

Sauver: An Android Application For Women Safety

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ABSTRACT: The usage of smart phones equipped with GPS navigation unit have increased rapidly from 3% to more than 20% in the past five years. Hence, a smart phone can be used efficiently for personal safety or various other protection purposes especially for women. This paper presents Sauver, a personal safety application developed for smart phones of android platform. This app can be activated by a single click when the user feels she is in danger. This application communicates the user's location to the registered contacts for every few seconds in the form of message. Thus, it acts like a sentinel following behind the person till the user feels she is safe. The key features of this application are along with the user's location, one of the registered contacts gets a call. Also, the registered contacts and GPS location are saved from time to time in a database.

Keywords: Smart Phone, Android, Registered Contacts, GPS location, Database.

I INTRODUCTION

In today's world, it is not safe for a person to travel alone at night especially for women; it will be high time to travel alone because a woman is not highly strong as men to protect herself from them. The good way to reduce 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 to reach home, having these apps on your phone can diminish our risk and bring assistance when we require it. In this paper, we present Sauver, an application for smart phones working over android platform. Sauver is a French word which means to rescue, to save, to salvage and to redeem and in the verb form *Se Sauver* means to escape and to run away from danger. Our motto in developing this app is to provide a safe environment to women through smart phone as today most of the people are carrying smart phones to wherever they go. Of course, the Delhi Nirbhaya case has made the Government to make the laws tougher, but even though the sexual crime rate in India have not decreased. So, it is better to take our own safety measures rather than becoming a victim of those crimes. This paper is organised as follows. Section II describes the literature survey of the existing apps and the related work of creating the application. Section III presents the functionalities and key features of the application. Consequently, the working of the application is described in the section IV. The section V presents the testing results of the application after installing in the smart phone. Finally, section VI concludes the paper and presents the future work for the paper.

II RELATED WORK

As a part of literature survey, we investigated some applications of women safety that already exist in market. The aim is to observe how these applications work and to see how they can be improved and how are they different. To date it is identified that the following Android Apps of women security are good and are offering relatively similar service.

A. WOMEN'S SECURITY:

This app is developed by AppSoftIndia. The key features of the app are: the user has to save some details. These details include: Email address and password of the user, Email address and mobile number of the recipient and a

text message. Then, app is loaded as a "widget", so that when the user touches the app, it alerts the recipient. Another key feature of app is that it records the voice of surroundings for about 45 seconds and this recorded voice, text message containing location co-ordinates of the user is sent to the recipient mobile number.^[4]

B. BSAFE- PERSONAL SAFETY APP:

This app is developed by Bipper Inc. On March 6, 2015. The app's motto is "Never Walk Alone". This app helps the user to create a gang of 'Guardians' and SOS message will be received by them when the user is in trouble. Also another good feature of this app is one of the guardians will also be called. The SOS message also includes location of user via GPS. The user can also enable the GPS tracker and let the friends know location at any time.^[5]

C. SAFETIPIN- COMPLETE SAFETY APP:

This is a privacy security app having the troop of features; GPS tracking, emergency, important contact numbers, directions to safe locations, pins displaying unsafe and free from danger areas and a Safety Score. It drives in advance of exemplary women safety apps, and presents a vast range of features, so that they will help to practically plan and can give a counter attack to those spots in the locality. When a person is going to move to a new locality that is unknown to him and if he or she want to know the safe areas, then this app will be much helpful providing the user a map based view of the locality along with its safety score. Also, the person can select the areas on those he or she excited to go and can get knowledge about the risks of hassles about the area, so they can finally take safety measures.^[6]

D. POLICE NEARBY:

This app is developed by Big Systems in 2013. The police nearby scanner android app is built with the aim to connect citizens & students to their nearest police stations city wise at one click and will permit the community to become more involved right from your Android Smart phones. Any local, state, or school, College police department as well as other law enforcement agencies can use Police scanner Android App to provide you with enhanced service and get better communication. Police nearby app is free to download without sign up.^[7]

E. SCREAM ALARM:

Scream Alarm, an android application developed by Go Pal AppMaker in November 2013. By clicking this app, it generates a very high volume scream in times of distress when the lungs of a person fail in screaming in trouble. The generated scream is in a woman’s voice is severely helpful in discouraging the potential strong trouble makers. The only work done by this application is whenever the person pushes or touches the application, the phone screams loudly with a woman’s voice.^[8]

