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bSecure for Women: An Android Application

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ABSTRACT: Mobile Technology is the evergreen area since many decades and usage of smart phone equipped with GPS navigation have increased rapidly to more than 90%. In this paper, an attempt is made to concentrate on women safety. This paper proposes a bSecure, a personal safety app developed for smart phones of android application. bSecure means be secure or safe from troulber. This application can be activated by clicking thrice the power button of smart phone when the user (sender) feels unsecure. This application communicates the user's current location to the predefined registered user's (receiver) contact number for every 30 seconds in the form of a text message. If a receiver mobile is in silent mode, it automatically changes to general mode and notifies with a message "I'M IN DANGER..." along with the latitude and longitude address of the sender repeatedly. Another feature of this app is to capture the surrounding image (photo) by shaking the mobile of the sender. This captured image will be sent to the predefined Email of the receiver. The registered contact and GPS location are updated and saved in a database. The proposed app is tested in different location and obtained a satisfactory result.

KEYWORDS: Smart Phone; GPS Location; Latitude; Longitude; Email; Camera; Database.

I. INTRODUCTION

In today's world, it is not safe for women to travel in mid night, because women's don't have strength as men to protect her from threats. The aim of reducing a victim of violent crime (robbery, rape, domestic violence) is to identify and call to help them out in dangerous situations. In these situations, women's may feel difficult in reaching home. So, if users particularly women's are having our apps on their smart phone can diminish their risk and bring assistance when they require it.

In this paper, we have proposed bSecure, an application for smart phones working over android platform. bSecure means be secure or safe from troulber. Our goal in developing this app is to provide a safe environment to women through their smart phone. Of course, the Delhi Nirbhaya case has made the Government to make the laws tougher, but also the sexual crime rate in our country has increased rapidly. So, it is better to take our own safety measures rather than becoming a victim of those crimes.

Our bSecure Android app features is to care for the users and make their journey safe. It also helps to share the location details to predefined contact numbers. The main feature of our application is to provide location tracking functionality to Android devices using SMS. It is easy in such situation to alert the predefined registered contacts instantly. There is no need to switch on senders mobile. Other features are capturing the photos by shaking the mobile and when an alert message is received it automatically changes its profile to general mode. This application locates a device by making a call to the device and fetches its location in the form of the latitude and longitude of that Android mobile. The application also has the capability of authentication to allow the user to share the location details with their receiver through SMS.

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II. RELATED WORK

In [1], authors have developed Easy Tracker, which is a mobile application developed for the Android O/S that enable the storage, analysis and map visualization of routes of mobile users. It also enables the users to manually annotate part of their routes with labels describing their activity and behaviour. Paper [2] focuses on implementing children tracking system for every child attending school. As crime against children is increasing at higher rates, it is high time to offer safety support system for the children going to schools. This system includes a child module and two receiver modules for getting the information about the missed child on periodical basis. In paper [3], a technique is presents to improve anti-theft for android based mobile phones by using different services like MMS instead of SMS. This work is totally dependent on the hardware of the smartphone like camera (front & back) and support for multimedia messages. The advantage of this software is that it is very easy to configure and it keeps running in the background without interrupting the user and also it helps the owner to identify the thief. In paper [4], Child Tracking System using Android phones is developed. This paper develops an android application which is used to track the missing children. The GPS service is used for tracking exact location of Child. The GPS and GSM based systems are used to track the location of Child. In paper [5], a software for a mobile based women safety application is developed. Paper [5] discusses different problems related to women's are considered. In order to overcome such problems faced by women the I Safety (women security apps) mobile application is developed.

In this paper, we are developing the software known as “**bSecure for Women: An Android Application**” by keeping the limitations of the works discussed in the survey.

III. PROPOSED ALGORITHM

A. General Description of bSecure App:

Complete bSecure App is shown in the figure 1. bSecure App is explained in the following steps:

- When the user feels unsecure, our bSecure android app helps to save them.
- An app gets launched by the action of user; the message is been send to the predefined receivers contact numbers.
- The goal of bSecure android application is to fetch the current location of the user and store in a database.
- Data base contains complete address with its latitude and longitude of the user who is in threat.
- The user's message will be fetched from the database and alert the predefined contacts.

