps, YouTube, and social media like Facebook.
Way of working	Family-centered routine; value simplicity, quick access, and clear visual cues in the app.

1.3.3 Elicitation Process

How do we find that, if this project will be helpful for various types of user are:

- Interviews: Conducted with women from different age groups to understand their personal safety concerns, preferred emergency response methods, and feature expectations.
- Focus Groups: Talked with university students, working women, and various community to understand their need and what can be beneficial for them.
- Observation: by observing daily life we gathered various information that can make this project helpful in needed scenario.

1.4 Project Block Diagram

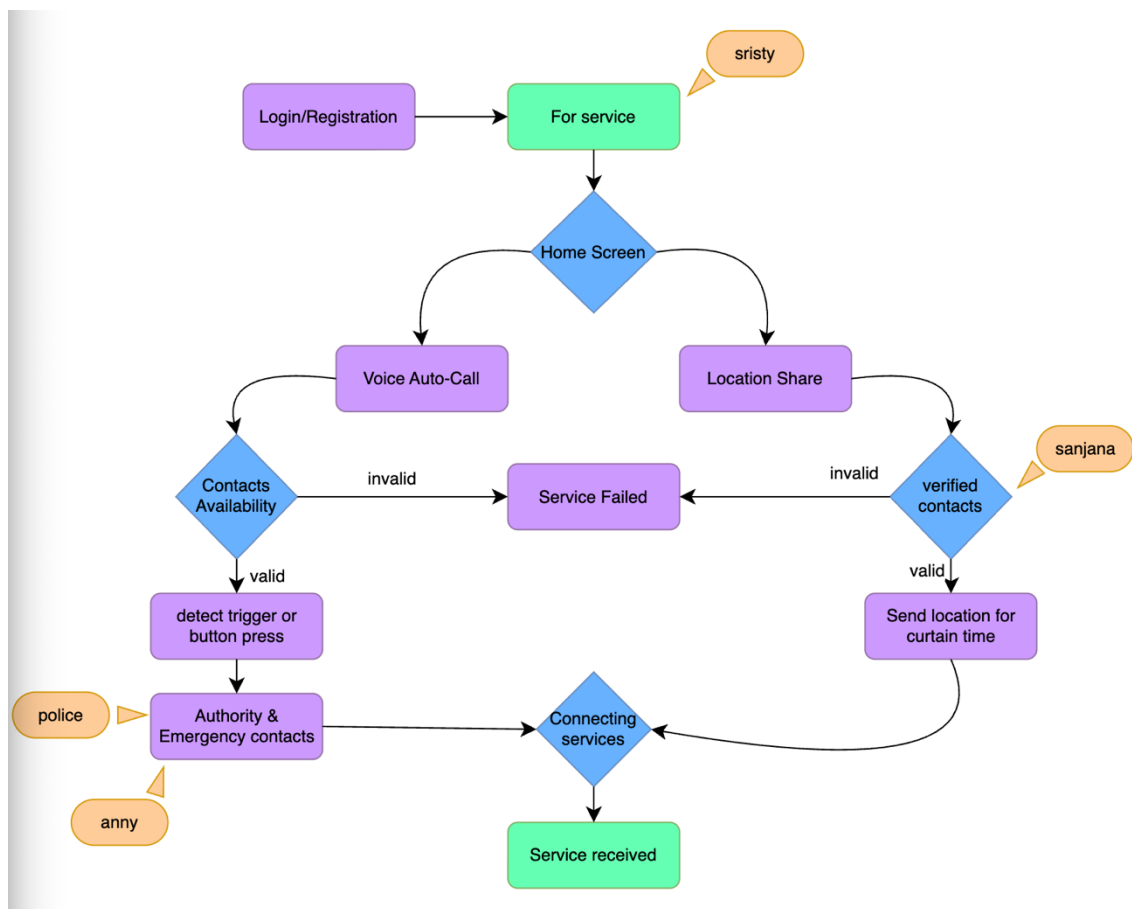


Figure 1: System Block Diagram

1.5 System Requirements

1.5.1 Hardware Requirements

- a. User Device (Mobile App)
 - a. OS: Android 13.0+ (iOS optional)
 - b. RAM: Minimum 2 GB
 - c. API: Maps, microphone, camera , Location, Contact, Phone Call and gesture.
 - d. Network: 3G/4G/LTE/Wi-Fi
- b. Server
 - a. CPU: Quad-core or higher
 - b. RAM: 8–16 GB
 - c. Storage: SSD (min. 200 GB for logs, media)
 - d. Cloud Hosting: Firebase

1.5.2 Software Requirements

- a. Frontend (Mobile App)
 - a. Flutter
 - b. Dart
 - c. Android Studio
- b. Backend
 - a. Firebase
 - b. Firebase Database

1.5.3 Constraints and Dependencies

APIs & SDKs

- a. Google Maps API
- b. Firebase Cloud Calling and Messaging

Maintains Tools

- a. GitHub

1.6 Project Scheduling

Here, we have talked about how the project has implemented throughout the timespan.

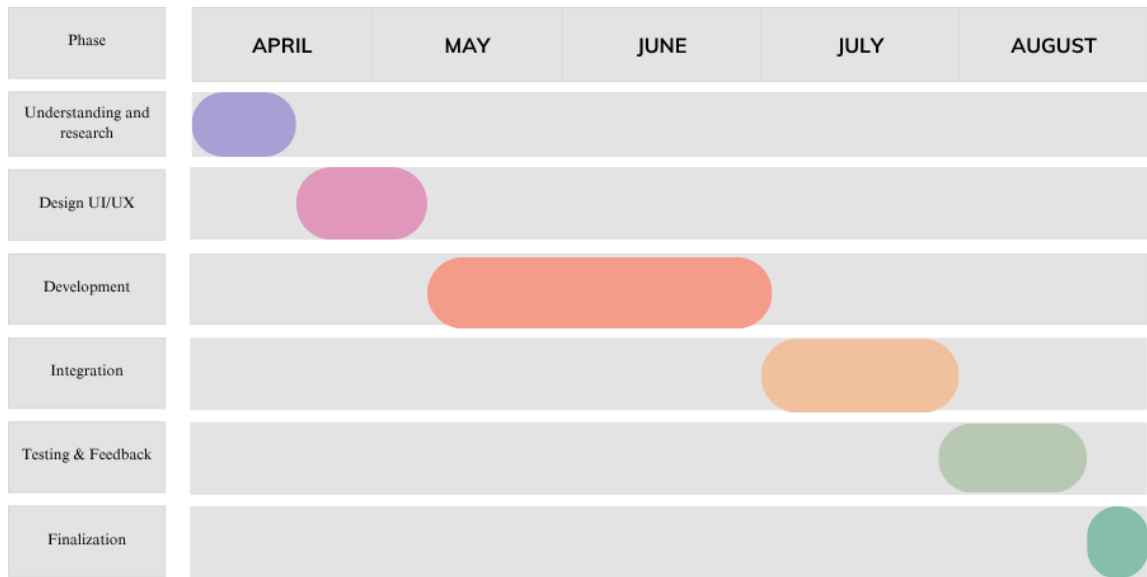


Figure 2 Gantt chart

1.7 Summary

In this chapter we have discussed about why this project needed and how this project will be implemented. And all of this has visualized and discussed by user profile, block diagram and Gantt chart.

CHAPTER 2 DESIGN AND IMPLEMENTATION

2.1 Introduction

This part is about the design and implementation of the project. It explains the functional and nonfunctional requirement along with use case diagram and Case description. The design emphasizes modularity, user-friendliness, and reliability, ensuring that the app performs efficiently during emergencies. Implementation details include activity diagram and sequence diagram for better understanding.

2.2 Functional Requirements

Functional requirement means what we have to must do for make a app. It also means what features and what function we have to use in a app.

FR 01	Login/Registration
Description	Users and admin log in this app by their mail address and password . if they are logging in for the first time they need to register using their valid information as mentioned in the registration form.
Stakeholder	Users and Admin.

FR 02	Authentication
Description	Users and admin log in this app by their mail address and password . Then app system will verify their information. If the system found right mail and password system allow them to entered into app. If the system found that given mail and password is wrong the system doesn't allow them to enter into the app.
Stakeholder	Users and Admin.

FR 03	Profile Update
Description	Profile will automatic created upon giving the information into the registration form. For further update user and admin have the opportunity to update their information's.
Stakeholder	Users.

FR 04	Contact
Description	User can add people's contact number and information because they can easily uses them when needed.
Stakeholder	Users.

FR 05	Search
Description	User can search using keyword if they need any information.
Stakeholder	Users.

FR 06	Voice Auto-Call
Description	User can select a voice command and save it for the software to detect in an emergency and call the emergency contact for help. Emergency assistant will be available for assessment.
Stakeholder	Users and Emergency assistant.

FR 07	Call History
Description	Users call history will be available for later needs.
Stakeholder	Users.

FR 08	Live Location
Description	User can set timer for location to be shared with their selective contacts. Their root and surrounding can be observed by them.
Stakeholder	Users and Emergency assistant.

FR 09	Last Location
Description	Last location history will be available for users to access.
Stakeholder	Users.

FR 10	Emergency Assessment
Description	If user stuck into any kind of situation where they need help and they are not able to connect with their contact people's, they can take help from the admin or assistant team.
Stakeholder	Users, Admin and Emergency assistant.

FR 11	Administrator support
Description	Any kind of bug or error reported by user will be managed by the admin team for further update.
Stakeholder	Users and Admin.

FR 12	Log out
Description	Users and admin can logout if the needed.
Stakeholder	Users and Admin.

2.3 Non-Functional Requirements

Non-functional requirements mean the general properties of a system. We can also say them quality attributes. It includes:

2.3.1 Performance

- An action cannot take more than 10 min to perform.
- The device should perform accurately and provide user need information.
- The app should be able to perform in a short amount of time for very complexations.

2.3.2 Availability

- The device must be operational 24 hours a day, seven days a week.
- If any unnecessary happened and the system should be accessible within 1 to 2 working days, ensuring that no action will be harmed by this.

2.3.3 Usability

- Layout of the app needed to be easy and understandable for users and admin for easier access and maintain.

2.4 Object-oriented System design using UML

2.4.1 Use Case Diagram



Figure 3: Use case Diagram

2.4.2 Case Description

Case Description-01: Login/Registration

Use Case	Login/Registration																	
Goal	Users can register to Log in to the system.																	
Precondition	Users must install the SUROKKHA app for registration.																	
Success End Condition	Notification: !!!Successfully Registered!!!																	
Failed End Condition	Notification: “Submission Not Submitted”																	
Primary Actors:	Users																	
Secondary Actors:	Admin																	
Trigger	User will request a registration form to fill up																	
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press “Login/Registration” Button</td> </tr> <tr> <td>2.</td> <td>Provide Login/registration form</td> </tr> <tr> <td>3.</td> <td>Enter Information</td> </tr> <tr> <td>4.</td> <td>Press “Submit” Button.</td> </tr> <tr> <td>5.</td> <td>Information saved</td> </tr> <tr> <td>6.</td> <td>The system saves the details and shows them!!! Successfully Login/Registered!!! Notify</td> </tr> </table>		1.	Press “Login/Registration” Button	2.	Provide Login/registration form	3.	Enter Information	4.	Press “Submit” Button.	5.	Information saved	6.	The system saves the details and shows them!!! Successfully Login/Registered!!! Notify				
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4.	Press “Submit” Button.																	
5.	Information saved																	
6.	The system saves the details and shows them!!! Successfully Login/Registered!!! Notify																	
Alternative Flows	<table border="1"> <tr> <td>1.1</td> <td>System Error</td> </tr> <tr> <td></td> <td>1.1.a. Try Again!!</td> </tr> <tr> <td>4.1</td> <td>The user Did not fill up the details!</td> </tr> <tr> <td></td> <td>4.1.a. Checked By the system & notify by “Please! Fill Up the Box”.</td> </tr> <tr> <td>5.1</td> <td>The system did not respond</td> </tr> <tr> <td></td> <td>5.1.a. Show Error Message.</td> </tr> <tr> <td>6.1</td> <td>The system Doesn’t save the details.</td> </tr> <tr> <td></td> <td>6.1.a. Notification: “Details did not Save”</td> </tr> </table>		1.1	System Error		1.1.a. Try Again!!	4.1	The user Did not fill up the details!		4.1.a. Checked By the system & notify by “Please! Fill Up the Box”.	5.1	The system did not respond		5.1.a. Show Error Message.	6.1	The system Doesn’t save the details.		6.1.a. Notification: “Details did not Save”
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5.1	The system did not respond																	
	5.1.a. Show Error Message.																	
6.1	The system Doesn’t save the details.																	
	6.1.a. Notification: “Details did not Save”																	
Quality Requirements	The user Will fill up all the details in 30 minutes.																	

Case Description-02: Profile Update

Use Case	Profile Update																	
Goal	Users can update their profile based on their need.																	
Precondition	Must be completed login and authentication.																	
Success End Condition	Notification: !!!Successfully updated profile!!!																	
Failed End Condition	Notification: “Profile update failed”																	
Primary Actors:	Users																	
Secondary Actors:																		
Trigger	User will request for a profile update form for new details.																	
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press “Profile Update” Button</td> </tr> <tr> <td>2.</td> <td>Provide Profile Update form</td> </tr> <tr> <td>3.</td> <td>Enter Information</td> </tr> <tr> <td>4.</td> <td>Press “Submit” Button.</td> </tr> <tr> <td>5.</td> <td>Successfully Updated Profile</td> </tr> <tr> <td>6.</td> <td>The system saves the details and shows them !!!Successfully Updated Profile!!!</td> </tr> </table>		1.	Press “Profile Update” Button	2.	Provide Profile Update form	3.	Enter Information	4.	Press “Submit” Button.	5.	Successfully Updated Profile	6.	The system saves the details and shows them !!!Successfully Updated Profile!!!				
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	4.1.a. Provide needed information																	
5.1	The system did not respond																	
	5.1.a. Show Error Message.																	
6.1	The system Doesn’t save the details.																	
	6.1.a. Notification: “Profile Update failed”																	
Quality Requirements	The user must be logged in.																	