F. TELLTAIL:

This app is developed by DIMTS Ltd in 2014 for women safety intention. This application is a creation of DIMTS (Delhi Integrated Multi-Modal Transit System Ltd.) which allows the application to track the user through the GPS on their phone or the vehicle. The user can send instant alerts to a chosen group of contacts as well. The app lets user’s location be known even if there is no GPS on user’s smart phone as location can be monitored using the vehicle’s GPS. Telltail is an application which always runs in the mobile in background so that alarm will be activated in a easy way and the user can be known easily upon the reception of the SMS.^[9]

G. CIRCLE OF 6:

This application is developed by Test For Good on April 1, 2015. This application is designed only for iOS platform and this works only on iPhone. This application can be used by females of any age group like school students, working women etc. when they are in trouble and this will alert their friends with threatening messages. By tapping on the app twice, one of the three predetermined text messages is sent to six contacts of our choice; it also includes a call for help and also maps the exact location of user and sends this address.^[10] The applications mentioned above work on different platforms, some of the apps work on Android, Windows, IOS but some only in android or windows. But, this application Sauver is designed only for android platform but in future it can be extended to work over Windows and IOS platforms. Android platform is open source and was built using open Linux Kernel in order to enable the developers in creating fascinating mobile applications that will take full advantage of the handset offers. A Virtual Machine is designed and utilised by Android in order to optimize the memory and hardware resources of mobile environment. Android can be enlarged adequately to merge new cutting edge technologies as they emerge. Hence, android platform will always continue to be evolved as a developer community in order to build innovative applications for mobile environment.

III EVALUATION

The motto is to develop an application for android users to keep track of user through several functions. This application uses GPS for identifying the location of the user in trouble, uses a database in which the complete details to which the information has to be sent and the required information like GPS co-ordinates will be stored. The complete system can be divided into three modules:

- a) First module can be the victim’s phone which uses GPS tracking application and also GPRS for sending information of the location to the database continuously.

- b) Second module can be the database in which the contact details like police control room, family, friends etc are saved.
- c) Third module can be the mobile phone of friends or family or police to which the information of GPS co-ordinates will be sent.
- d) By making a finger touch on the app, initially it identifies the location of the user through Global Positioning System (GPS). Then, it sends the latitude and longitude co-ordinates of the user’s location to the database continuously within a time interval of thirty seconds.

BLOCK DIAGRAM:

The block diagram depicted below shows the exact flow of control of the android application. Here the database acts as a storing media between the two mobile devices. The database information i.e. to which database the information has to be sent, the URL of the database is coded itself in the application. From the database, the location co-ordinates is sent continuously to the registered contacts of the user. Also, a call will also be made to one of the registered contacts.

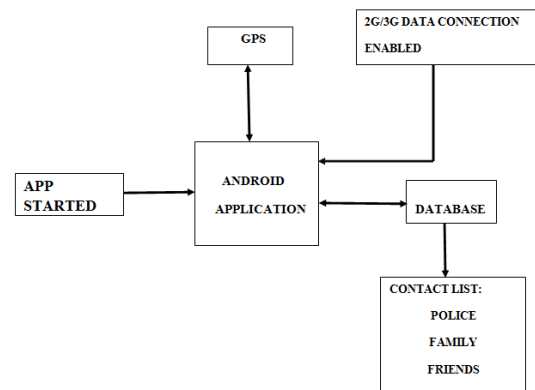


Fig. 1. Block Diagram for the Proposed System

IV WORKING OF SAUVER

The working of the application is divided into three major sections. They are described as follows:

1. Initially, when we touch the application a list view of contact details and a grid layout of three buttons save, close, start will be appeared. In this section, the contacts who will respond immediately must be saved like family, friends or police. These contacts are called registered contacts; they are called so because they are registered to the application. After entering the contact details, save button must be touched so that those will be saved and alter after to these the user information will be sent when she is in danger. Here, the contact details are of two types: A contact number to be called and the contacts to which the SMS to be sent.
2. When we click start button, the GPS information (the GPS information can be in the form of latitude and longitude co-ordinates of the user’s location or in the form of URL which leads to the location of the person through any stock map application in the likes of third party application like Google, Nokia etc) is sent to the database continuously for an interval of every thirty

seconds. The whole process of the system is done only when the device is connected to proper mobile network, data connection of the device is on and location service in the device is switched on (GPS).

