Women's Safety and Emergency Application

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Abstract: **Safety for women is one of the most pressing issues of our time that should have been a fundamental, undeniable concept for any civilized society centuries ago. Denying fundamental rights to safety, personal choices, freedom to pursue whatever lifestyle they wish to, sexual and physical empowerment are not new issues — but have strangely not managed to be eradicated even in today's times. A lot of people have been crying out loud for better ways to ensure women's security and make things better for them. And it seems like, not only people but we are also trying to do something about it. Now finally, there's an app that promises to add its drop into the ocean to ensure safety for women that's completely designed for the general public.**

Keywords: **Women's Safety, Mobile Application, Emergency, GPS (Global Positioning System), Android**

Introduction

The need for a women safety and panic alert app is, unfortunately, increasing in the current societies across the world. One of the biggest roles that have been played in ensuring the safety of women has to be the digital transformation and advancement in technology. Especially in the world where 3 out of every 5 people have smartphones and use dozens of mobile apps every day.

There's a one-time registration that requires the user(s) to fill out their details and that of the emergency contacts. Many situations occur when people don't have internet connection So we came with solution in terms of our application which works with and without internet services. An Android app which can INSTANTLY alert guardians (Along with user location) whenever the user is in an emergency situation.. On the mobile device even shaking the phone thrice will trigger the app to register it as an emergency. Immediately, your emergency contacts, as well as the local security authorities, will be notified that you are in an emergency situation along with exact GPS coordinates.

The key features of our app that makes it different from other apps designed till now are as follows:
1) Initially, we have to enter the two contact numbers of police, family members and friends in to the application say and click on "save" button.
2) While travelling, run the application and whenever need arises, click "start" button/toggle button.
3) As soon as "start" button pressed, it firsts make a call to the first saved registered contact number and also sends the message containing location URL of the victim to all the contact numbers.
4) Unique feature of this app is message with location URL is sent continuously to the registered contact numbers for every five minutes until "stop" button is clicked. So, continuous location tracking of victim is possible with this application.

A. Existing Systems

As a part of literature survey, we investigated some applications that offer the same or similar services for android and other platforms.

[1] The aim is to see how these applications work and to see how they can be improved. Today the cases of atrocities on women are growing. In these types of cases, a smart phone plays an important role for safety of women. Now android is budding on some apps for women security purpose. These apps are as follows:

1. Fightback: This app is developed by Mahindra faction. In earlier days, this app was not complimentary, customer have to compensate for this app. But after Delhi gang rape incident, this app is on hand at no cost. This app sends a message to your friend or contacts that "user is in trouble" through E-mail, SMS and GPRS. This app works on those mobiles that support Android Java Programming. [3]

2. Secureme Beta: This app is developed by Think MPI Consulting Private Limited. It helps us to raise alert and we can get help in case of life threatening emergencies. After installing the app, initially we have to give a pin number for security purpose and then after emergency contacts must be registered in the app. By pressing a tap on secure button, it notifies the contacts with location co-ordinates. [4]

3. Vanitha Alert: This app is developed by ABC Mobile Learning Communication click on " HELP" button on our mobile's home screen in an emergency situation can deliver a distress text message to the registered mobile number ,E-mail id, face book id seeking help and indicating the user's location.[5]

4. Raksha – Women Safety Alert: This app is launched by BJP on May 15, 2014. By clicking on this app, it sends location of the user to the contacts registered and the user can also get the details of the location of the contacts. A distress signal just by pressing a

