



Sherlock: Women Safety Application

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Abstract:

The safety of women is a concern of increasing urgency in India and other countries. The primary issue in the handling of the cases by the police lies in constraints preventing them from responding quickly to calls of distress. The constraints include not knowing the location of the crime, and not knowing the crime is occurring at all: at the victim's end, reaching the police as surely and discreetly is a challenge. To aid in the removal of these constraints, this paper introduces a mobile application called Sherlock App (Women's Safety App: Sherlock). App provides women with a reliable way to place an emergency call to the police. The user can easily and discreetly trigger the calling function by shaking her phone 4 times within or by explicitly interacting with the user interface of the application via a simple press of a PANIC button on the screen. A message containing the geographical location of the user and a phrase indicating that the user is in distressed situation, audio of that particular panic situation, pictures captured, is immediately sent to the police. This application will send the user's location to the registered contacts for every few seconds in the form of message. The registered contacts and GPS location are saved from time to time in a database.

Keywords: apps, android, mobile, safety, women.

I. INTRODUCTION

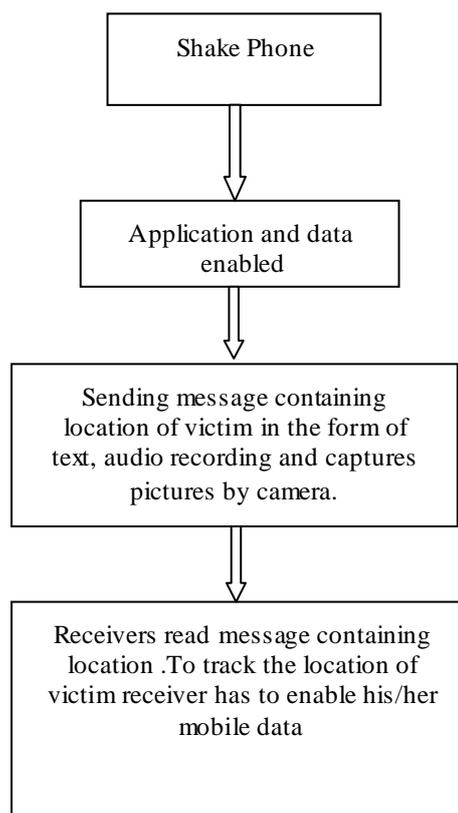
An easy way to comply with the conference paper formatting requirements is to use this document as a template and simply Every day, women are assaulted, molested and violated on the streets of their own cities. Violence against women happens all over the world, particularly in developing countries. This violence can take many forms: physical, sexual, or psychological. Physical assault on women involves the use of force to injure or endanger them. Psychological abuse results in psychological trauma, which could manifest as chronic depression, anxiety, or post-traumatic stress disorder. The above all have severe consequences on a woman's physical and mental well-being.

An app is a small, specialized software program, easily downloadable and installed onto mobile devices such as Smartphones. In this paper, app created to know whether a woman is safe or not which indicates the present state of affairs of the woman by shaking phone which also indicates the location of the endangered woman. The application gives audio, pictures captured. The rest of the paper is organized as follows. A proposed system is presented in section 2 followed by system architecture in section 3. Results described in section 4. Finally, the paper is concluded in section 6.

II. PROPOSED SYSTEM

This system will provide safety to women by mobile android application which enables mobile data over a wireless network. This will be done just by shaking mobile. After the data and app enabled the message containing location will be sent to receivers. The app also captures the pictures and records audio of that particular panic situation. Receivers may be saved into victim's emergency contact at the time of registration to app.

System Flow:



III. SYSTEM ARCHITECTURE

We propose a system in which user have register first. For that she has to enter her details including three tracker numbers. After the successful registration user have to get login by entering username and password. Application can also be enabled just by shaking phone i.e. without getting login to it. Also we are providing SOS panic button in this app. The user can also send message to receivers by pressing on SOS button.