- This section describes the primary working of the database. The information that is sent to the database is in turn sent to the registered contacts continuously. The purpose of the database is it can continuously track the location of the user since the user's location information is continuously sent in a periodic interval of thirty seconds. The other major asset of using database in future will be if the database used in the application is city police control room database, then when the user is in trouble, based on the user's location observed from the database from the control room, the nearest police people can go to the location and can rescue the person in danger. Hence, by sending the user's location in periodic intervals of time, the exact location of the person will be identified and she can be rescued quickly.

The other asset of this application is one of the contacts will be called so that if he or she does not recognise the SMS, then by calling they can be made attentive. The primary benefit of this application is that after starting the application, as we have designed the app as one contact to be called, it asks the user to choose network or Skype so if we have chosen Skype, live video transmission can also be sent to the chosen contact through this application.

V RESULTS

The testing results of the mentioned three sections are provided with snap or screen shots taken in various intervals of time from the root device and contact's device. Here, the root device means the device over which the rescue application is started; it means the user's device. The contact's device means the device to which the user's location information is sent continuously. For installing the application in the mobile phone, firstly in the settings, "allow non-market apps to be worked over the device" must be checked as shown in the following figure 2. Figure 2 depicts the settings of the device such that only by placing checkmark over the mentioned icon, the app will be installed on the device.

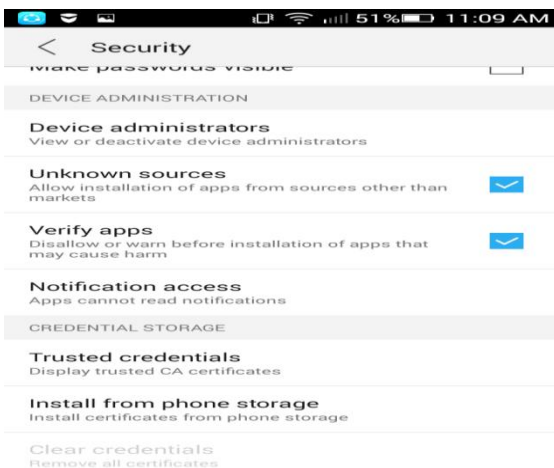


Fig.2. Settings of the device

The Sauver app icon can be placed anywhere on the home screen of the smart phone so that we can immediately touch over the application when we are in danger. Once the application is installed on the mobile for the first time, the following screen shown in figure 3 will appear. Figure 3 depicts the list view of contact details and grid layout of buttons: save, close and start. The first contact number that has to be entered is for calling and the other three contact numbers that are entered will be used for sending messages from the root device.

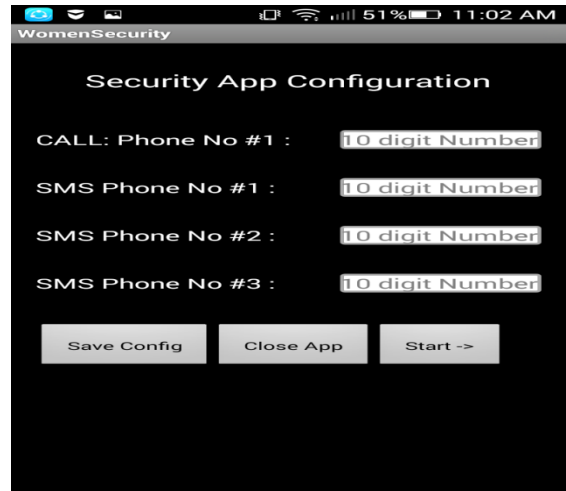


Fig.3. layout of the app immediately after installation

After entering the contact details, the application screen appears as depicted in the figure 4.