APP RUNS

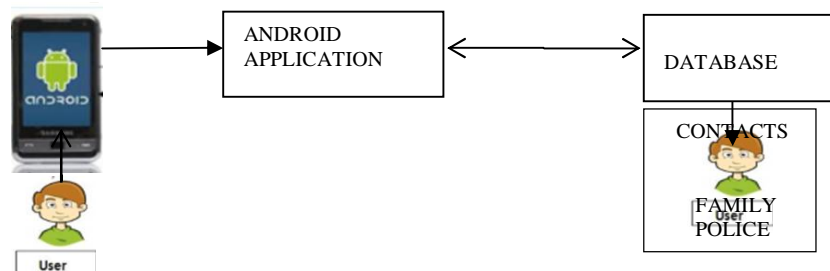


Fig. 1 Block diagram of the b-secure App system

B. Tasks in bSecure App:

Entire bSecure App can be classified into three modules. Each module is explained with the relevant data flow diagram. The three modules are In Emergency, Location info and Shake Me modules. These modules are discussed in detail below.

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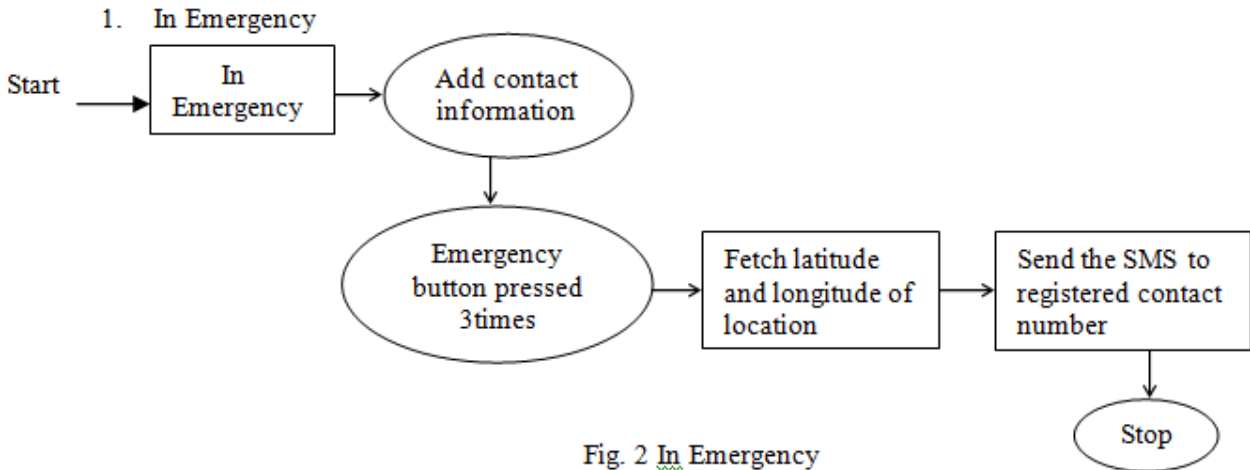


Fig. 2 In Emergency

Figure 2 shows the In Emergency module in bSecure application. Here we need to register the contact numbers. Users press the power button thrice when they are in instant trouble. With the help of GPS, address along with the latitude and longitude gets fetched and sends the SMS to the predefined registered contact numbers. To send SMS we use API called telephony.SmsManager in android.