Case Description-03: Emergency Contact

Use Case	Emergency Contact																
Goal	Users can add anyone's to Emergency contact information for connections.																
Precondition	Must be completed login and authentication.																
Success End Condition	Notification: !!!Successfully added as Emergency Number!!!																
Failed End Condition	Notification: "No number added"																
Primary Actors: Secondary Actors:	Users																
Trigger	User will request a contact form to add new contact																
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press "Emergency Contact" Button</td> </tr> <tr> <td>2.</td> <td>Provide Contact form</td> </tr> <tr> <td>3.</td> <td>Enter Information</td> </tr> <tr> <td>4.</td> <td>Press "Submit" Button.</td> </tr> <tr> <td>5.</td> <td>Successfully added number</td> </tr> <tr> <td>6.</td> <td>The system saves the details and shows them !!!Successfully added as Emergency number!!!</td> </tr> </table>	1.	Press "Emergency Contact" Button	2.	Provide Contact form	3.	Enter Information	4.	Press "Submit" Button.	5.	Successfully added number	6.	The system saves the details and shows them !!!Successfully added as Emergency number!!!				
1.	Press "Emergency Contact" Button																
2.	Provide Contact form																
3.	Enter Information																
4.	Press "Submit" Button.																
5.	Successfully added number																
6.	The system saves the details and shows them !!!Successfully added as Emergency number!!!																
Alternative Flows	<table border="1"> <tr> <td>1.1</td> <td>System Error</td> </tr> <tr> <td></td> <td>1.1.a. Try Again!!</td> </tr> <tr> <td>4.1</td> <td>There are not enough details!</td> </tr> <tr> <td></td> <td>4.1.a. Provide needed information</td> </tr> <tr> <td>5.1</td> <td>The system did not respond</td> </tr> <tr> <td></td> <td>5.1.a. Show Error Message.</td> </tr> <tr> <td>6.1</td> <td>The system Doesn't save the details.</td> </tr> <tr> <td></td> <td>6.1.a. Notification: "No number added"</td> </tr> </table>	1.1	System Error		1.1.a. Try Again!!	4.1	There are not enough details!		4.1.a. Provide needed information	5.1	The system did not respond		5.1.a. Show Error Message.	6.1	The system Doesn't save the details.		6.1.a. Notification: "No number added"
1.1	System Error																
	1.1.a. Try Again!!																
4.1	There are not enough details!																
	4.1.a. Provide needed information																
5.1	The system did not respond																
	5.1.a. Show Error Message.																
6.1	The system Doesn't save the details.																
	6.1.a. Notification: "No number added"																
Quality Requirements	The user has to have proper contact information.																

Case Description-04: Search

Use Case	Search																
Goal	Users can search for previous information.																
Precondition	Users need to do some activity first.																
Success End Condition	Notification: !!!Information showed!!!																
Failed End Condition	Notification: “No information to provide”																
Primary Actors: Secondary Actors:	User																
Trigger	User will request a search form to get information.																
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press “Search” Button</td> </tr> <tr> <td>2.</td> <td>Provide Search form</td> </tr> <tr> <td>3.</td> <td>Enter first word or line</td> </tr> <tr> <td>4.</td> <td>Press “Submit” Button.</td> </tr> <tr> <td>5.</td> <td>Information showed</td> </tr> <tr> <td>6.</td> <td>The system shows the information!!! Information showed!!! Notify</td> </tr> </table>	1.	Press “Search” Button	2.	Provide Search form	3.	Enter first word or line	4.	Press “Submit” Button.	5.	Information showed	6.	The system shows the information!!! Information showed!!! Notify				
1.	Press “Search” Button																
2.	Provide Search form																
3.	Enter first word or line																
4.	Press “Submit” Button.																
5.	Information showed																
6.	The system shows the information!!! Information showed!!! Notify																
Alternative Flows	<table border="1"> <tr> <td>1.1</td> <td>System Error</td> </tr> <tr> <td></td> <td>1.1.a. Try Again!!</td> </tr> <tr> <td>4.1</td> <td>The user didn’t put any proper keyword!</td> </tr> <tr> <td></td> <td>4.1.a. Checked By the system & notify to put correct keyword.</td> </tr> <tr> <td>5.1</td> <td>The system did not respond.</td> </tr> <tr> <td></td> <td>5.1.a. Show no Message.</td> </tr> <tr> <td>6.1</td> <td>The system Doesn’t have any information.</td> </tr> <tr> <td></td> <td>6.1.a. Notification: “No information provided”</td> </tr> </table>	1.1	System Error		1.1.a. Try Again!!	4.1	The user didn’t put any proper keyword!		4.1.a. Checked By the system & notify to put correct keyword.	5.1	The system did not respond.		5.1.a. Show no Message.	6.1	The system Doesn’t have any information.		6.1.a. Notification: “No information provided”
1.1	System Error																
	1.1.a. Try Again!!																
4.1	The user didn’t put any proper keyword!																
	4.1.a. Checked By the system & notify to put correct keyword.																
5.1	The system did not respond.																
	5.1.a. Show no Message.																
6.1	The system Doesn’t have any information.																
	6.1.a. Notification: “No information provided”																
Quality Requirements	The user has to provide accurate keyword.																

Case Description-05: Call Option

Use Case	Call Option														
Goal	Users can Call police or emergency contacts on any kind of emergency.														
Precondition	Users must have the feature turn on.														
Success End Condition	Notification: !!!Calling nearest police station and contacts!!!														
Failed End Condition	Notification: “Auto call didn’t trigger”														
Primary Actors:	Users														
Secondary Actors:	Administrator														
Trigger	User will request a Voice Auto-Call by enabling it														
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press “Voice Auto-Call” Button</td> </tr> <tr> <td>2.</td> <td>Turn on the calling option</td> </tr> <tr> <td>3.</td> <td>In any kind of emergency voice will trigger the calling</td> </tr> <tr> <td>5.</td> <td>Call the police and emergency contacts.</td> </tr> <tr> <td>6.</td> <td>The system checks the voice and !!!successfully called the police station and contacts!!! Notify</td> </tr> </table>	1.	Press “Voice Auto-Call” Button	2.	Turn on the calling option	3.	In any kind of emergency voice will trigger the calling	5.	Call the police and emergency contacts.	6.	The system checks the voice and !!!successfully called the police station and contacts!!! Notify				
1.	Press “Voice Auto-Call” Button														
2.	Turn on the calling option														
3.	In any kind of emergency voice will trigger the calling														
5.	Call the police and emergency contacts.														
6.	The system checks the voice and !!!successfully called the police station and contacts!!! Notify														
Alternative Flows	<table border="1"> <tr> <td>1.1</td> <td>System Error</td> </tr> <tr> <td></td> <td>1.1.a. Try Again!!</td> </tr> <tr> <td>4.1</td> <td>The user Did not trigger voice calling!</td> </tr> <tr> <td>5.1</td> <td>The system did not respond</td> </tr> <tr> <td></td> <td>5.1.a. Show Error Message.</td> </tr> <tr> <td>6.1</td> <td>The system Doesn’t detect voice.</td> </tr> <tr> <td></td> <td>6.1.a. Notification: “Auto call didn’t trigger”</td> </tr> </table>	1.1	System Error		1.1.a. Try Again!!	4.1	The user Did not trigger voice calling!	5.1	The system did not respond		5.1.a. Show Error Message.	6.1	The system Doesn’t detect voice.		6.1.a. Notification: “Auto call didn’t trigger”
1.1	System Error														
	1.1.a. Try Again!!														
4.1	The user Did not trigger voice calling!														
5.1	The system did not respond														
	5.1.a. Show Error Message.														
6.1	The system Doesn’t detect voice.														
	6.1.a. Notification: “Auto call didn’t trigger”														
Quality Requirements	The user has to turn the feature on for it to action.														

Case Description-06: Location Share

Use Case	Location Share																	
Goal	Users will be able to share location with parents and partners if in a not secured or unfamiliar area.																	
Precondition	Users must be completed login.																	
Success End Condition	Notification: !!!Location shared successfully!!!																	
Failed End Condition	Notification: "Location shared failed"																	
Primary Actors:	users																	
Secondary Actors:																		
Trigger	User will request a live location form to perform.																	
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press "Live Location Share" Button</td> </tr> <tr> <td>2.</td> <td>Provide Location Share form</td> </tr> <tr> <td>3.</td> <td>Enter time and Contact information</td> </tr> <tr> <td>4.</td> <td>Press "Share" Button.</td> </tr> <tr> <td>6.</td> <td>The system trigger location sharing option and shows them!!! Location shared successfully!!! Notify</td> </tr> </table>		1.	Press "Live Location Share" Button	2.	Provide Location Share form	3.	Enter time and Contact information	4.	Press "Share" Button.	6.	The system trigger location sharing option and shows them!!! Location shared successfully!!! Notify						
1.	Press "Live Location Share" Button																	
2.	Provide Location Share form																	
3.	Enter time and Contact information																	
4.	Press "Share" Button.																	
6.	The system trigger location sharing option and shows them!!! Location shared successfully!!! Notify																	
Alternative Flows	<table border="1"> <tr> <td>1.1</td> <td>System Error</td> </tr> <tr> <td></td> <td>1.1.a. Try Again!!</td> </tr> <tr> <td>4.1</td> <td>The user Did not have provided proper information!</td> </tr> <tr> <td></td> <td>4.1.a. Checked By the system & notify by "Please! Provide correct information".</td> </tr> <tr> <td>5.1</td> <td>The system did not respond</td> </tr> <tr> <td></td> <td>5.1.a. Show Error Message.</td> </tr> <tr> <td>6.1</td> <td>The system Doesn't shared location.</td> </tr> <tr> <td></td> <td>6.1.a. Notification: "Location shared failed"</td> </tr> </table>		1.1	System Error		1.1.a. Try Again!!	4.1	The user Did not have provided proper information!		4.1.a. Checked By the system & notify by "Please! Provide correct information".	5.1	The system did not respond		5.1.a. Show Error Message.	6.1	The system Doesn't shared location.		6.1.a. Notification: "Location shared failed"
1.1	System Error																	
	1.1.a. Try Again!!																	
4.1	The user Did not have provided proper information!																	
	4.1.a. Checked By the system & notify by "Please! Provide correct information".																	
5.1	The system did not respond																	
	5.1.a. Show Error Message.																	
6.1	The system Doesn't shared location.																	
	6.1.a. Notification: "Location shared failed"																	
Quality Requirements	The user has to register for this feature to trigger.																	

Case Description-07: Call History

Use Case	Call History														
Goal	Users can check their calling log anytime.														
Precondition	Users must be login and called someone previously.														
Success End Condition	Notification: !!!Calling data provided!!!														
Failed End Condition	Notification: “No history”														
Primary Actors: Secondary Actors:	Users														
Trigger	User will request a Call History form to fill up														
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press “recent interaction” Button</td> </tr> <tr> <td>2.</td> <td>Provide specific date.</td> </tr> <tr> <td>3.</td> <td>Get the calling Information.</td> </tr> <tr> <td>6.</td> <td>The system saves the details and shows them!!!Calling data provided!!! Notify</td> </tr> </table>	1.	Press “recent interaction” Button	2.	Provide specific date.	3.	Get the calling Information.	6.	The system saves the details and shows them!!!Calling data provided!!! Notify						
1.	Press “recent interaction” Button														
2.	Provide specific date.														
3.	Get the calling Information.														
6.	The system saves the details and shows them!!!Calling data provided!!! Notify														
Alternative Flows	<table border="1"> <tr> <td>1.1</td> <td>System Error</td> </tr> <tr> <td></td> <td>1.1.a. Try Again!!</td> </tr> <tr> <td>4.1</td> <td>The user doesn’t have call data!</td> </tr> <tr> <td>5.1</td> <td>The system did not respond</td> </tr> <tr> <td></td> <td>5.1.a. Show Error Message.</td> </tr> <tr> <td>6.1</td> <td>The system Doesn’t save the details.</td> </tr> <tr> <td></td> <td>6.1.a. Notification: “no history”</td> </tr> </table>	1.1	System Error		1.1.a. Try Again!!	4.1	The user doesn’t have call data!	5.1	The system did not respond		5.1.a. Show Error Message.	6.1	The system Doesn’t save the details.		6.1.a. Notification: “no history”
1.1	System Error														
	1.1.a. Try Again!!														
4.1	The user doesn’t have call data!														
5.1	The system did not respond														
	5.1.a. Show Error Message.														
6.1	The system Doesn’t save the details.														
	6.1.a. Notification: “no history”														
Quality Requirements	The user has to have called feature enable.														

Case Description-08: Location History

Use Case	Location History															
Goal	Users can check their location shared history anytime.															
Precondition	Users must be login and previously shared location.															
Success End Condition	Notification: !!!Location shared data provided!!!															
Failed End Condition	Notification: “No history”															
Primary Actors:	Users															
Secondary Actors:																
Trigger	User will request a Location History form to fill up															
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press “recent interaction” Button</td> </tr> <tr> <td>2.</td> <td>Provide specific date.</td> </tr> <tr> <td>3.</td> <td>Get the Location Information</td> </tr> <tr> <td>6.</td> <td>The system saves the details and shows them!!!Calling data provided!!! Notify</td> </tr> </table>		1.	Press “recent interaction” Button	2.	Provide specific date.	3.	Get the Location Information	6.	The system saves the details and shows them!!!Calling data provided!!! Notify						
1.	Press “recent interaction” Button															
2.	Provide specific date.															
3.	Get the Location Information															
6.	The system saves the details and shows them!!!Calling data provided!!! Notify															
Alternative Flows	<table border="1"> <tr> <td>1.1</td> <td>System Error</td> </tr> <tr> <td></td> <td>1.1.a. Try Again!!</td> </tr> <tr> <td>4.1</td> <td>The user doesn’t have previous location data!</td> </tr> <tr> <td>5.1</td> <td>The system did not respond</td> </tr> <tr> <td></td> <td>5.1.a. Show Error Message.</td> </tr> <tr> <td>6.1</td> <td>The system Doesn’t save the details.</td> </tr> <tr> <td></td> <td>6.1.a. Notification: “no history”</td> </tr> </table>		1.1	System Error		1.1.a. Try Again!!	4.1	The user doesn’t have previous location data!	5.1	The system did not respond		5.1.a. Show Error Message.	6.1	The system Doesn’t save the details.		6.1.a. Notification: “no history”
1.1	System Error															
	1.1.a. Try Again!!															
4.1	The user doesn’t have previous location data!															
5.1	The system did not respond															
	5.1.a. Show Error Message.															
6.1	The system Doesn’t save the details.															
	6.1.a. Notification: “no history”															
Quality Requirements	The user has to have Location feature on.															

