

Sakhi-The Saviour: An Android Application to Help Women in Times of Social Insecurity

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Abstract - In today's world it has become very unsafe to travel alone, especially for women. Lots of shameful and inhuman crimes have been reported around the globe. According to the reports of WHO, NCRB-social-government organization, 35% Women all over the world face unethical physical harassment in public places such as railway stations, bus stands, foot paths etc. So we found that there is a need to understand and solve the problems of women. This project "SAKHI- THE SAVIOR" an android application for the Safety of Women will serve the purpose to rescue these women from unsafe conditions. This app can be activated by single click as well as by shaking mobile three times, in case of emergency. A single click on this app identifies the location of user through GPS and sends a message comprising the location URL to the registered contacts as well as to the nearby Police Stations. Continuous location tracking information via SMS helps to find the location of the victim quickly and can be rescued safely. The aim of this project is to provide safe environment to the women in public places.

Key Words: Android application, Women safety, harassment, location services, alert message, GSM, GPRS.

1. INTRODUCTION

If we want to fight discrimination and injustice against women we must start from the home, for if a woman cannot be safe in her own house then she cannot be expected to feel safe anywhere. A recent article in India claimed that India is fourth most dangerous place for women to take public transport and the second worst for safety while travelling at night.

Earlier, women were restricted only to household chores. Globalization has made us aware of gender equality. With the changing scenario, women are competing with men in all fields. We can see women achieving great success in all fields, may it be corporate, scientific, educational, or business. For the same reason, safety of women matters a lot whether at home, outside or at working place. The awful Delhi bus gang rape in 2012 is just the tip of the iceberg when it comes to the dangers of taking public transport as a woman. This rape incident occurred on 16th December 2012 at a place Munirka, a neighbourhood in South Delhi which

was fatal assault. A 23-year-old woman, a physiotherapist was hit by a gang while she was travelling in public transport (bus) with a male friend. Another such incident of TCS software engineer took place at Bhandup where the body has been found after two days near Kanjurmarg suburb, this incident was parallel just to the one evoked by Nirbhaya case in Delhi. One more case took place in Mumbai where woman was travelling to her native place when she was kidnapped and killed.

Hence there should a system to protect women as well as children in such times. So, after studying some journals based on women security system and keeping in mind that, a smartphone is one technology which almost every women carries all the time, a app has been developed to help women in such emergency situation. An app is small, specialized software program, easily downloadable and installed onto mobile devices such as Smartphones and Tablets.

This is a small step taken towards women safety which will provide an android app for women. Whenever a woman senses that she is in critical situation, this app will be activated by single click and it will send user location in text message format to the contacts which user enters while registration. It lets the family and friends know the user's current location.

2. EXISTING SYSTEM

The existing system provided several features but neither provided complete security. In order to activate emergency calling the user has to press the power button twice or thrice in some devices which is ergonomically uncomfortable. Furthermore, it required the IMEI number of the particular device to track it which is time consuming. This tracking method does not provide live tracking which means the user could have been in some other location by the time we get the location. Our application can activate the emergency feature by just one click of the panic button or by shaking the device three times and it will immediately give a call to the number saved as guardian and send a text message saying that the user is in danger and the location tracking link along with it. The location will be continuously updated to ensure we know the current location of the user.

3. PROPOSED WORK

3.1 MOTIVATION AND OBJECTIVE

Every day the features and capabilities of handheld mobile devices is increasing at staggering rate. Due to this technological progress we have a broad spectrum of possibilities to communicate regardless of the distance. We wanted to develop an Android application which would give us the opportunity to improve our knowledge in mobile application development and also work as a team in projects. An important motivation for us was the challenges we would face during the development. In addition, we wanted to make the user experience comfortable and the program portable, reliable, secure, stable, and intuitive. We are trying to contribute to a society where women would feel safe in every environment. Our project is based on application which is going to help women through our advanced features like continuous location tracking, calling and messaging to registered contacts to ensure women safety in society at all times.

3.2 PROPOSED SYSTEM

The main aim of “SAKHI - THE SAVIOUR” is to provide help during crisis situation using Android application. The proposed system is designed with an objective that it should be user friendly and smooth. The location of user should also be precisely known to the person whom the message is sent. Another feature of application includes sending updated location link message to the emergency contact when the application is opened.

This application sends message to the registered number using SMS manager which is offered by android. GPS technology is used to pinpoint location of user and link is sent to emergency contact. This application provides continuous location tracing for every 30 seconds. We also show information of nearby police stations in case greater danger and user needs police protection. Furthermore, when the panic button is pressed, the camera on the phone is activated and a snapshot is captured which may prove as useful evidence for further investigation if necessary.

4. SYSTEM ARCHITECTURE

System architecture is the conceptual model that defines the structure, behaviour and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviours of the system.