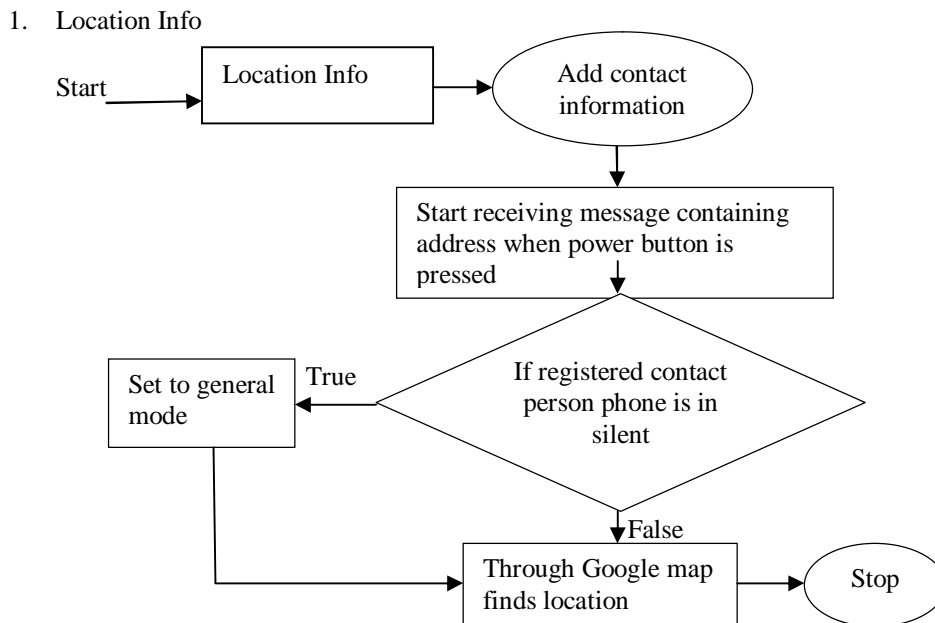


Fig.3 Location Info

Figure 3 shows the Location Info module, here predefined contact person will get an alert message containing address of the current location based on users latitude and longitude when power button pressed by the user. If in case of predefined contact person's phone is in silent it automatically sets to general mode. After receiving alert message they can track the location by using Google map option present in our bSecure app. To track location we use API LocationListener for LOCATION_SERVICE and NETWORK_PROVIDER, API LocationManager to fetch latitude and longitude and API Geocoder to get address based on latitude and longitude.

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3. Shake Me

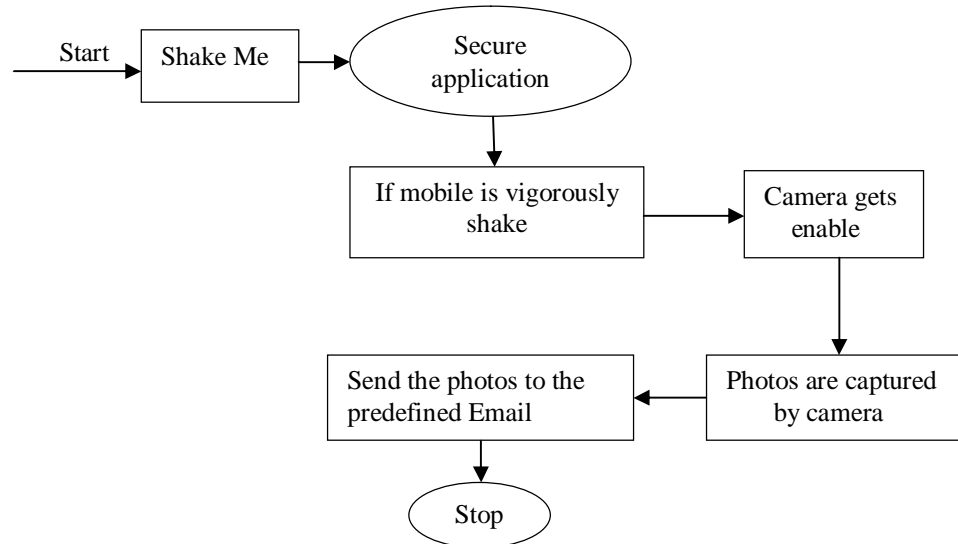


Fig. 4 Shake me

Figure 4 shows the Shake Me module in bSecure application. If mobile is shaken vigorously then camera gets enabled and starts capturing the photos of the surrounding. And these photos will be sent to the predefined Email. Hence, this module will be evident proof for the public sectors. For this module we use API's like hardware. Sensor, hardware. Sensor Event, hardware. Sensor Event Listener and hardware. Sensor Event Manager. We use hardware. Camera Info for the enabling camera in mobile. To send surrounding captured photos of sender to valid predefined Email we use API called javax. mail. internet. Internet Address.