Case Description-09: Place Reviewed

Use Case	Place Reviewed																
Goal	Users can review a place based on their experience.																
Precondition	Users must have to login first.																
Success End Condition	Notification: !!!Review has been placed!!!																
Failed End Condition	Notification: “no review placed by you yet”																
Primary Actors:	Users																
Secondary Actors:	Administrators																
Trigger	User will request a review provide form to fill up																
Description / Main Success Scenario	<table border="1"> <tr> <td>1.</td> <td>Press “Place Reviewed” Button</td> </tr> <tr> <td>2.</td> <td>Provide review given form</td> </tr> <tr> <td>3.</td> <td>Enter Information</td> </tr> <tr> <td>4.</td> <td>Press “Submit” Button.</td> </tr> <tr> <td>5.</td> <td>Information saved</td> </tr> <tr> <td>6.</td> <td>The system saves the details and shows them!!! Review has been placed!!! Notify</td> </tr> </table>	1.	Press “Place Reviewed” Button	2.	Provide review given form	3.	Enter Information	4.	Press “Submit” Button.	5.	Information saved	6.	The system saves the details and shows them!!! Review has been placed!!! Notify				
1.	Press “Place Reviewed” Button																
2.	Provide review given form																
3.	Enter Information																
4.	Press “Submit” Button.																
5.	Information saved																
6.	The system saves the details and shows them!!! Review has been placed!!! Notify																
Alternative Flows	<table border="1"> <tr> <td>1.1</td> <td>System Error</td> </tr> <tr> <td></td> <td>1.1.a. Try Again!!</td> </tr> <tr> <td>4.1</td> <td>The user Did not provide information!</td> </tr> <tr> <td></td> <td>4.1.a. Checked By the system & notify by “Please! Fill Up the review provider box”.</td> </tr> <tr> <td>5.1</td> <td>The system did not respond</td> </tr> <tr> <td></td> <td>5.1.a. Show Error Message.</td> </tr> <tr> <td>6.1</td> <td>The system Doesn’t save the details.</td> </tr> <tr> <td></td> <td>6.1.a. Notification: “no review placed by you yet”</td> </tr> </table>	1.1	System Error		1.1.a. Try Again!!	4.1	The user Did not provide information!		4.1.a. Checked By the system & notify by “Please! Fill Up the review provider box”.	5.1	The system did not respond		5.1.a. Show Error Message.	6.1	The system Doesn’t save the details.		6.1.a. Notification: “no review placed by you yet”
1.1	System Error																
	1.1.a. Try Again!!																
4.1	The user Did not provide information!																
	4.1.a. Checked By the system & notify by “Please! Fill Up the review provider box”.																
5.1	The system did not respond																
	5.1.a. Show Error Message.																
6.1	The system Doesn’t save the details.																
	6.1.a. Notification: “no review placed by you yet”																
Quality Requirements	The user Will fill up all the details.																