single key sends out a loud buzzer to our near and dear ones. We can add multiple contacts to this app and when there is no data connection, this app alerts the contacts by sending SMS. [6]
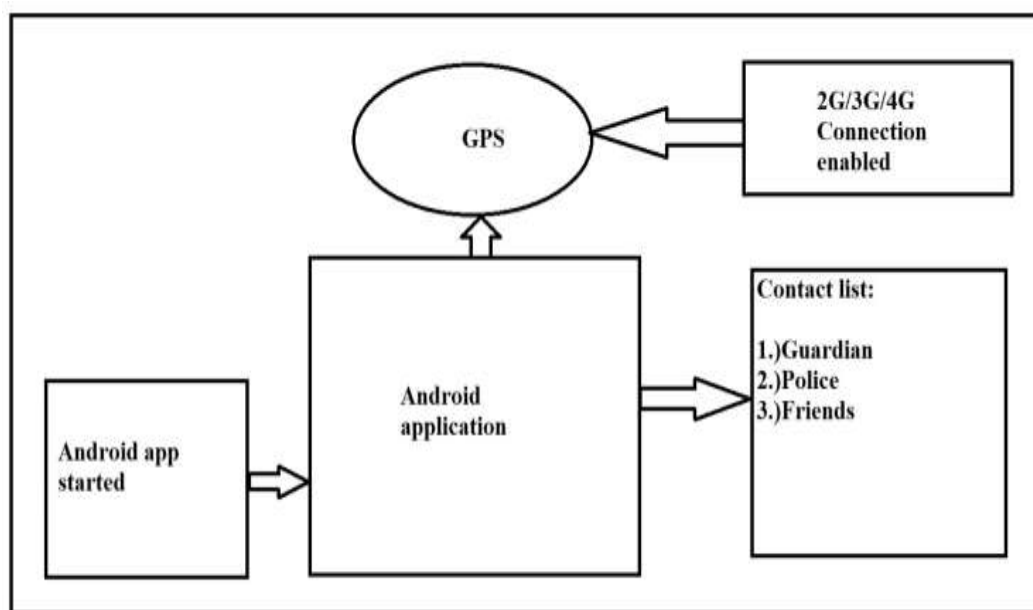
5. Glympse – Share GPS Location: This is the recent application developed on January 28, 2015. This app is a fast, free and a simple way to share our location using GPS tracking in real time with friends and family. This app does not need any sign up and do not need any contacts to manage. [7]

6. Guardly: This app is developed basically for women safety intention, to put a phone call by your name, instantaneous location, and emergency hit to your selected friends. In this app you have to give your details in profile sheet e.g. birth date, tallness, weight, eye-colour, blood group, hair-colour, etc. This app is also used in I-Phone, I-Pad, BlackBerry, Windows Phone etc. [8]

7. Street Safe: This application is developed on worldwide Women's day. It will call community to help woman in any situation and has four features for crisis which would be started by just clicking on the button. These features are as – First, it automatically updates on your Face book account with your recent location. Second, SMS will be sent to chosen associates with your locality. Third, an alarm is started with large volume on your mobile. Fourth, call is to be found to your chosen emergency number.

II Proposed System:

Fig. 1. Block Diagram for the Proposed System

"Fig 1" shows the block diagram of the system. Initially, when we click on the app, it first checks whether the location settings, data connection settings in the application are on or not. Then, it tracks the location of the victim via GPS and sends these location co-ordinates in the form of URL through message to the registered contacts. Here, registered contacts means the contact details that are saved in the Abhaya application during its initialisation. Now, at the received device, by clicking on the URL in the message, it spots the exact location of the victim. Also, as the message containing victim's location is sent for every five minutes from the root device, the victim can be tracked wherever she goes and can be rescued safely and quickly.

To develop this system for android users for keeping track through multiple applications. This application uses global positioning system (GPS) for identifying the location of the user in panic/trouble situation and the system can be divided into two modules:

1. First module can be the victim's phone i.e. the root device which uses 4G/3G/2G data connection for tracking the location of the victim through GPS.

2. Second module can be the mobile phone of registered contacts either police or friends or family members which receives the message containing URL of location of victim that is sent from the root device.

Evaluation and Uniqueness
The total evaluation can be done in three major steps which are described individually. Evaluation describes the whole working of the application in three major steps. The first major step is to enter the contact details in the application created. Those contacts can be our relatives, friends and chief cop of the particular city the person we live in. When the application is installed in the smart phone for the first time the above contact details should be provided. The application will save the given information. The second major step is to send the GPS information (GPS information can be in the form of the Co-ordinates or the URL which leads to the location

of the person any stock map application in the likes of third party application like Google, Nokia etc) to the registered contacts at danger times or when the person is needed to be rescued. This step is followed only when the rescue button is pressed in application. The whole process of this step is done only when the device is connected to the proper mobile network and location service in the device is switched on (GPS).

The third major step comprises of work done in sending the message containing location URL continuously to the registered contacts. Here, we have set the time interval as 5minutes, so for every five minutes of time-lapse, SMS is sent to the registered contacts. Therefore the exact location of the person can be tracked by the application continuously which is the primary aim of the proposed system and the person can be rescued.