IV. PSEUDO CODE

- Step 1: bSecure app gets enable.
- Step 2: Register the contact details in both In Emergency and Location Info module.
- Step 3: When user's is in trouble, they send SMS by pressing power button thrice.
- Step 4: If receiver mobile is in silent mode it changes to general mode.
- Step 5: Receiver gets alert message "I'M IN DANGER" with GPS location and shows location map option directly
If app is installed in both sender and receiver mobile.
- Step 6: If app is installed only in sender mobile but not in receiver then they will get only a message with address.
- Step 7: When user shake a mobile vigorously, the camera gets enabled.
- Step 8: The photos will be captured and send to the predefined Email.
- Step 9: End.

V. EXPERIMENT RESULTS AND DISCUSSIONS

We have developed an android application called "bSecure App". It is intentionally designed for purpose of security or safety for a woman in the current generation. We have used Java in Eclipse as the programming language to develop the bSecure App. This app can be used in both urban and rural areas. We have conducted an experiment on our app in our college campus "P.E.S College of Engineering, Mandya-571401" and successful results were obtained. This app has also been checked in other places like "Santhemarahalli, Chamarajanagara dist., taluk, Karnataka-571115" and successful results were obtained. It works throughout all the networks. The experimentally tested screenshots of our app results from figure.5 to figure.15 has been shown below.

The Figure.5 shows our app launch screen and it contains logo of our app. The main screen of our app is shown in Figure.6 which includes three modules such as Location Info, In Emergency and Shake Me. Before using our app

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sender has to register his contact person name and number as shown in figure.7. After completion of registration we will have a screen that is shown in figure. 8, where it contains name, number and action button to delete contacts. Figure.9 shows In Emergency contact register screen, where sender has to register contacts before sending predefined message to receiver. If they do not have our app then they get normal message from sender as shown in figure.10 after pressing power button thrice by sender. If receivers have our app then normal message as well as location details screen will get as shown in figure.11. For every 30 seconds message goes to receiver until sender stops as shown in figure.12. After enabling shake Me screen like figure.13 sender has to shake his mobile vigorously to capture photos. Figure.14 is the captured photo of the sender surrounding. That captured photos will be sent to predefine Email as shown in figure.15.



Fig.5 App launcher screen



Fig.6. Main screen

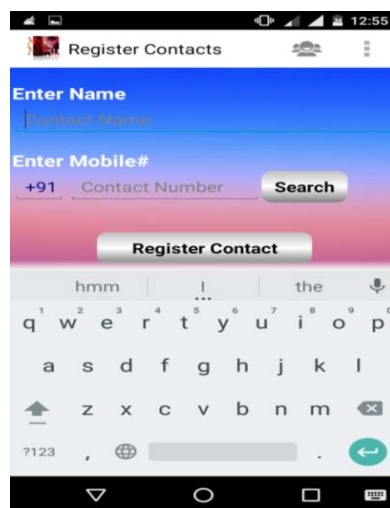


Fig.7 Register contact screen

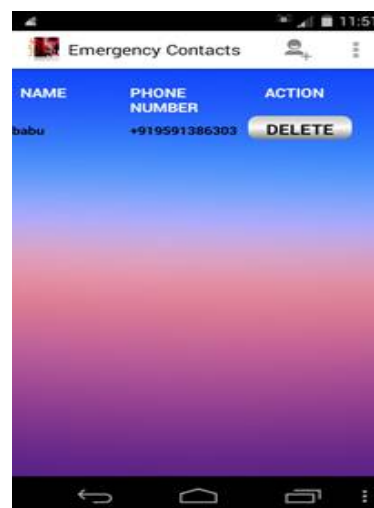


Fig.8 Registering contact details

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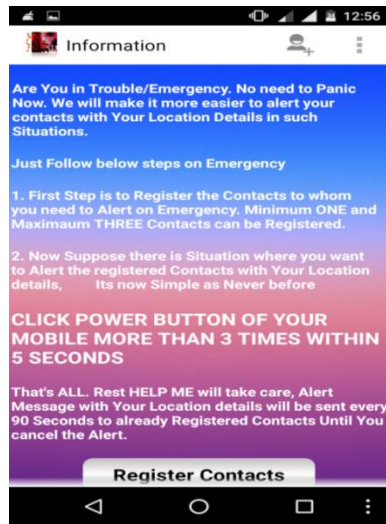