2.4.3 Activity Diagram

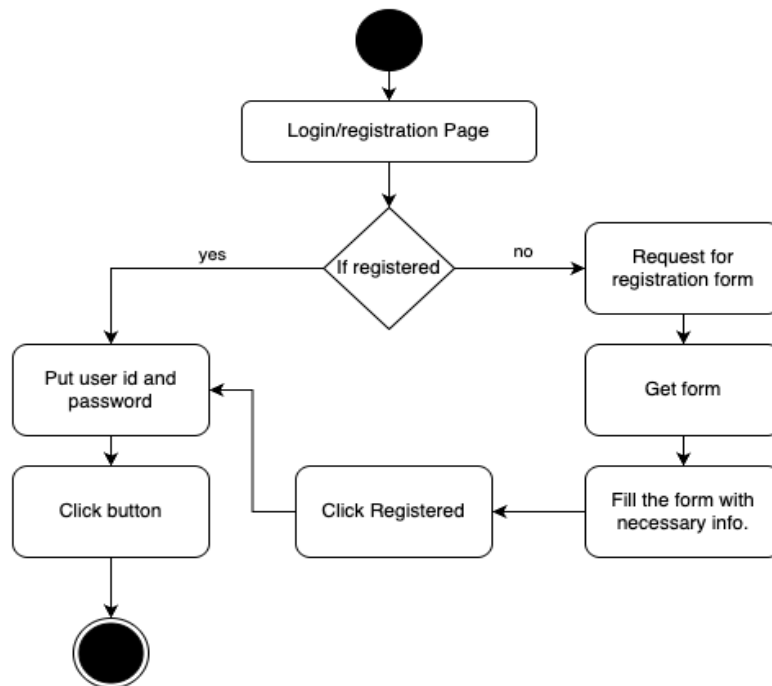


Figure 1: Login/Registration

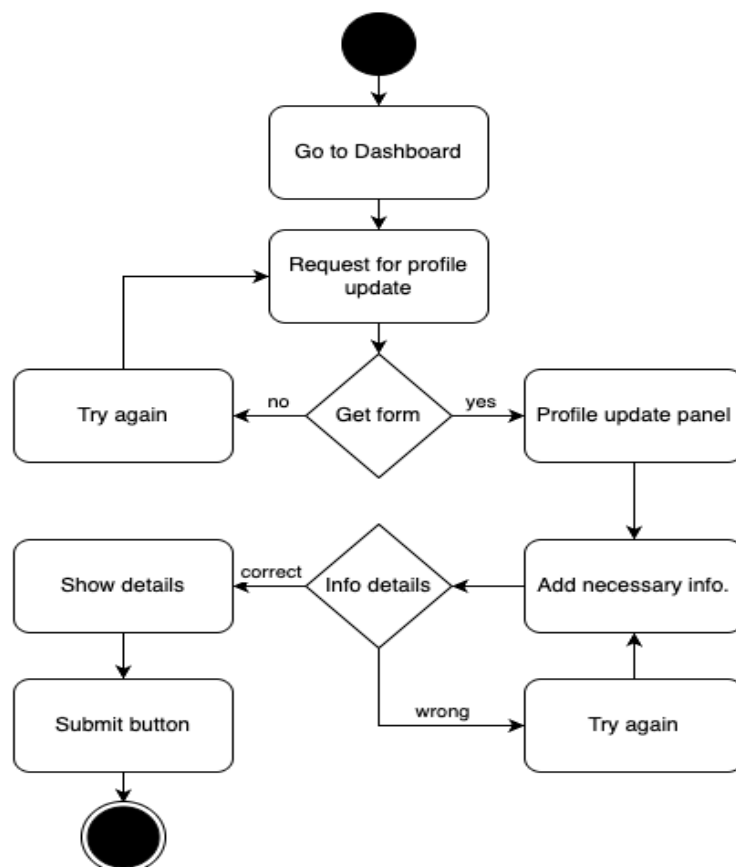


Figure 2: Profile Update

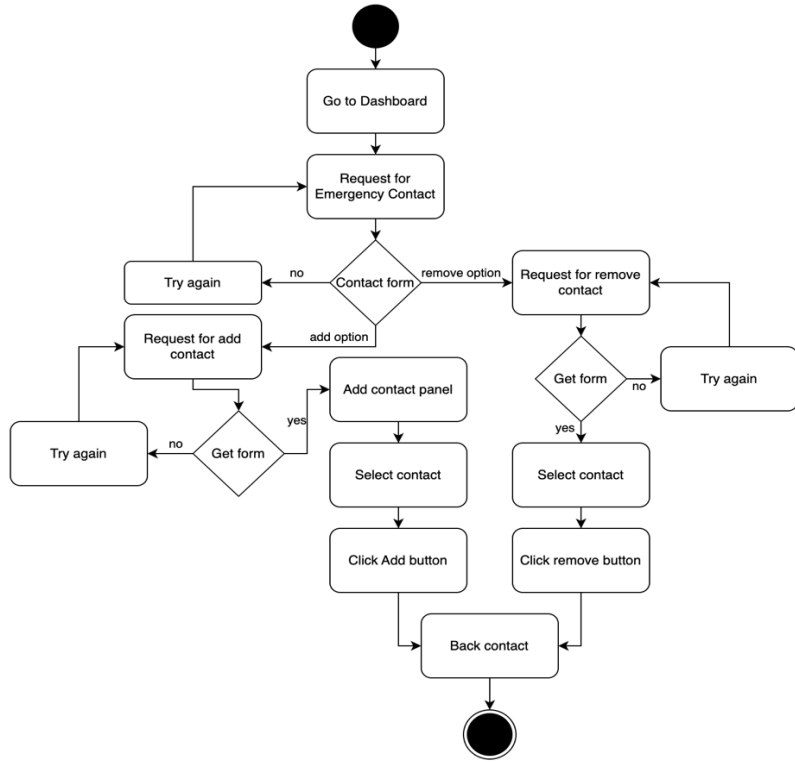


Figure 3: Emergency Contact

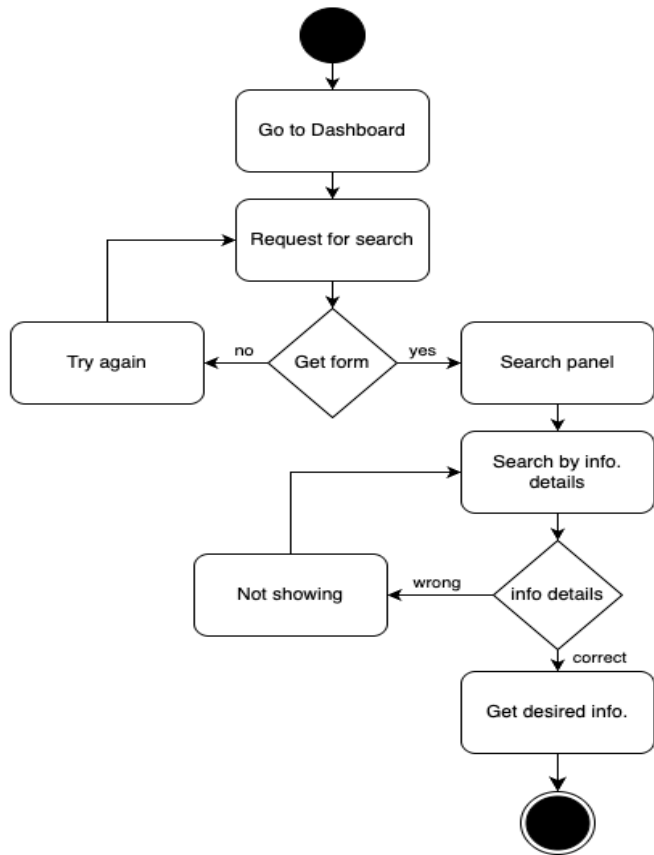


Figure 4: Search

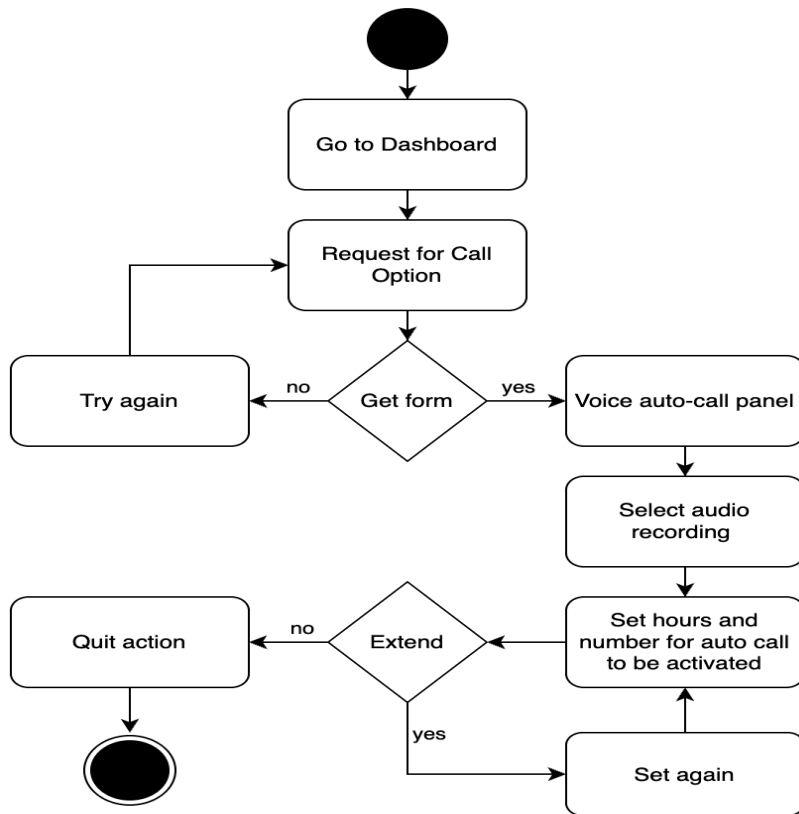


Figure 5: Call Option

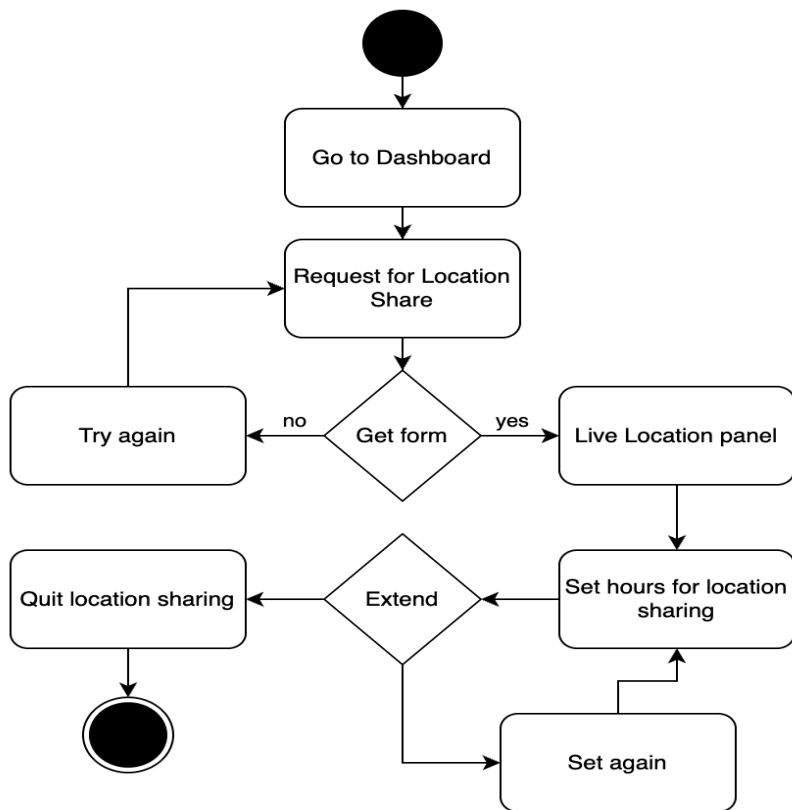


Figure 6: Location Share

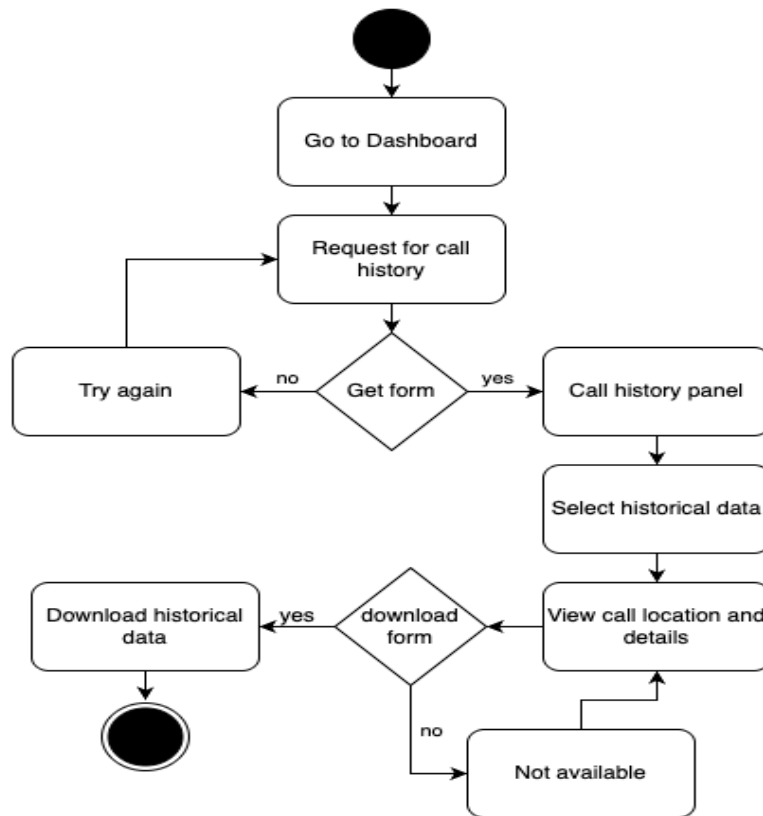


Figure 7: Call History

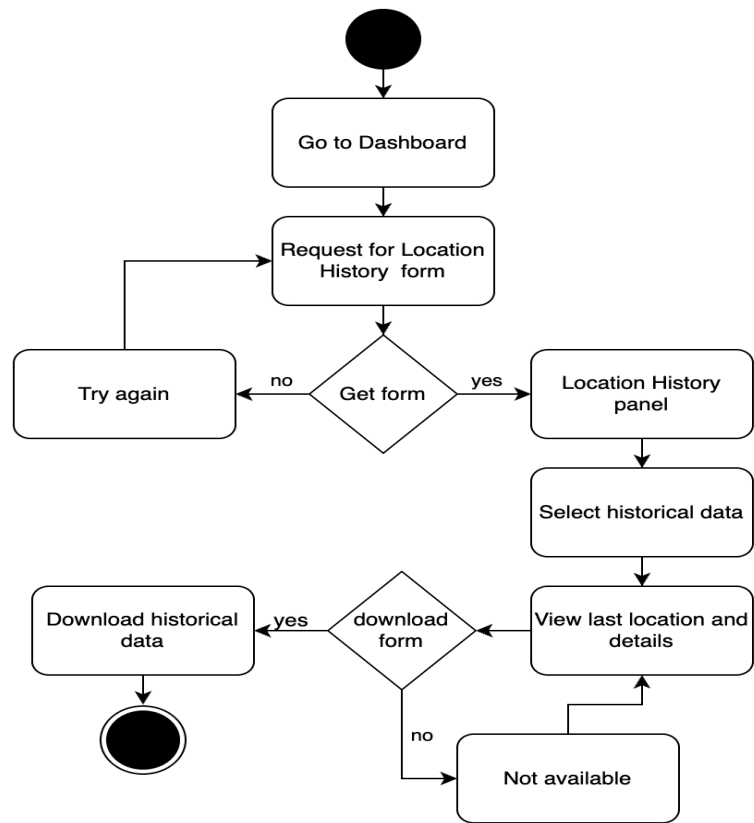


Figure 8: Location History

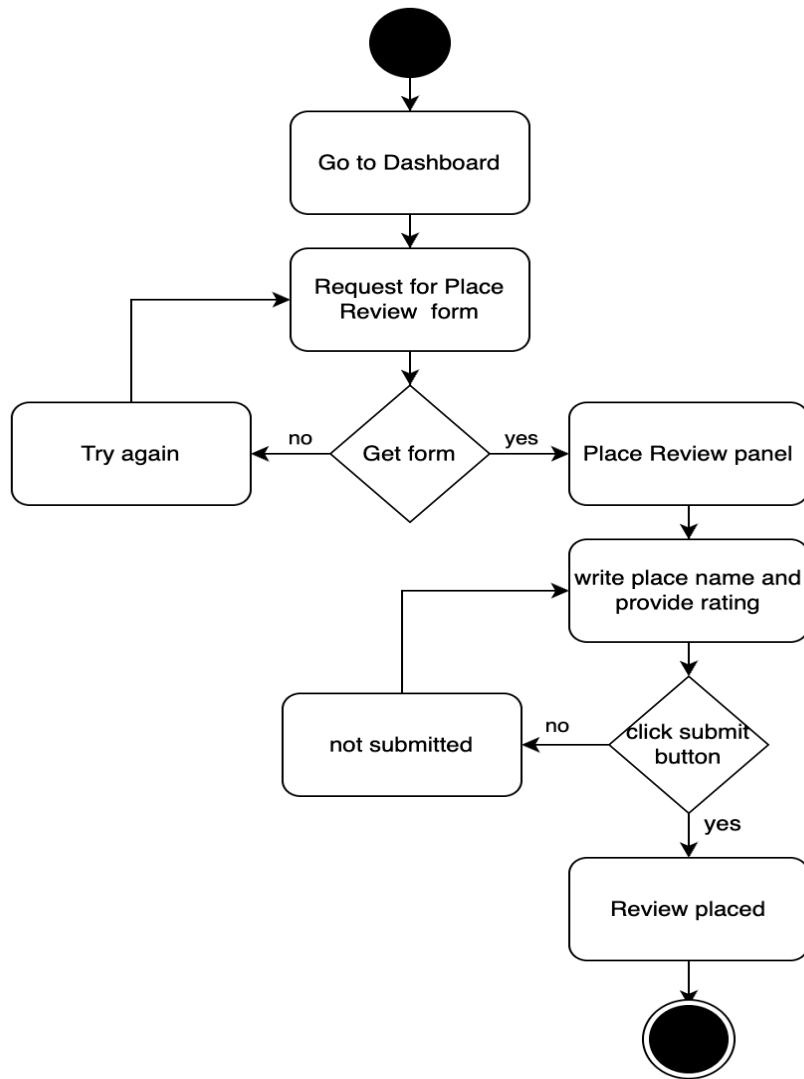


Figure 9: Place Reviews

2.4.4 Sequence Diagram

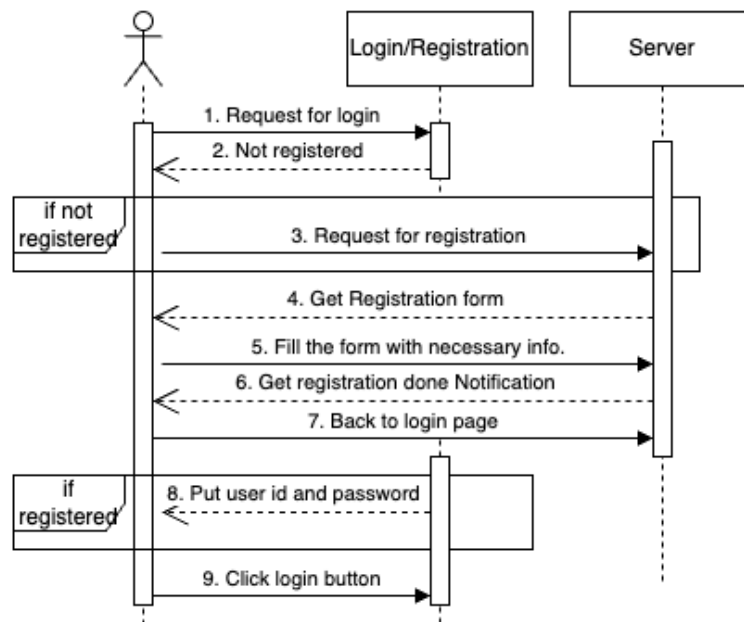


Figure 1: Login/Registration

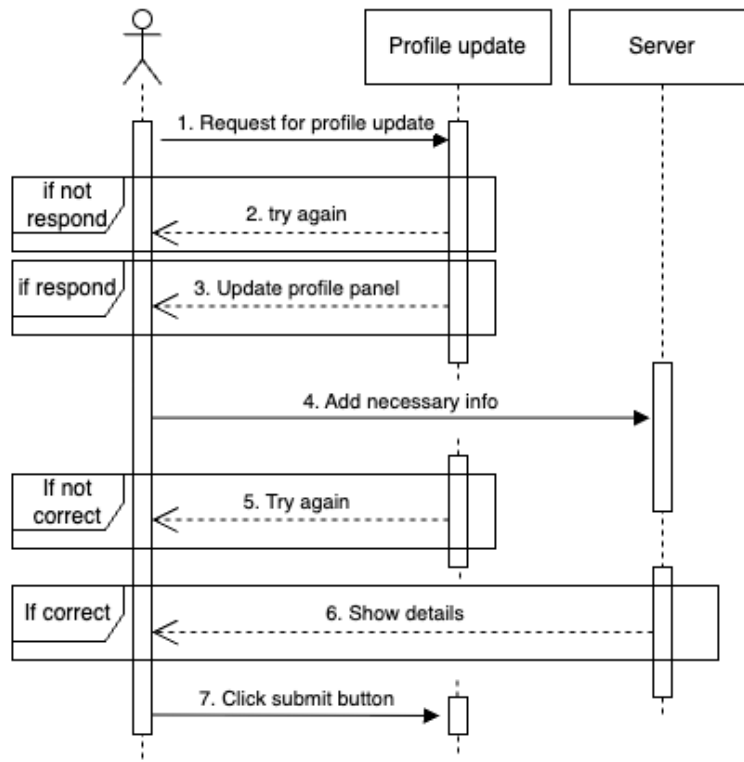


Figure 2: Profile Update

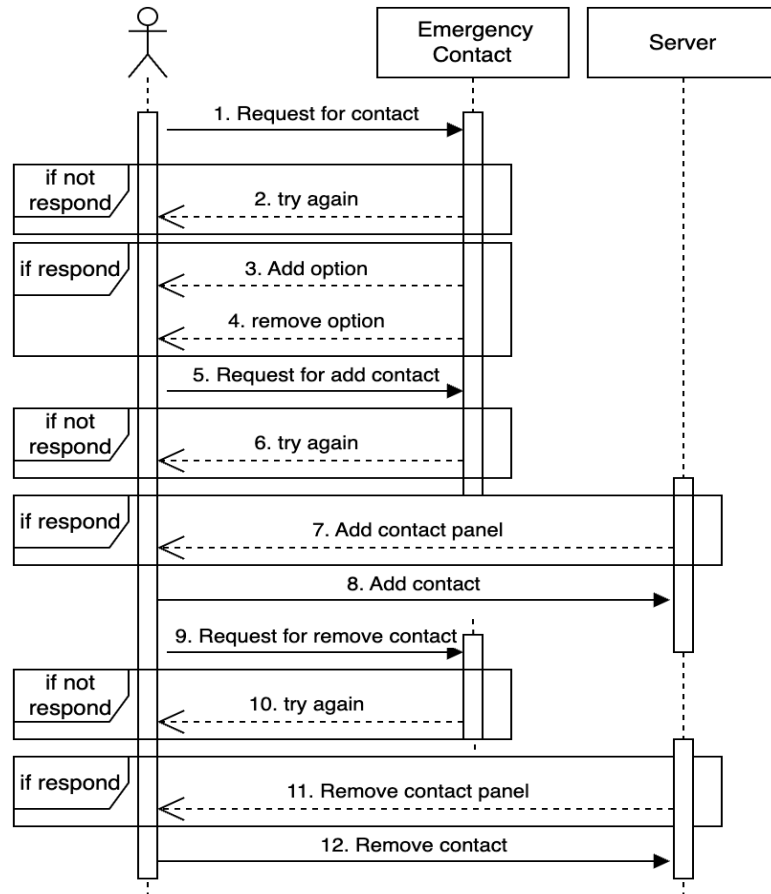