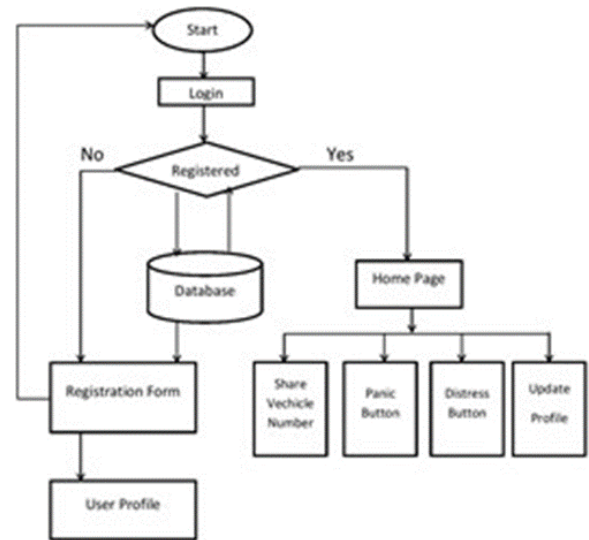


FIG. 1 – System Architecture

4. IMPLEMENTATION

An Implementation is a realization of a technical specification or algorithm as a program, software component, or other computer system 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 in order for something to actually 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. MODULE DESCRIPTION

- **Registration Module:** The registration module takes user and guardian information along with username and password. This information is then used for login purposes.
- **Login Module:** The login module takes credentials from user and authenticates them on basis of registration data provided. If the data is valid, user is directed to next page or else an error message is shown. There are different logins for user and guardian.
- **Database Module:** This module contains all the data stored in the background. The emergency contact numbers are also registered in this module.
- **Global Positioning System (GPS) Module:** It is a precise positioning tool which tracks location in form of latitudes and longitudes. The GPS Coder module uses this information to search the exact

address of that location as street name, nearby junction, etc. In cases where GPS is disabled, the system will only send latitude and longitude. Internet services are mandatory to be kept active.

- **GSM Module:** SIM card is inserted inside the mobile device to send and receive messages using GPRS. The GSM SIM card number is registered with the system.
- **Panic Button Module:** This module is going to enable GPS and data service automatically. As soon as the Panic button is pressed, the location of user is sent to the contact saved as guardian. Along with this, camera functionality is triggered and a snapshot is captured from the rear camera and image is sent to guardian.