The databases related to victim that is victim's email id, phone number, tracker's phone numbers, and any other updated information will be stored at web portal. The police and preselected emergency contacts get continuous notifications. All these notifications are stored into databases. Not only message but also the pictures captured and recorded audio will be sent to receivers. The messages will be sent in a queue. If network gets fail, receivers can get messages after getting back to network since messages are sent in a queue.

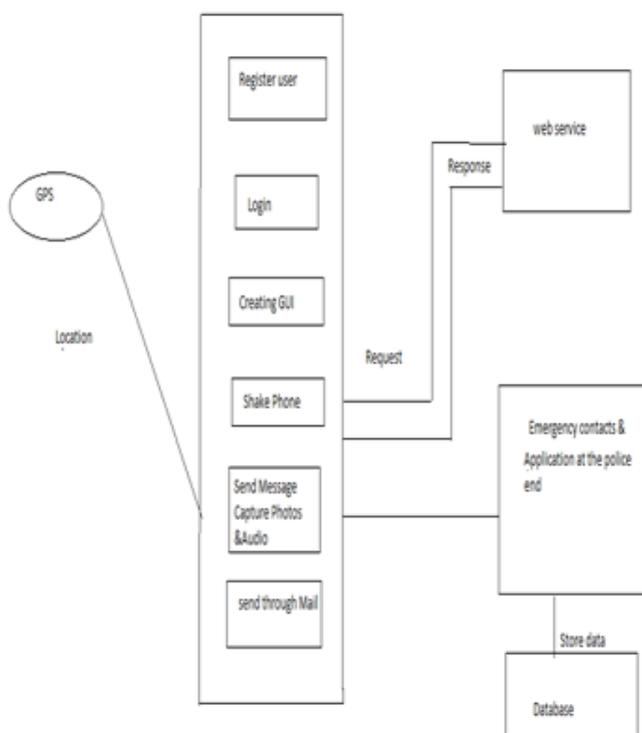


Figure.1. System Architecture

Algorithms used to find GPS location and receivers at shortest distance.

A. Trilateration

In geometry, a trilateration is the process of determining absolute or relative locations of points by measurement of distances, using the geometry of circles, spheres or triangles. In addition to its interest as a geometric problem, trilateration does have practical applications in surveying and navigation, including global positioning systems (GPS). In contrast to triangulation it does not involve the measurement of angles. In two dimensional geometry, it is known that if a point lies on two circles, then the circle centers and the two radii provide sufficient information to narrow the possible locations down to two. Additional information may narrow the possibilities down to one unique location. In three dimensional geometry, when it is known that a point lies on the surfaces of three spheres, then the centers of the three spheres along with their radii provide sufficient information to narrow the possible locations down to no more than two. (unless the centers lie on a straight line) Fig. 1, The plane $z=0$, showing the three sphere centers, P1, P2, and P3; their x, y coordinates; and the three sphere radii; r1, r2 and r3. The two intersections of the three sphere surfaces are directly in front and directly behind the point designated intersections in the $z=0$ plane.