Figure 3: Emergency Contact

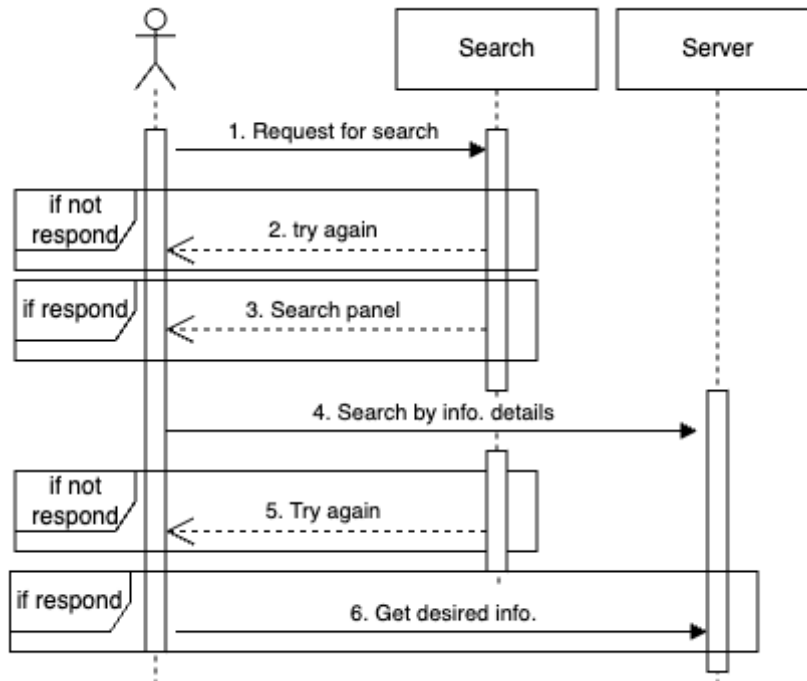


Figure 4: Search

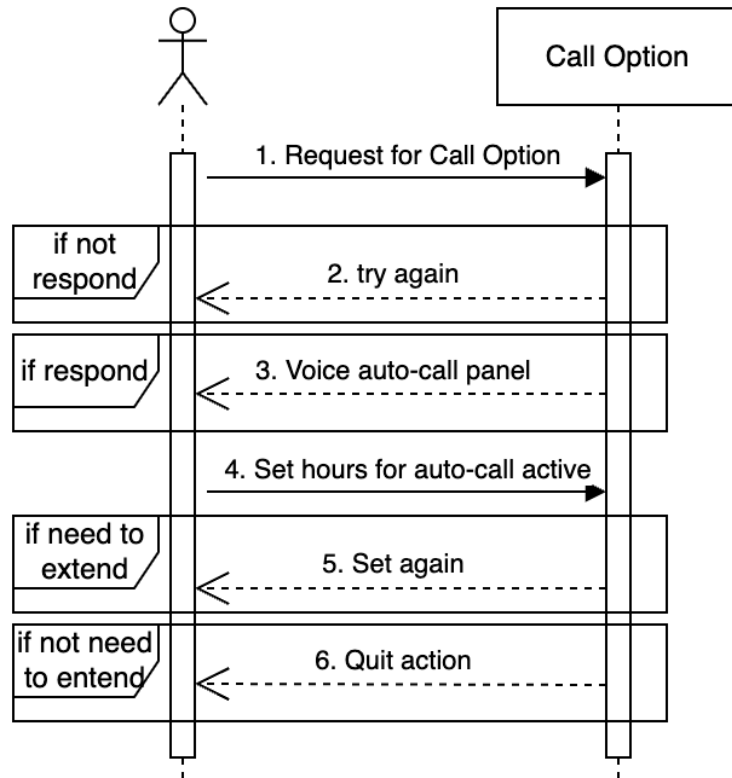


Figure 5: Call Option

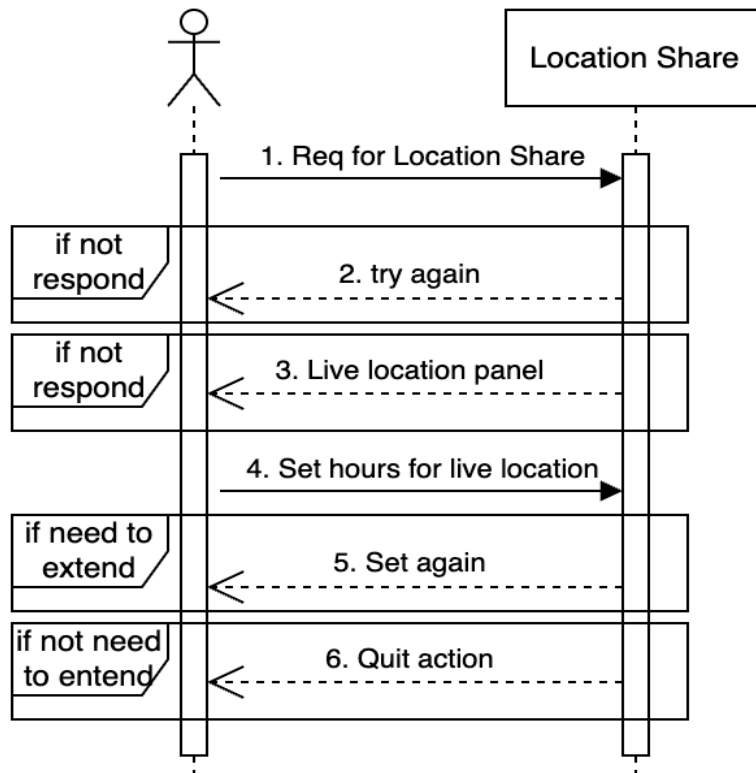


Figure 6: Location Share

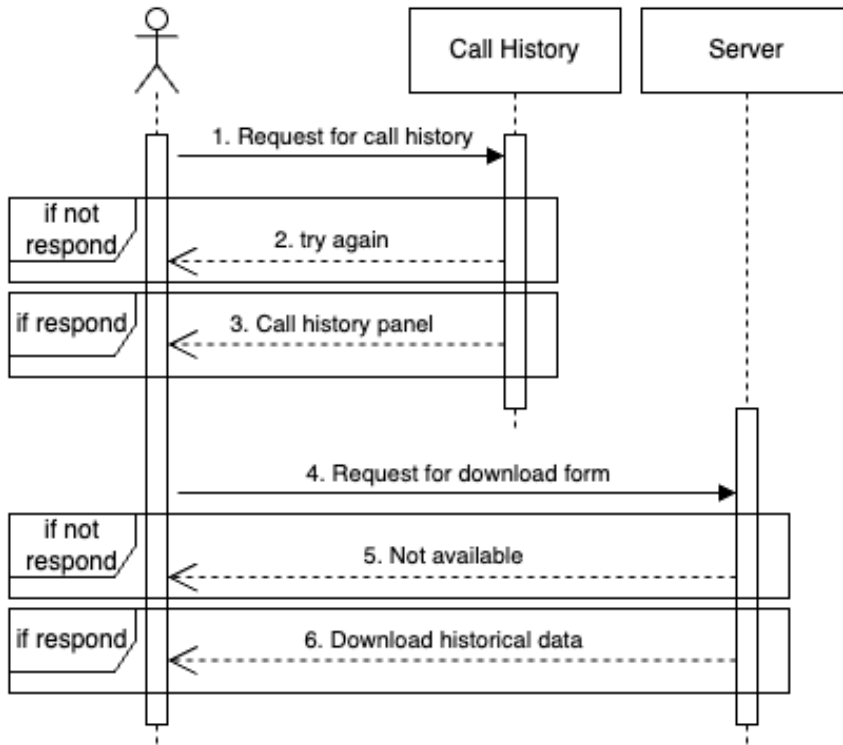


Figure 7: Call History

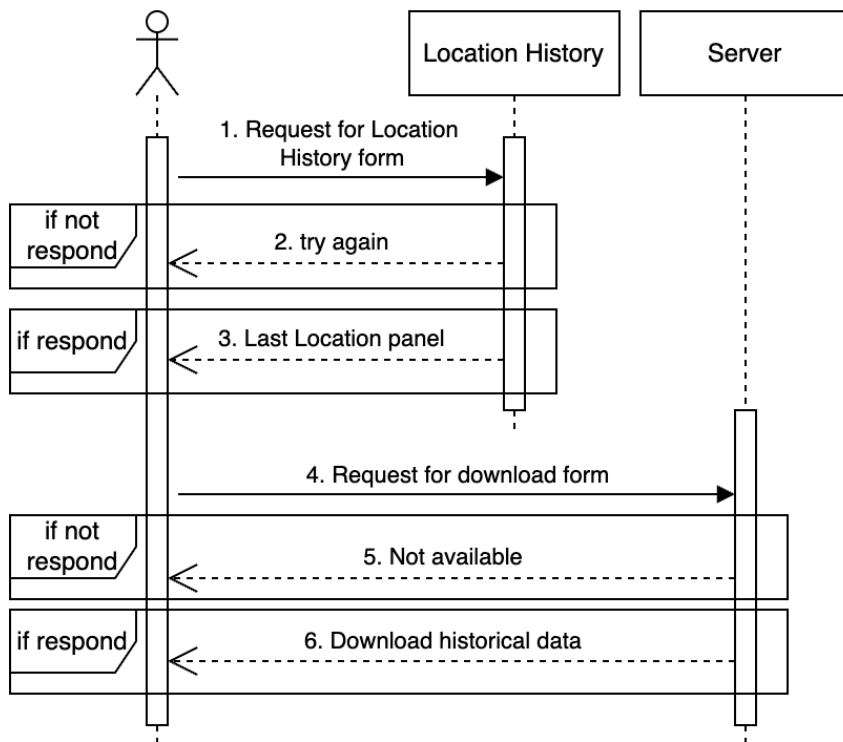


Figure 8: Location History

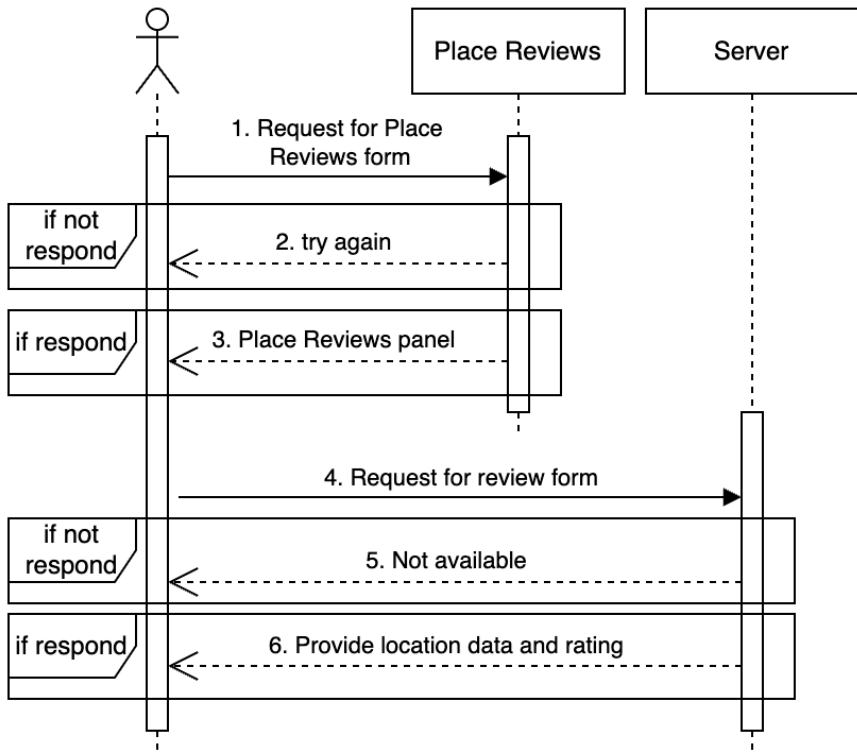


Figure 9: Place Reviews

2.4.5 Class Diagram

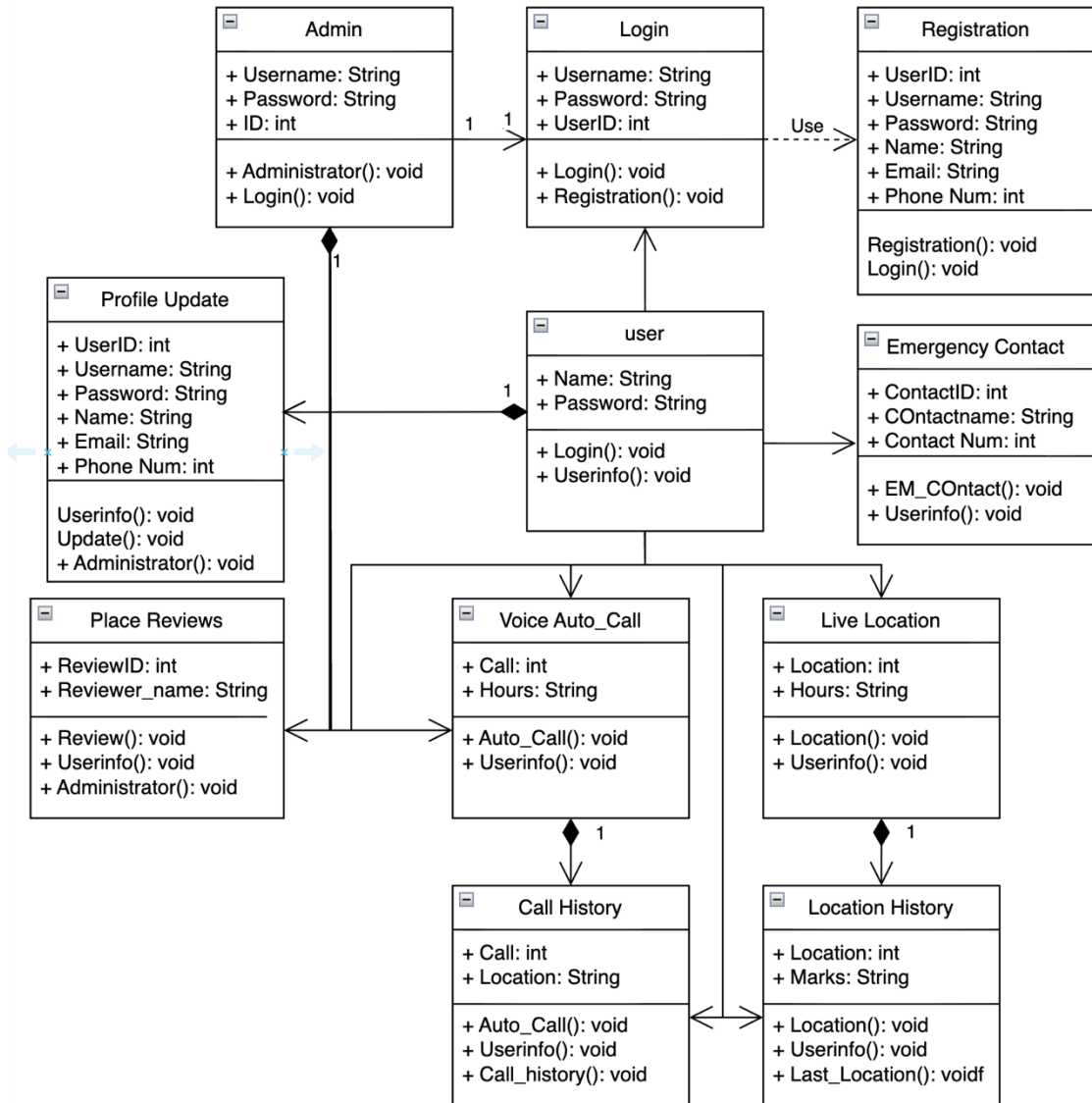


Figure 4: Class Diagram

2.4.6 ER Diagram

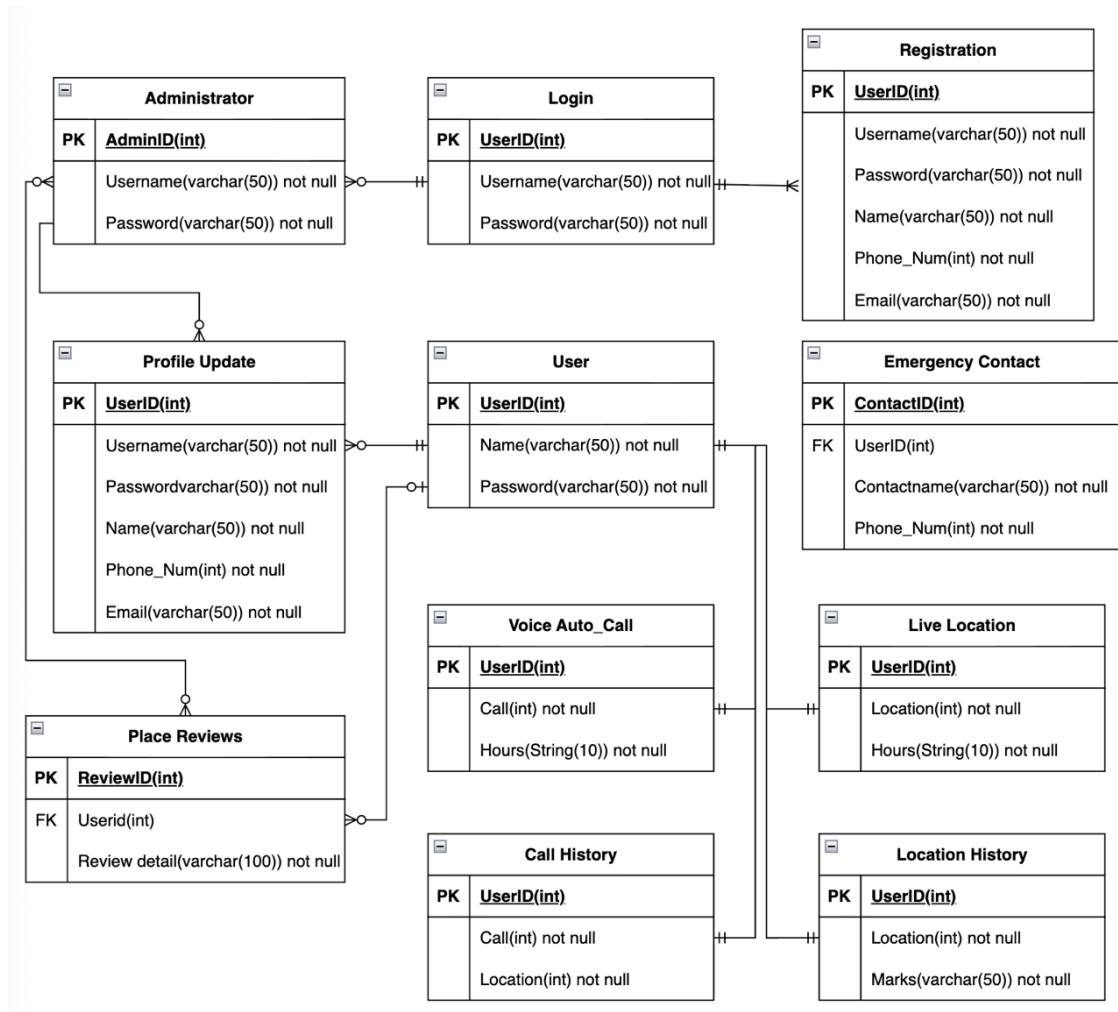


Figure 5: ER Diagram

2.6 Summary

So on chapter 2 we have discussed about the projects workflow by understanding functional requirements, then how these used in the use case diagram, and lastly how each functionalities work are visualized by Activity and sequence diagram.