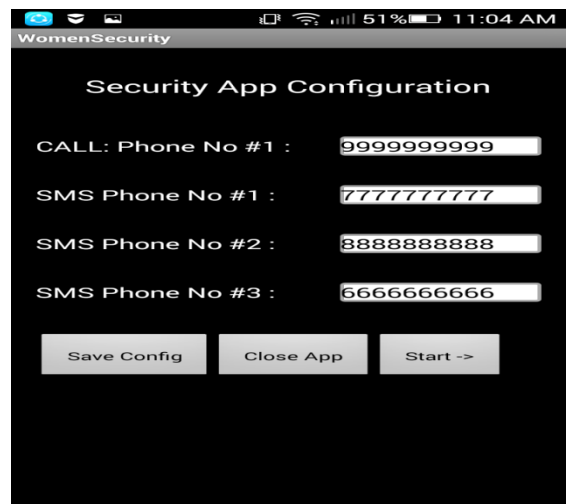


Fig.4.contacts entered in the app

After completion of registering the contact details in the application, the save button must be clicked by the finger else the contacts will not be saved. After completion of saving the contact details, close button must be clicked to exit from the application and start button must be clicked to start the application immediately. There is no obligation of entering the contact details each and every time when we open the application. Once entered and saved they will be registered in application till we change them. Fig.5.

Message received by the contact device immediately after starting the application.



Fig.5. Message received by another contact device immediately after starting the application.

When we click start button of the application, it starts and the GPS starts running over the device and immediately the user's location will be sent as shown in figure 5.

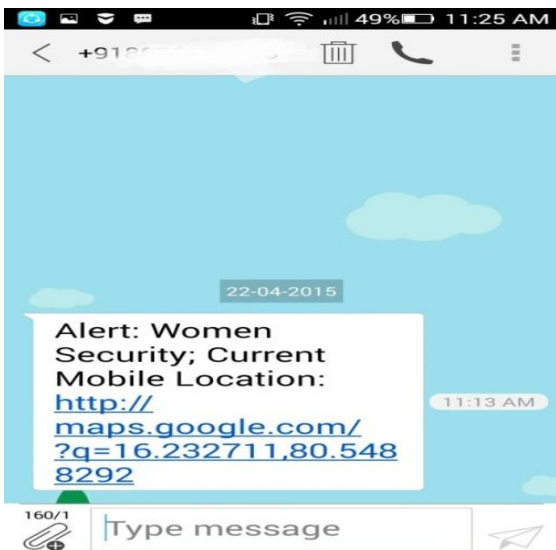


Figure 6 depicts the message received by the second contact device immediately after starting the application.

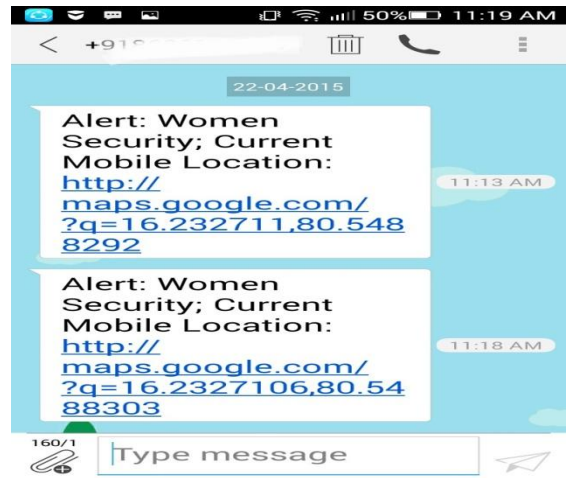


Fig.7. Message received by one of the contacts after five minutes span of time.

Figure 7 depicts the message received by one of the contact devices after five minutes of the start of the application. This mode of tracking the user i.e. getting user's location at periodic intervals for every five minutes will be helpful when the user is moving i.e. if she is caught by the kidnapper and if they are taking her, we can rescue her by knowing the location in this manner. After receiving the message from the user, the URL in the message has to be clicked in order to know the exact location of the user.

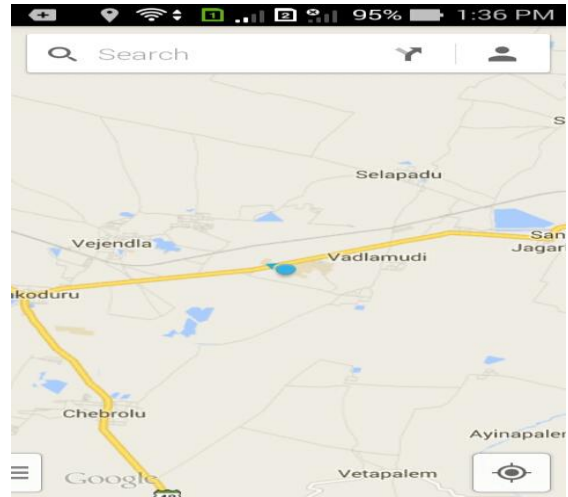


Fig.8. Screen shown after clicking URL in the message received by the contact device.