A. Uniqueness

In the existing systems, we have mentioned many Android applications having similar feature to my application. In all those applications, victim's location is sent only once to the registered contacts in different forms like SMS, EMAIL etc. But in practical situations, the victim may not be kept at one place standing, she may be moving around. So, in all those applications, we can know only one location immediately after the start of the application, but practically after sometime she may not be present at that place. The unique feature of my application is location is sent continuously for every five minutes till "STOP" button in the application is pressed. So, even if the woman is made to move around in the city, because of this feature of continuous location tracking, she can be rescued quickly and safely. Also, one of the contacts will be receiving a call, sometimes there may be chance for people not seeing the SMS, but after receiving the call they get alert and can look at the SMS and can identify that their near ones is in danger quickly.

B. Results

The following figures are the screen shots of Abhaya application initially from the starting of it. Fig 2 represents screen shot of the application immediately after opening the Abhaya app on the root device (device on which the application is installed). It contains four contact numbers to be filled of which first phone number receives call and SMS, the other three phone numbers receive only SMS. Also, the layout contains three buttons "Save Config", "Close App" and "Start" buttons. After filling the phone numbers, "Save Config" button must be clicked such that all those contact numbers will be saved in the Abhaya application and these given phone numbers are called Registered Phone numbers.

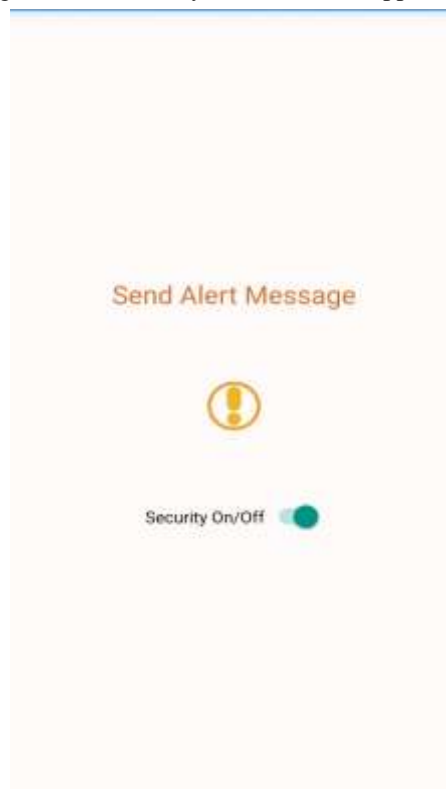Fig. 1 - Main activity window of the application

Fig. 2 - The page to save emergency contact numbers and save them

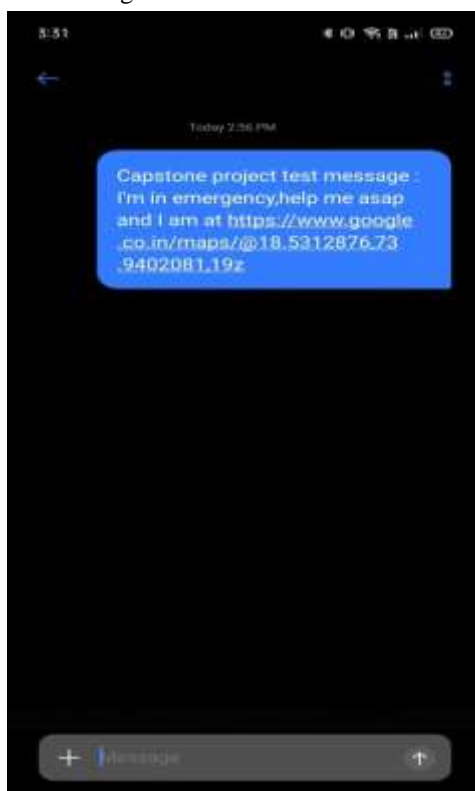Fig. 3 - The message delivered to the saved contact numbers

Fig. 4 - Current location of the user from the test message

Conclusion

This project focuses on providing security to users which includes location-based services, SMS services, GPS services and system Architecture. Throughout the development of the first phase of the project, we have learned much more new skills ranging from vital experience in working as a team and the new technologies. In this paper, we have described an Android Application for the safety of women. This application helps in live tracking of the location of the victim through GPS along with one of the registered contacts receives a call from the root device. The merit of this application is even when the location of the root device is changing rapidly, we can identity the exact location. As a future scope, this application can be integrated with the law enforcement database, which includes all the phone numbers of regional cops. Some use cases such as rescuing victim, when the mobile network is not available, after initial alert or switch off condition. Further, it can be developed for android and Windows mobile platforms. Thus, this application can help the women in a big way from unsafe conditions.

Acknowledgment

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