Chapter 3 Software Testing

3.1 Introduction

App has been tested by various case in mind and in this chapter we will be discussing about how this concept has been implemented into the project. Because testing is the process that defines projects acceptability among users.

3.2 Testing Features

3.2.1 Feature to Be Tested

- a. User Registration
- b. User Login
- c. Emergency Contact Management
- d. Voice Calling
- e. Live Location Tracking
- f. Location Sharing
- g. Profile Update
- h. Place Review
- i. Admin Login
- j. Admin Dashboard
- k. Logout Function

3.3 Testing Strategies

3.3.1 Test Approach

- Unit testing was done for testing each module proper functioning.
- Integration testing was done for understanding modules combining result.
- System testing is important for verifying that the system will not crash when it launch in the market.
- Performance testing major the output of the project, because if the projects performance is not batter then existing system then there is no need.

3.3.2 Pass/Fail Criteria

Every process has been tested for understanding where project fail and where it worked perfectly.

- A test case passes if the feature performs as intended, producing correct output without errors, delays, or data loss.
- A test case fails if the system produces incorrect output, crashes, or violates defined requirements.
- Few interface issues were noted as warnings because we are using free tools and most tools will be upgrading in near future.
- Emergency calling, voice and button press calling and live location sharing are the main highlight of the project and they are working fine with no major issues.

3.4 System Testing Reports

Test Case 01: Registration

Tast case: 3.4.1				Test Case Name: Registration			
System: Surokkha				Subsystem: User Account Create			
Designed by: Khadizatul Kubra				Design Date:			
Executed by: Khadizatul Kubra				Executed Date:			
Description: The user register to the Surokkha system for creating new account							
Pre-condition: user must install the Surokkha app.							
ID	Name	Phone number	Email	Password	Retype Password	Response	Pass/Fail
01	Sristy	019.....99	Sristy4997@gmail.com	Ss123456	Ss123456	Registered successfully	Pass
02	Sanjana	017.....21		Aa123456	Aa123456	Email field is empty	Fail
03	Emon	016.....48	Emonk123@gmail.com			Password field is empty	Fail
Post-condition: The user has successfully registered and process is considered valid.							

Test Case 02: Login

Tast case: 3.4.2		Test Case Name: Login		
System: Surokkha		Subsystem: User Authentication		
Designed by: Khadizatul Kubra		Design Date:		
Executed by: Khadizatul Kubra		Executed Date:		
Description: User login using mail and password for getting access to their account.				
Pre-condition: user must have an account.				
ID	Email	Password	Response	Pass/Fail
01	Sristy4997@gmail.com	Ss123456	Successfully Logged in	Pass
02		Aa123456	Email field is empty	Fail
03	Emonk123@gmail.com		Password field is empty	Fail
Post-condition: User has provided correct mail and password there for Login process is successful.				

Test Case 03: Voice Auto-Call

Tast case: 3.4.3		Test Case Name: Voice Auto-Call		
System: Surokkha		Subsystem: Voice or button triggered calling feature		
Designed by: Khadizatul Kubra		Design Date:		
Executed by: Khadizatul Kubra		Executed Date:		
Description: User can call authority or emergency contact when needed in any kind of emergency.				
Pre-condition: User have to login first.				
ID	Voice & Button activate	Emergency contact	Response	Pass/Fail
01	Active	017.....21	Emergency calling happened	Pass
02	Inactive	016.....48	Voice & Button is not activated.	Fail
03	Active		No emergency contact.	Fail
Post-condition: if user face any kind of emergency then they can trigger voice or button press that will connect with their emergency contact and nearby authority.				

Test Case 04: Location Share

Tast case: 3.4.4		Test Case Name: Location Share		
System: Surokkha		Subsystem: Location tracking		
Designed by: Khadizatul Kubra		Design Date:		
Executed by: Khadizatul Kubra		Executed Date:		
		Description: User can share their location with registered contacts for curtain time via location share option.		
		Pre-condition: User have to login first.		
ID	Duration	Verified Contacts	Response	Pass/Fail
01	1 hour	017.....21	Location Shared Successfully.	Pass
02	8 hours		No verified contacts.	Fail
03		016.....48	Duration wasn't set.	Fail
Post-condition: User can share location with verified contacts and for curtain amount of time.				

Test Case 05: Place Review

Tast case: 3.4.5		Test Case Name: Place Review		
System: Surokkha		Subsystem: Ranking the visited place.		
Designed by: Khadizatul Kubra		Design Date:		
Executed by: Khadizatul Kubra		Executed Date:		
		Description: user can rank places that they have visited and people can see and remind visiting.		
		Pre-condition: user have to install the Surokkha app.		
ID	Describe the place	rating	Response	Pass/Fail
01	Dhaka is a nice urban area to live.	4	Place rated successfully	Pass
02		2	No details.	Fail
03	Khulna is best for peace full life.		No rating.	Fail
Post-condition: Users can ranks and describe as much as they want.				

3.5 Summary

Here, we discussed about projects performance and if the project meet the needed criteria. Alos, tested each step so that all the main parts of the project functions perfectly when it deployed.

Chapter 4 Deployment and Maintenance

4.1 Introduction

So, here we only talked about how the project will be deployed and maintain, we can say it's the process after we deploy the project in the market. But precaution is needed because any kind of unnecessary can be happened.

4.2 SRLC Phases

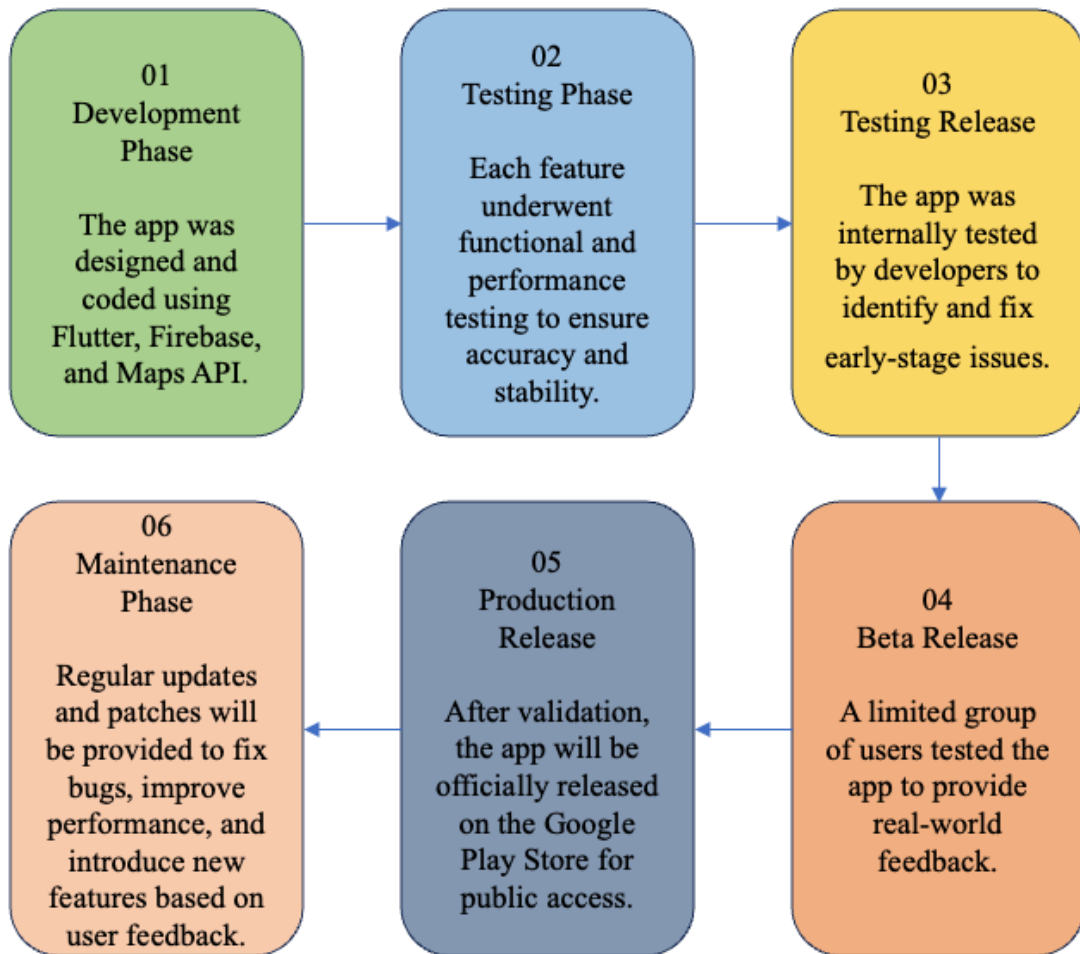


Figure 6: Software Release Life Cycle

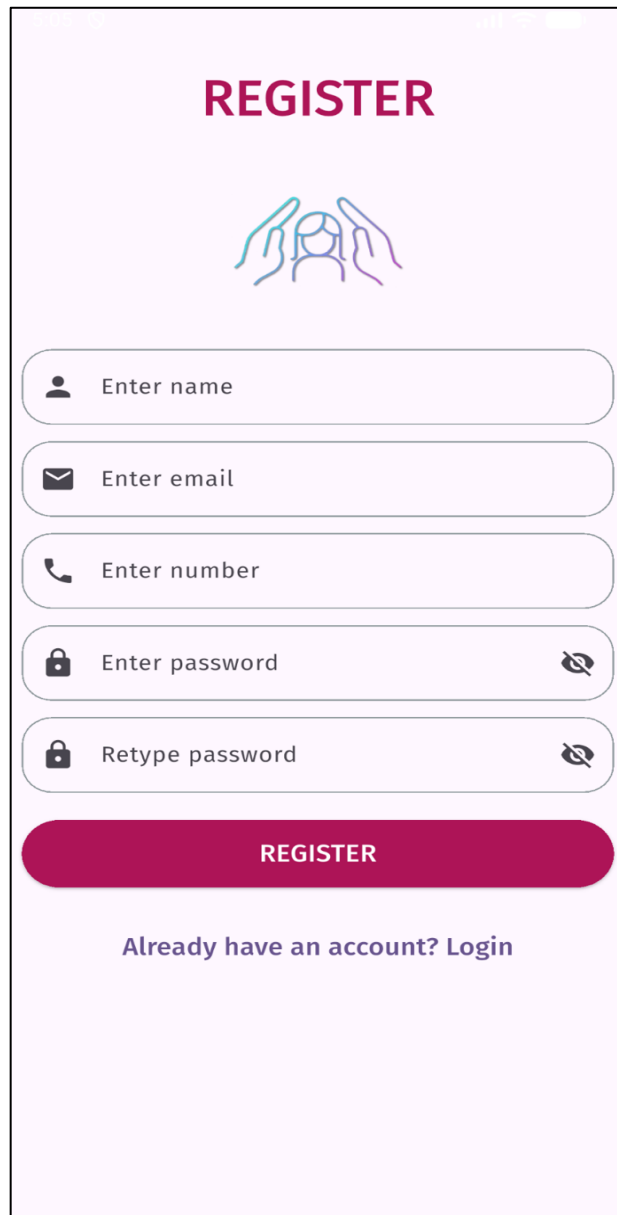
Chapter 5 User Manual

5.1 Introduction

Each step of project are detailed in here, how user will register and take any necessary services and at the end how admin panel handle each step are visualized here.

5.2 Project Functionalities

User Registration



The image shows a mobile application registration screen. At the top, the word "REGISTER" is displayed in a large, bold, maroon font. Below the title is a line-art icon of two hands holding a person's head. The form consists of five rounded rectangular input fields stacked vertically. The first field is labeled "Enter name" with a person icon. The second is "Enter email" with an envelope icon. The third is "Enter number" with a telephone handset icon. The fourth is "Enter password" with a padlock icon and a toggle icon on the right. The fifth is "Retype password" with a padlock icon and a toggle icon on the right. Below the input fields is a prominent maroon button with the word "REGISTER" in white. At the bottom, there is a link that says "Already have an account? Login".