Figure 8 depicts the Google Maps application which appears just after clicking the URL in the received message. The blue dot in the application shows the exact location of the user.

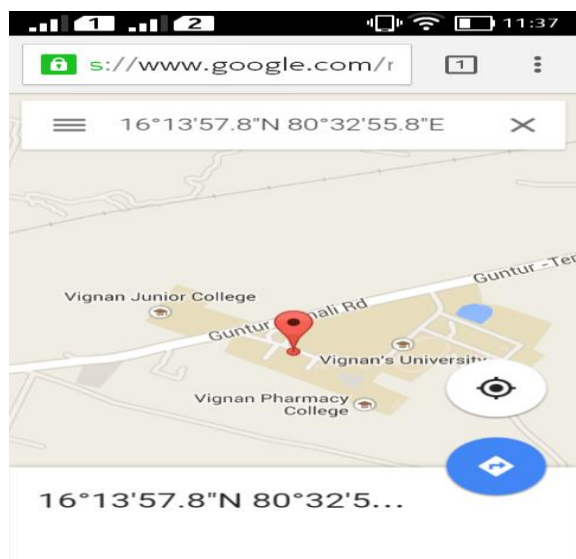


Fig.9. Screen shown after clicking the URL in the message received by the contact device after ten minutes.

Figure 9 depicts the location of the user after five minutes from the start of the application. If we observe, initially just after the start of the app, the user location is at Vadlamudi x-road in Guntur, after five minutes the user's location has changed to Vignan's University.

CONCLUSION

This paper describes the application, Sauver that is designed in android platform for safety of women with the aid of recent improvements in mobile technology. This application helps the tracking of the root device through GPS which will help the law enforcement authorities to rescue the person in danger as quickly as possible from the anti- social elements. For future development, this application can be integrated with the law enforcement database (eg.city police control room database) instead of experimental database used here in the project. Also, some further upgrade can be done when the mobile network is not available for the root device and also if the root device is switched off. Thus, this app can help in a big way to rescue the women or men from unsafe conditions.

REFERENCES

- [1] Doulamis, A.; Pelekis, N.; Theodoridis, Y., "EasyTracker: An Android Application for Capturing Mobility Behavior," 2012 16th Panhellenic Conference on Informatics (PCI), vol., no., pp.357,362, 5-7 Oct. 2012 .
- [2] Saranya, J.; Selvakumar, J., "Implementation of children tracking system on android mobile terminals," 2013 IEEE International Conference on Communications and Signal Processing (ICCSP), vol., no., pp.961,965, 3-5 April 2013.
- [3] Android Developers, Location APIs. URL: <http://developer.android.com/google/play-services/location.html>

- [4] "WOMEN'S SECURITY", Android App developed by AppSoftIndia, December 17, 2013. <https://play.google.com/store/apps/details?id=com.zayaninfotech.security&hl=en>
- [5] "BSAFE-PERSONAL SAFETY APP", Android app developed by Bipper. Inc., March 6, 2015 <http://getbsafe.com/>
- [6] "SAFETIPIN-COMPLETE SAFETY APP" , an Android app developed in January 21, 2015. <http://safetipin.com/>
- [7] "POLIE NEARBY", Android app developed by Big Systems in 2013. <https://play.google.com/store/apps/details?id=com.smoketech.PoliceNearby&hl=en>
- [8] "SCREAM ALARM", Android app developed by GoPalAppMaker in November,2013 <https://play.google.com/store/apps/details?id=gopal.appmaker.android.com&hl=en>
- [9] "TELLTAIL", Android app developed by DIMTS LTD in 2014. <https://play.google.com/store/apps/details?id=com.dimts.ui&hl=en>
- [10] "CIRCLE OF 6", an IOS app developed in April 1,2015 www.circleof6.com