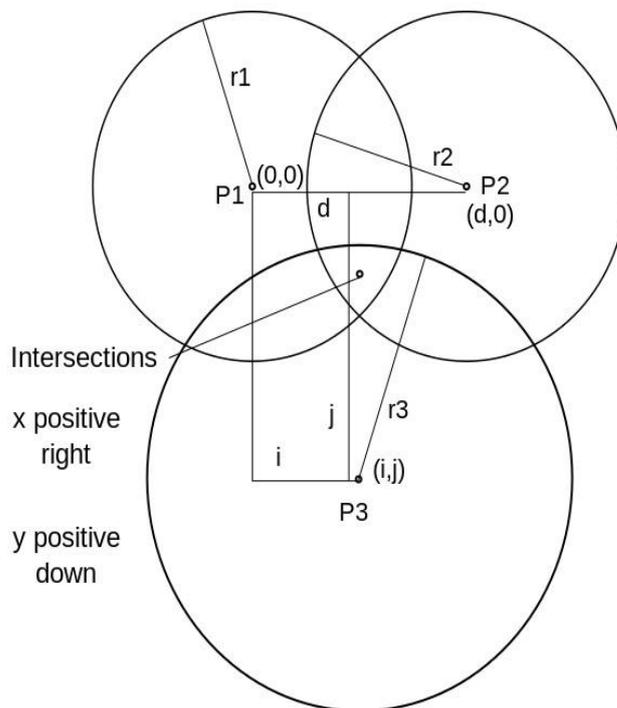


Figure.2. Trilateration

B. Haversine

The haversine formula determines the great circle distance between two points on a sphere given their longitudes and latitudes. Important in navigation, it is a special case of a more general formula in spherical trigonometry, the law of haversine that relates the sides and angles of spherical triangles.

The Haversine function is given by :

$$\text{haversine}(\theta) = \sin^2\left(\frac{\theta}{2}\right).$$

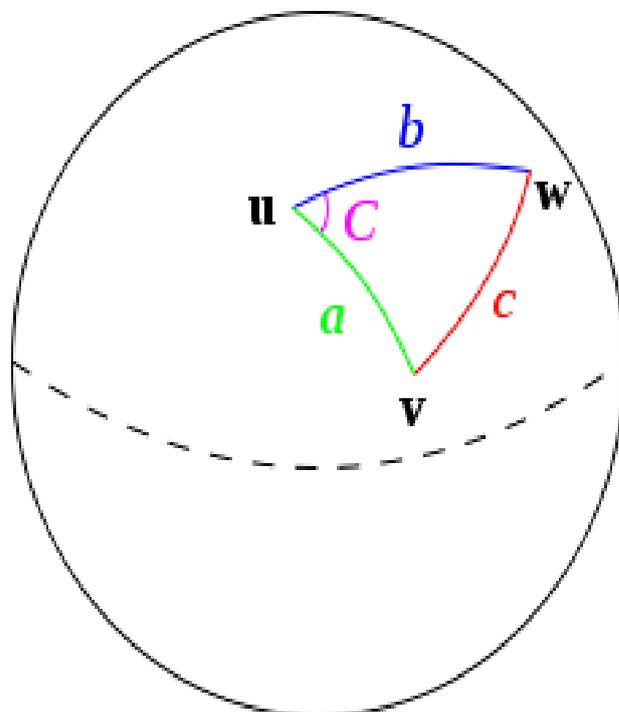


Figure.3. Spherical triangle solved by the law of haversines

IV. 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 This app icon can be placed anywhere on

the home screen of the smart phone. After pressing on this app we will get following screen shown in fig.4.



Figurer.4. layout after pressing on app

In above, we have to enter the username and password. After pressing on LOGIN button, application screen depicted as shown in fig.5&6 below.



Figure.5. Registration form

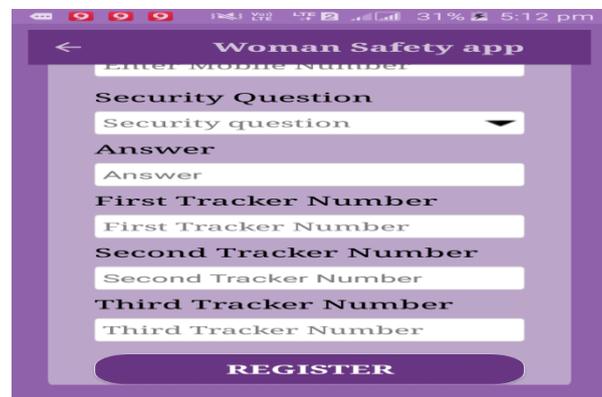


Figure.6. Registration form

After completion of registering the contact details, app will display SOS button shown in fig.7 below.



Figure.7.SOS button

By pressing on profile here we can change password, change tracker number, change number and logout. This layout is as shown fig.8 below.



Figure.8. change number and logout

Figure 9 depicts the message received by receivers which includes some text and location.