Fig.9 In Emergency contacts register

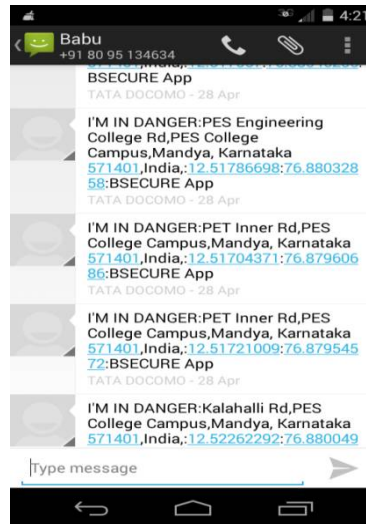


Fig .10 Received messages

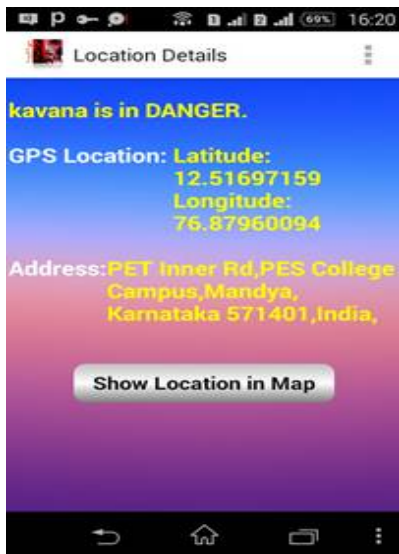


Fig.11 Location details



Fig.12 Stop alerting to send message

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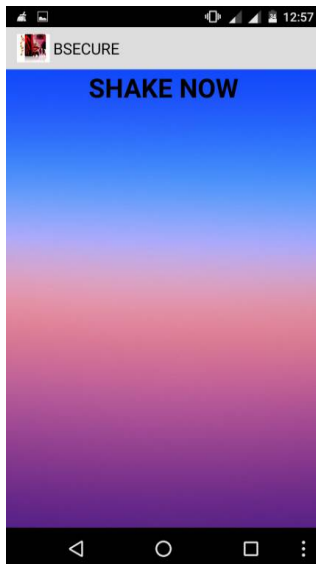


Fig.13 Shake Me screen



Fig.14 Photo captured

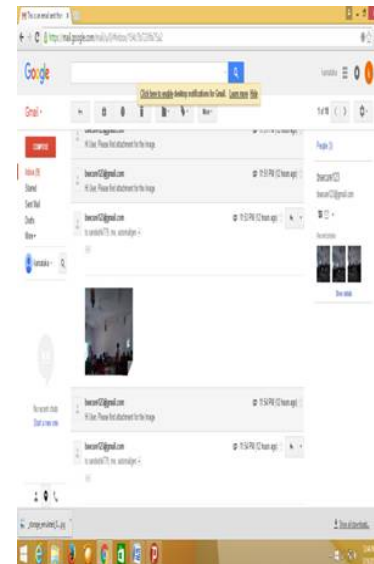


Fig.15 Photo send to Email

VI. CONCLUSION AND FUTURE WORK

Now a day's women are facing many problems like rapes, robbery and sexual assault. These victims of violence have been increased rapidly day by day in our country. Thus women's hesitate to come out of home. They are mentally becoming weak to handle any such situations and populations of women's have been decreased. Hence, our bSecure app will help them to overcome the above problems. The proposed app is tested in different location and obtained a satisfactory result. In future work, we are trying to enhance our app by using the offline map to track the location.

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BIOGRAPHY



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