6. USE CASE REALIZATION

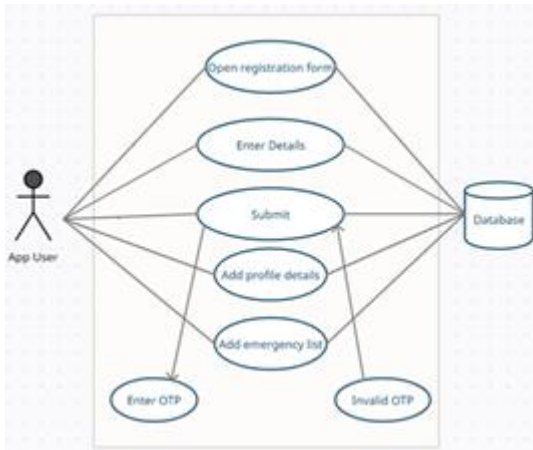


FIG. 2 - Registration

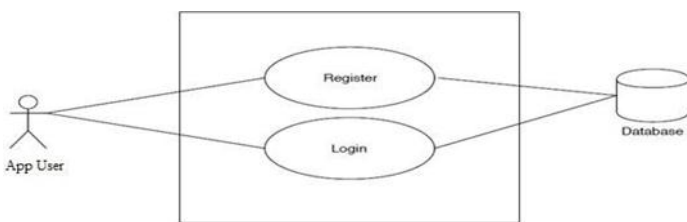


FIG. 3 - Guardian

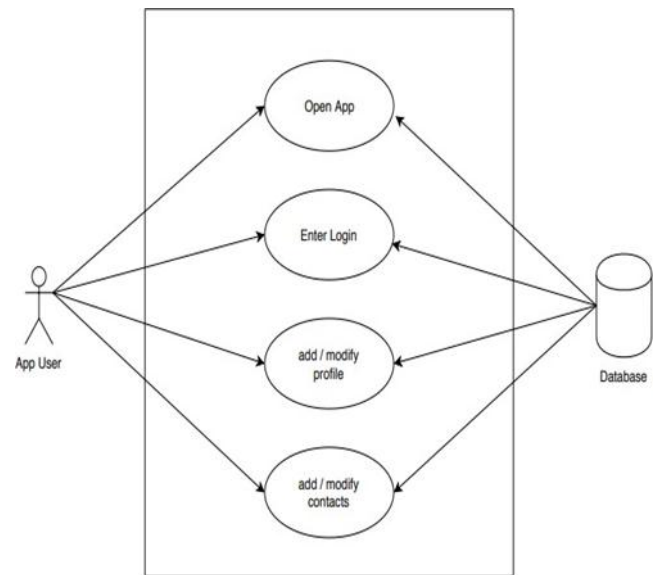


FIG. 4 - Login

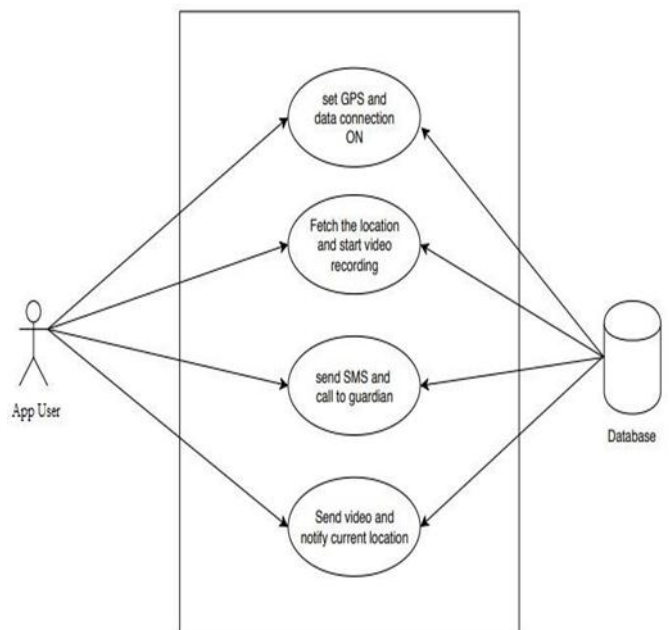


FIG. 5 - Activation

7. RESULT

As soon as panic button is pressed or mobile is shaken three times;

- Automatic message is composed telling that the user is in danger
- Location coordinates are obtained and sent to the guardian’s cell phone
- The location of victim is updated continuously to facilitate live tracking

- A call is made to the guardian phone number in order to alert them
- Snapshot is captured using rear camera in order to gather evidence about the event
- The addresses and information of nearby police stations are displayed on user device to summon police help if necessary

8. WORKING PHOTOS

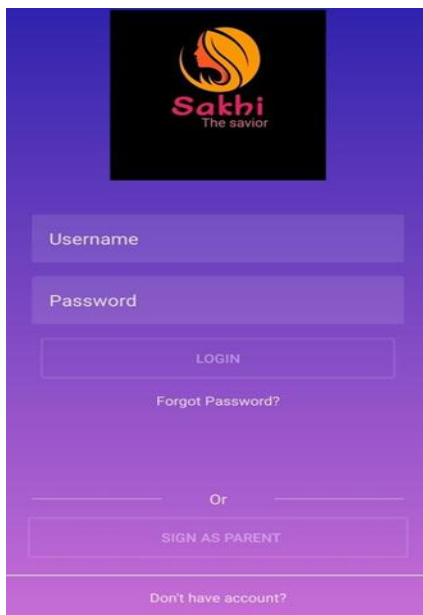


FIG. 6 – Login Screen



FIG. 7 – Home Screen



FIG. 8 – Location link SMS sent

9. FUTURE SCOPE

As technology changes or any additional user requirement arises, we can add those features to the application. Although the system is complete and working efficiently, new modules which may enhance the system functionality can be added without any major changes to entire system. As the system is based on object-oriented design, any future changes are easily adaptable. Based on security issues, security can be improved using emerging technologies.

10. CONCLUSION

It can be concluded that our app “SAKHI – The Saviour” provides safe and secure environment to the women in society and can ensure their safety even during late nights. Crime against women can be deterred if the application is used at appropriate time hence ensuring women safety. This project focuses on providing security to its users by providing location based services, SMS services, GPS services. Throughout the development of this project, we have learnt an array of skills ranging from new technologies to vital experience in working as team.

The project is completed in various phases which include different modules. In the registration module, we provide two types of registrations, one for user and one for guardian. The information from this module is further used in login module where we require user id and password to login into the application. In the next module we have given a panic button and de-stress button. The panic button has various functionalities. It is used to send panic message and location link to the guardian cell phone. Also it sends the snapshot captured by victim camera to the guardian. It can be concluded that this captured snapshot can act as a vital evidence of the event and can help the concerned authorities

analyse the situation. So, once we click on panic button, it will continuously send the updated location coordinates to the registered numbers and also to nearby police stations. This application provides the necessary safety and security to any individual who might face social threats and can prove to be a useful tool for women safety and empowerment.

11. ACKNOWLEDGEMENT

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