ABHAYA: AN ANDROID APP FOR THE SAFETY OF WOMEN

Ravi Sekhar Yarrabothu
Department of ECE
Vignan's University
Vadlamudi, Gunture, India
yrs_ece@vignanuniversity.org

Bramarambika Thota
Department of ECE
Vignan's University
Vadlamudi, Guntur, India
ambika.thota92@gmail.com

Abstract: 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 heinous incident that outraged the entire nation have waken us to go for the safety issues and so a host of new apps have been developed to provide security systems to women via their phones. This paper presents Abhaya, an Android Application for the Safety of Women and this app can be activated this app by a single click, whenever need arises. A single click on this app identifies the location of place through GPS and sends a message comprising this location URL to the registered contacts and also call on the first registered contact to help the one in dangerous situations. The unique feature of this application is to send the message to the registered contacts continuously for every five minutes until the "stop" button in the application is clicked. Continuous location tracking information via SMS helps to find the location of the victim quickly and can be rescued safely.

Keywords – Android; GPS; URL; Registered Contacts

I. INTRODUCTION

Women are accomplished at mobilizing diverse groups for frequent causes. They often work across racial, sacred, opinionated, and intellectual divides to encourage tranquillity. We are aware of importance of women's security, but we must recognize that they should be well secured. A Woman is not much powerful when compared to men physically, in a crisis situation and needs a helping hand to relieve them. The best way to minimize chances in becoming a victim of violent crime (robbery, sexual assault, rape, domestic violence) is to identify and call on resources to help you out of unsafe situations. Whether you are in instant trouble or got separated from friends during night and do not know how to get home, having these apps on your phone can diminish your risk and bring assistance when you require it.

In the light of recent outrage in Delhi which shook the nation and woke us to the safety issues for our daughters, public are gearing upbeat in different ways to fight back. A swarm of new apps have been developed to provide security systems to women on their phones.

Here, we introduce an android app that ensures the safety of women. It reduces the risk and helps us in need by identifying the location of person who is in danger.

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 four 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.
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.

Android is the most widely used mobile OS motorised by Linux kernel. This is the first complimentary platform which is robust and is expected to gain much popularity. It was developed by Google team and allows writing managed code in the Java language. The current system is developed on the basis of android platform. Android utilizes a custom virtual machine that was designed to optimize memory and hardware resources in a smart phone. Android does not differentiate between the phone's core applications and third-party applications. Any application that is built will definitely have equal access to a phone's capabilities providing users with a broad spectrum of applications and services

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

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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. [9]

II. PROPSED SYSTEM

To develop a system for android users for keeping track through several applications. This application uses GPS for identifying the location of the person in trouble 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 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.

BLOCK DIAGRAM:

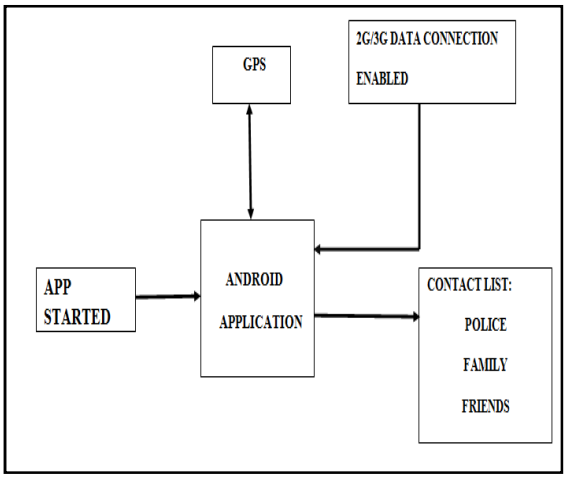

Fig. 1. Block Diagram for the Proposed System

"*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.

III. EVALUATION RESULTS & 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. 2. Screen Shot of Abhaya App just after opening the application.

"Fig. 3" depicts the screen shot after entering the contact details in the application.

Fig. 3. Screenshot after entering the contact details in Abhaya Application

"Fig. 4" depicts the screen shot after clicking the start button in the Abhaya application. It displays "SMS will be sent for every 5 minutes to the provided contacts Here, if we want to stop the application, we have to click the "GoBack" button then it goes to page as depicted in fig 3 and "Close App" button must be clicked.

Fig. 4. Screen shot of Abhaya App after clicking Start button in the application.

"Fig 5" represents the SMS received by one of the contact numbers that are entered in the Abhaya Application. The SMS contains a message of I am in Danger and my current location URL.

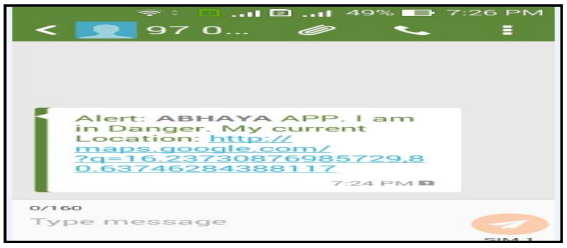

Fig. 5. Screen Shot of SMS received by one of the registered contact numbers

"Fig. 6" depicts the screen shot of SMS received by one of the contact numbers. Here, it depicts the smart phone receives two messages from the Abhaya Application within a time interval of five minutes.

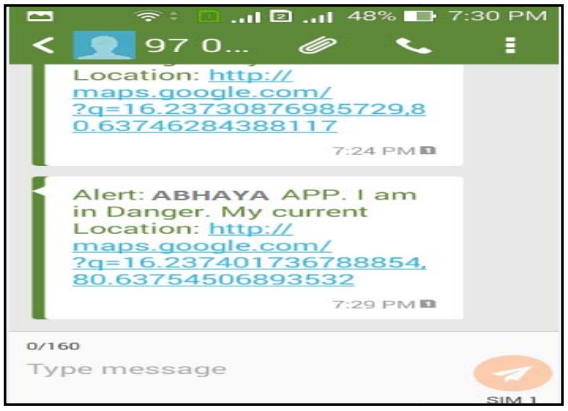

Fig. 6. Screen shot of messages received by one of the registered contact numbers after five minutes

"Fig. 7" depicts the image of location after opening the URL in the message depicted in fig 6.

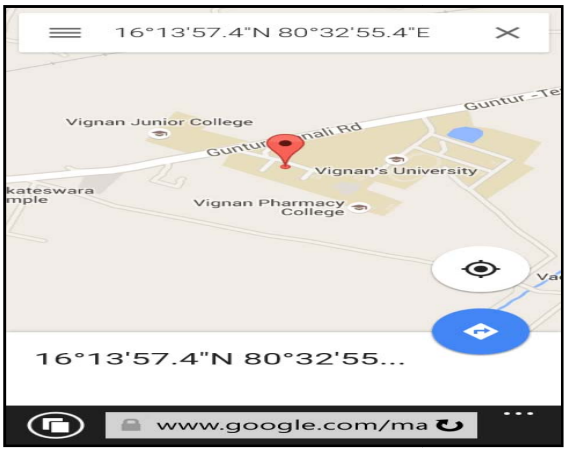

Fig. 7. Screen shot after opening the URL in the message

The image depicts the location of the victim (the root device) as Vignan's University present in between Tenali to Guntur Road.

The main advantage of this application is even if the victim moved from incident place to some other location; we can identify that location easily as the registered contacts receive the location of the victim through SMS every five minutes.

IV. CONCLUSIONS

In this paper, we have described Abhaya, 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 identify 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 IOS and Windows mobile platforms. Thus, this application can help the women in a big way from unsafe conditions.

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