Figure 7: User Registration

User Login

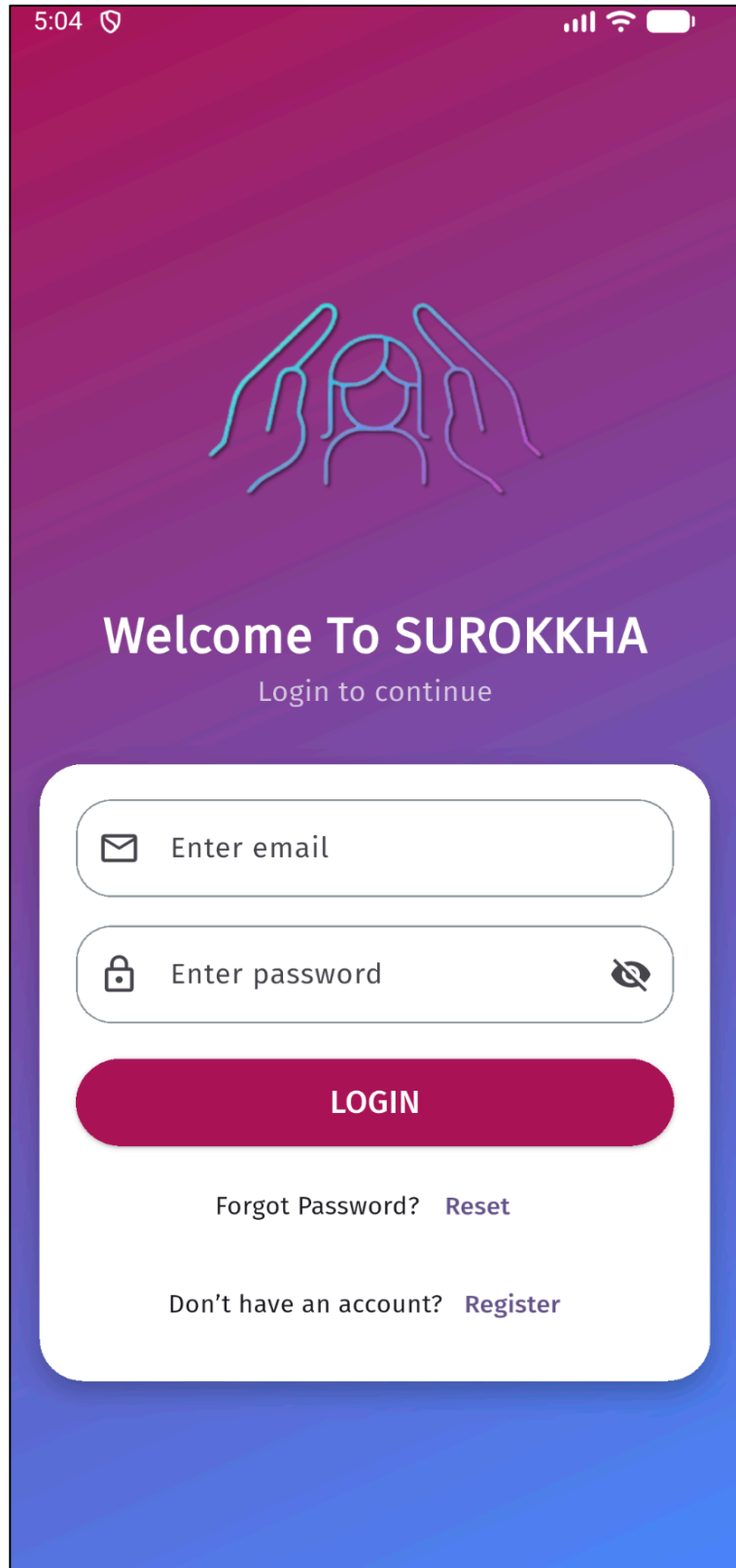


Figure 8: User Login

Profile Update

5:04

← My Profile

Profile Information

Enter your name
Khadizatul Kubra

Email
sristy4997@gmail.com

Phone number
01989734199

UPDATE PROFILE

Figure 9: Profile Update

Homepage

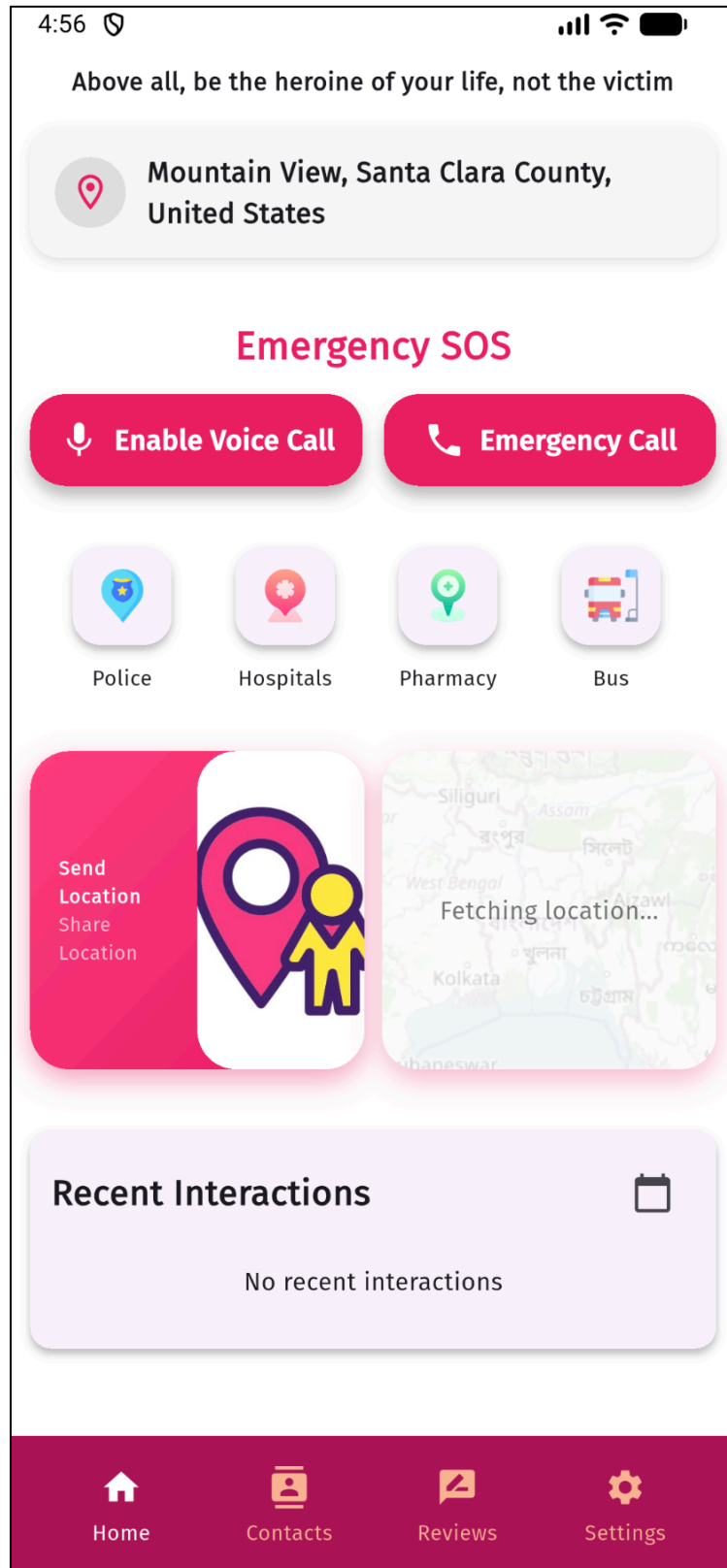


Figure 10: Homepage

Emergency Contacts

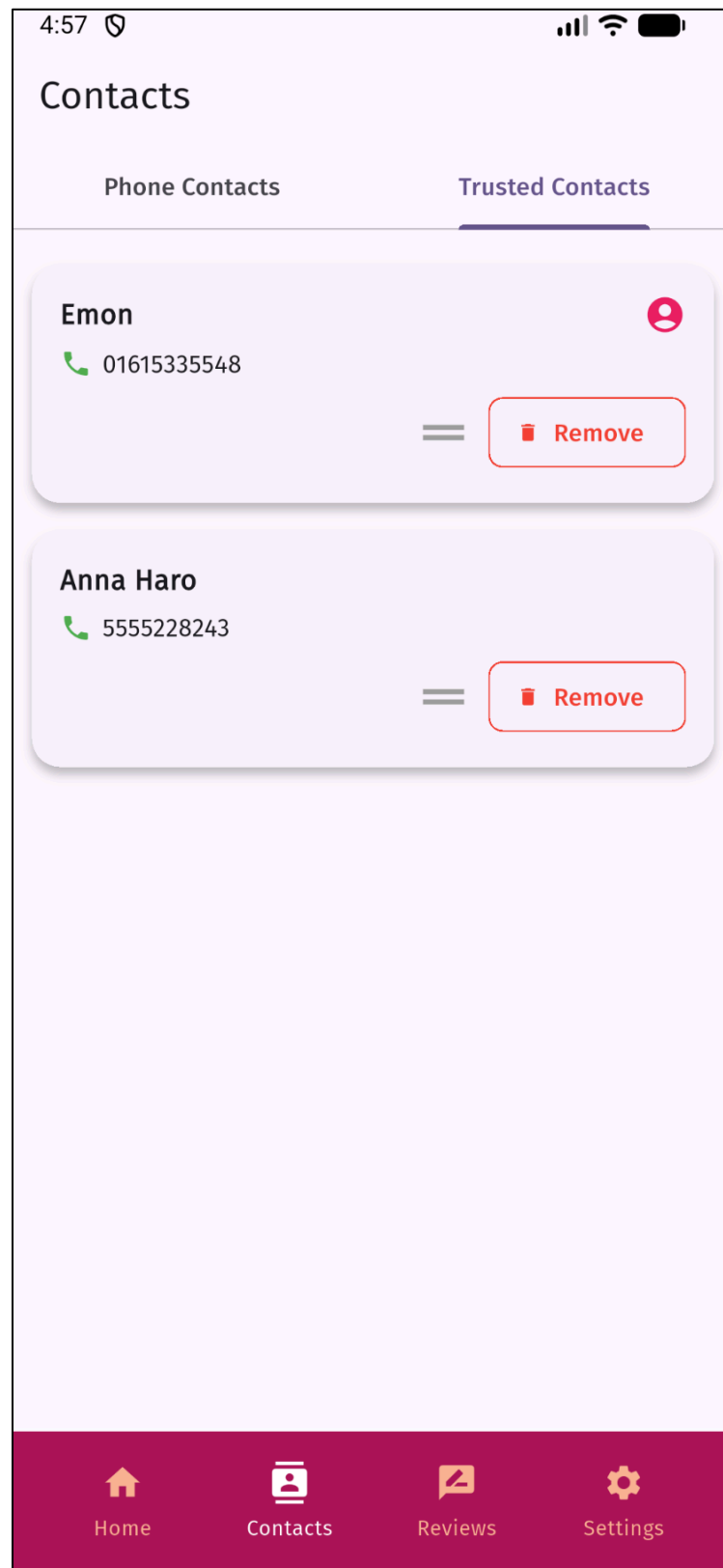


Figure 11: Emergency Contacts

Location Share

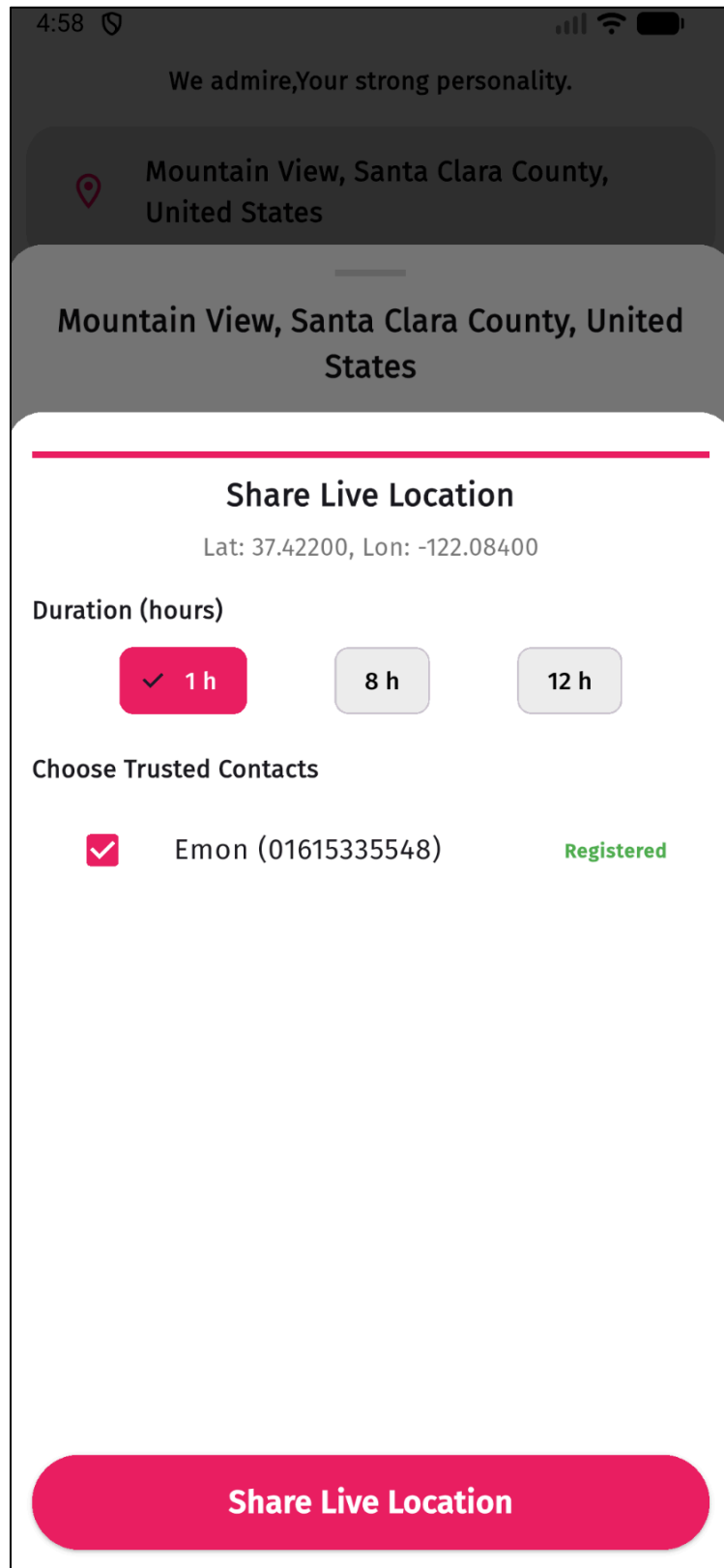


Figure 12: Location Share

Voice Auto-Call

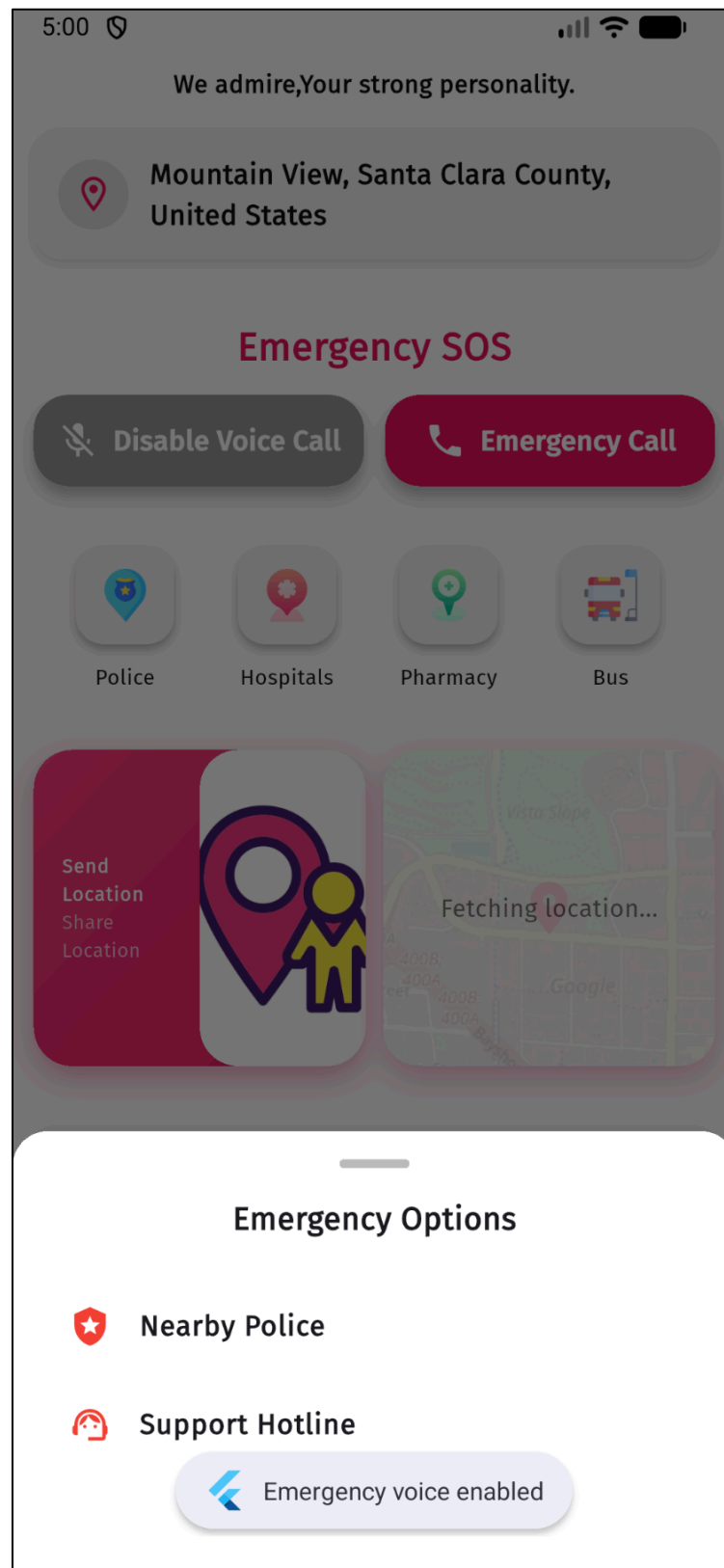


Figure 13: Voice Auto-Call

Place Review

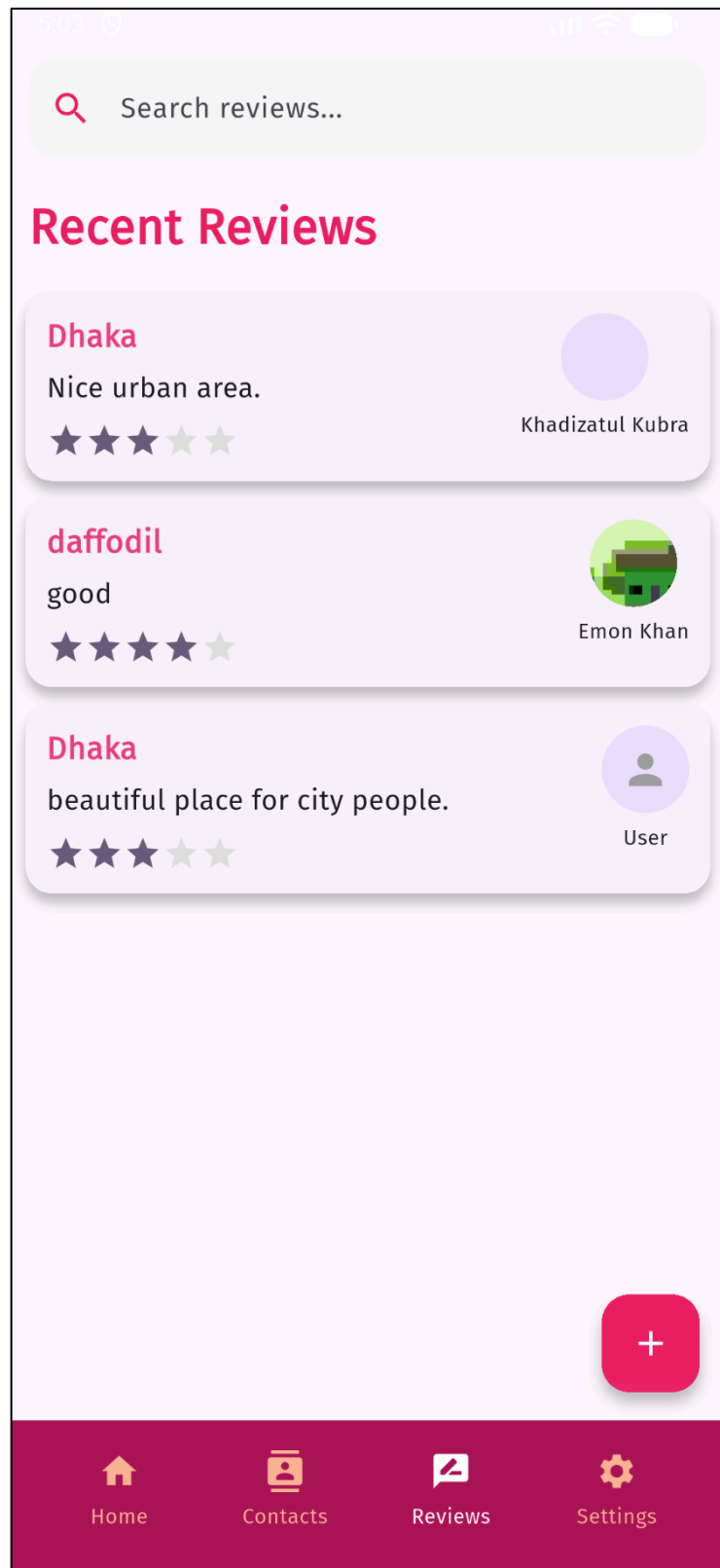


Figure 14: Place Review

Settings

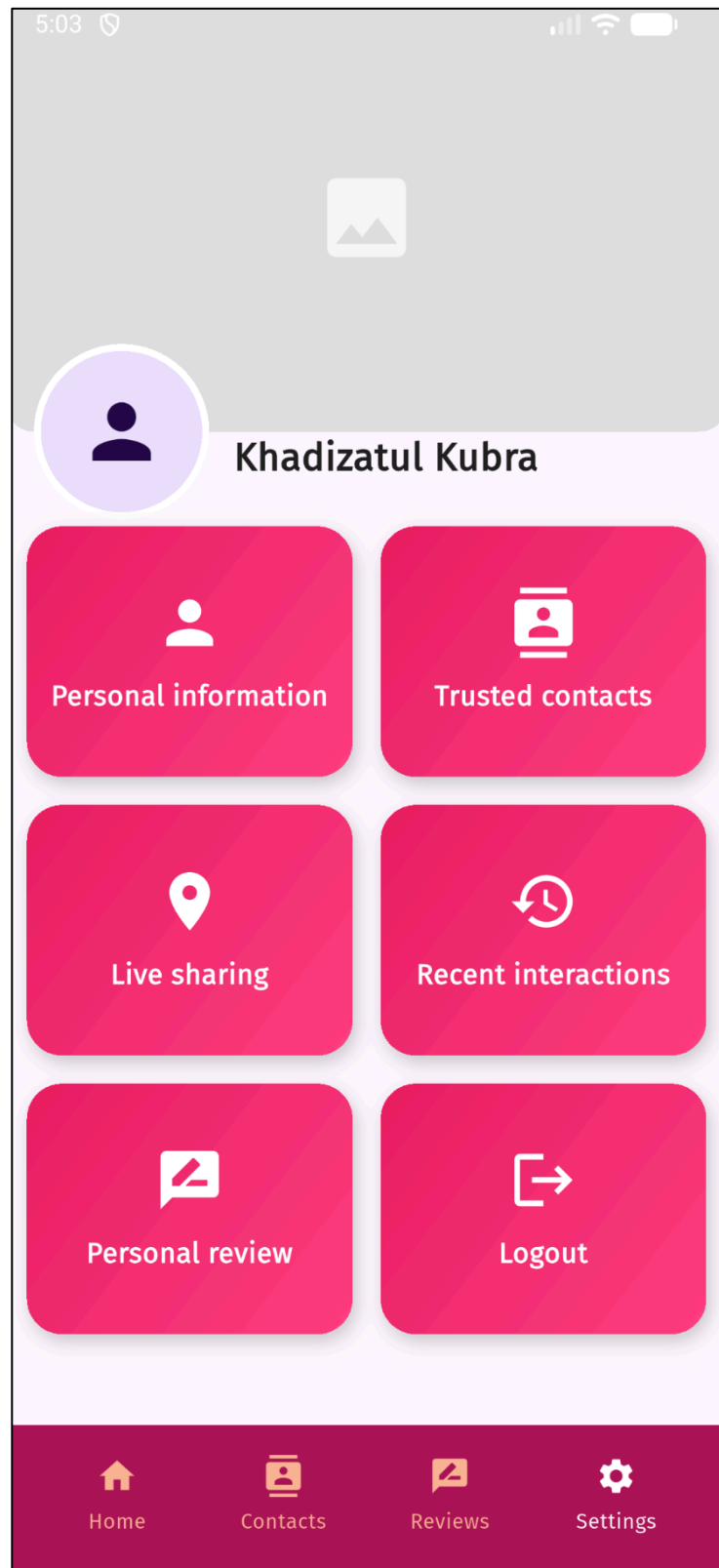



Figure 15: Settings

Admin Login



Welcome To SUROKKHA

Login to continue

Enter email

Enter password [Show](#)

LOGIN

Figure 16: Admin Login

Admin Dashboard

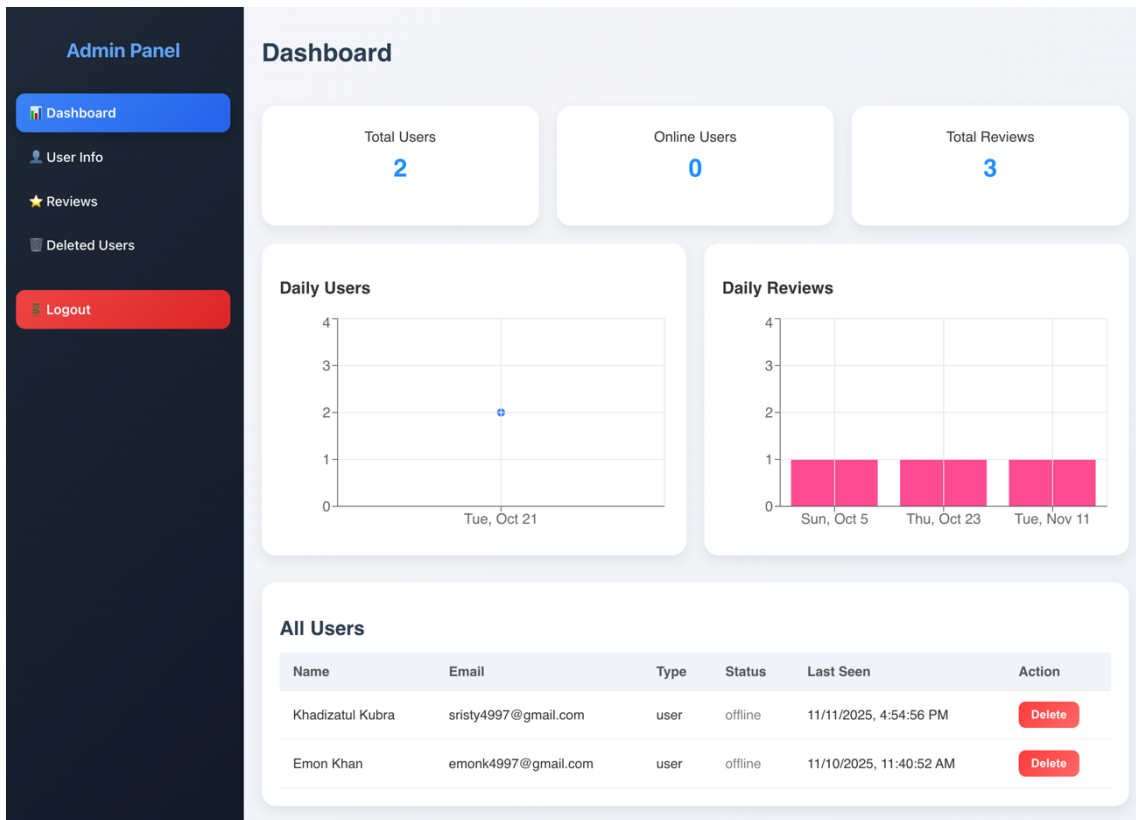


Figure 17: Admin Dashboard

5.3 Summary

Each step has been described and visualized for user to use the app more easily. Because the app is build based on the user preferences and there need in mind.

Chapter 6 Project Summary

6.1 Introduction

Main summary of the whole project in a short brief, so that by seeing this anyone can understand what is this project is about and how this project work.

6.2 Project Limitation

- Time constraints limited advanced feature integration like AI-based threat detection.
- Budget constraints are another issue that's restricted market deployment and large-scale testing.
- Technical limitations include dependence on google maps and internet connectivity for certain features that's why we have to use free available maps API.
- The app currently supports only the Android platform, iOS and web versions are planned for fully integrated in near future.
- Some users may face difficulties granting necessary permissions for background services because of the mismatch in versions.

6.3 Scope

The Surokkha: WSA covers:

- User registration and login
- Emergency contact feature
- Voice and button press emergency calling
- Emergency calling includes authority and selected contacts
- Live location tracking and sharing
- Profile management and logout features
- Admin panel for monitoring and management

6.4 Future Work

- Machine learning algorithms to detect abnormal movement.
- Wearable device connectivity (e.g. smartwatches or SOS bands).
- Development of iOS and web versions to reach a wider audience.
- Enhanced data analytics and reporting features for administrators.
- More versatile feature based on the user reviews.

6.5 Conclusion

The Surokkha: WSA successfully achieves its main purpose of providing a reliable, quick-response safety platform for women. We have tried to implement few of the very needed feature in the project and tried our best to make it user-friendly. Overall, Surokkha stands as a practical and impactful solution to address women's safety challenges in modern society.

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