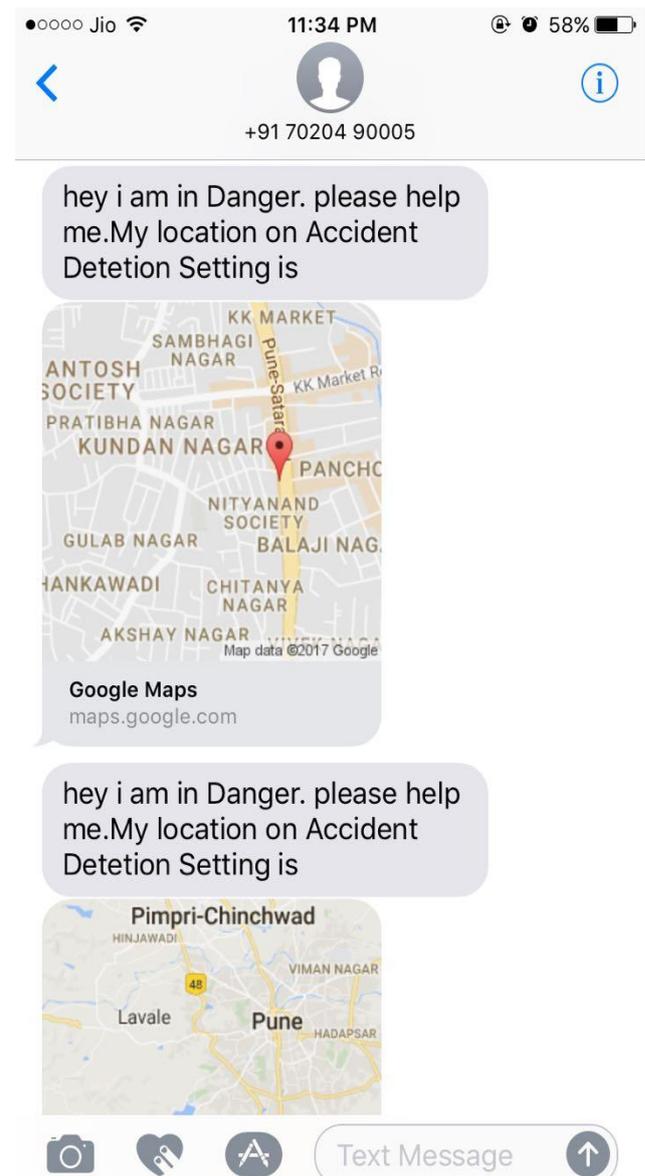


Figure.9.Text message

Figure10 shows GPS location of victim



Figure.10.GPS location

V.CONCLUSION

This paper described a mobile application we have developed to promote women's safety: Sherlock Sherlock is a straightforward method for a woman to send message when in panic situation. All the user must do is shake the phone repeatedly, and an emergency message containing her GPS coordinates and pre-selected emergency contacts is immediately and automatically sent to the police and other receivers. The police receive message including the location of the crisis is plotted on a Google Maps interface at their station. This clear-cut sequence of events ensures that help can be provided to women in crises as quickly as possible. Our application ensures that questions regarding the user's location or whom to contact, as well as confusion at police stations regarding where the officers must be dispatched from, do not arise. As college students, we strongly feel that it is our moral responsibility to give back to society in the best way we can, and that desire shines strongly through the application we have created. We are committed to reaching as many women and children as possible via these abuse-prevention services in

the hopes of truly making a difference. This application interface is very easy to use.

V.REFERENCES

- [1]. Dhruv Chand, Sunil Nayak, Karthik S. Bhat, Shivani Parikh, Yuvraj Singh, Amita Ajith Kamath National Institute of Technology Karnataka, Karnataka, India 978-1-4799-8641-5/15/\$31.00 c 2015 IEEE.
- [2]. Dhruv Chand, M.Sankarayanan, S.;Sharma,C., "Project Jagriti Crowdsourced child abuse reporting", Global Humanitarian Technology Conference (GHTC),2014 IEEE,vol.,pp.609,613,10-13 Oct.2014 doi:10.1109/ GHTC.2014.6970346
- [3]. National Crime Records Bureau (Ministry of Home Affairs), "Crime in India 2012 Statistics", "Government of India Press, June 2013".
- [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>