

A SURVEY ON ANDROID APPLICATIONS FOR PERSONAL SECURITY

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Abstract— An application, used in emergency situations such as kidnap, accident, the person is following somebody or in case you get lost. No one has the time to dial an emergency number when they are in danger. In Existing System, there are many applications for finding GPS location and send it to dear ones (Parents or Friends) mobile number, but it has many drawbacks, firstly it doesn't give the details affected user (image). Secondly, there is no trust ability for data, if parents or friends are away from that location, then the whole process will be failed. Hence it is proposed a system for people safety. If the user touch the application, within few seconds the app will executed automatically. It automatically turns on the camera and capture environment image. Then it picks up the user's exact GPS location (Current position) and shares the environmental image along with the location to the nearest helpers (Ambulance, Police Station...etc) and also the main feature is that the helper will get the details (Image, address and personal information). Because of this feature fake details can be avoided. In the proposed system, the nearest helpers can be detected using cloud crawling according to the affected users.

Key words— GPS location, environmental image, nearest helper, trustability, user details, cloud crawling.

I. INTRODUCTION

Safety is major issue in India and also in other countries especially for women. In the current scenario it is very much essential to save women from harassment and violence. Though Government has provided safety through rules and regulations security is a major concern. We are living in modern India things has changed a lot in all fields like education and medical facilities, the positions that women are holding but the only thing which has not changed is the safety of women. Almost every day when we pick up the morning paper, we shiver reading about the young woman who is physically assaulted. This happens in a local mall, a parking or at school. Women have reached everywhere in every field but still safety is not assured for them. Women in India a better half of Indian society are becoming the most helpless section as far as their safety and security is concerned. It is ironical to note that such incidents are not actually rare in our country. In current scenario security for women is a major concern. There is no one without Smart Phones; this can help the one who is in danger to stay in contact with their friends, relatives and family members at anywhere and in anytime.

Android is widely used platform in smart phones and it is user friendly. It provides features like, Wi-Fi, high resolution camera, touch screen, GPS navigation which helps the mobile phone users to keep in touch with the modern world. Android is a software stack for mobile devices. It includes an operating system, key applications and middleware. Android provides access to useful libraries and tools that used to build rich applications. Thus user can use android applications developed and at times of emergency, one can save them. There many applications developed to provide safety through SMS, GPS, call, voice recognition, alarm and button press.

Hence a system can be proposed as a personal security application. When the user touch the application, within few seconds the app will be executed automatically and turns on the camera in

order to capture the environment images (user surroundings). The scenario is depicted in the following figure1.

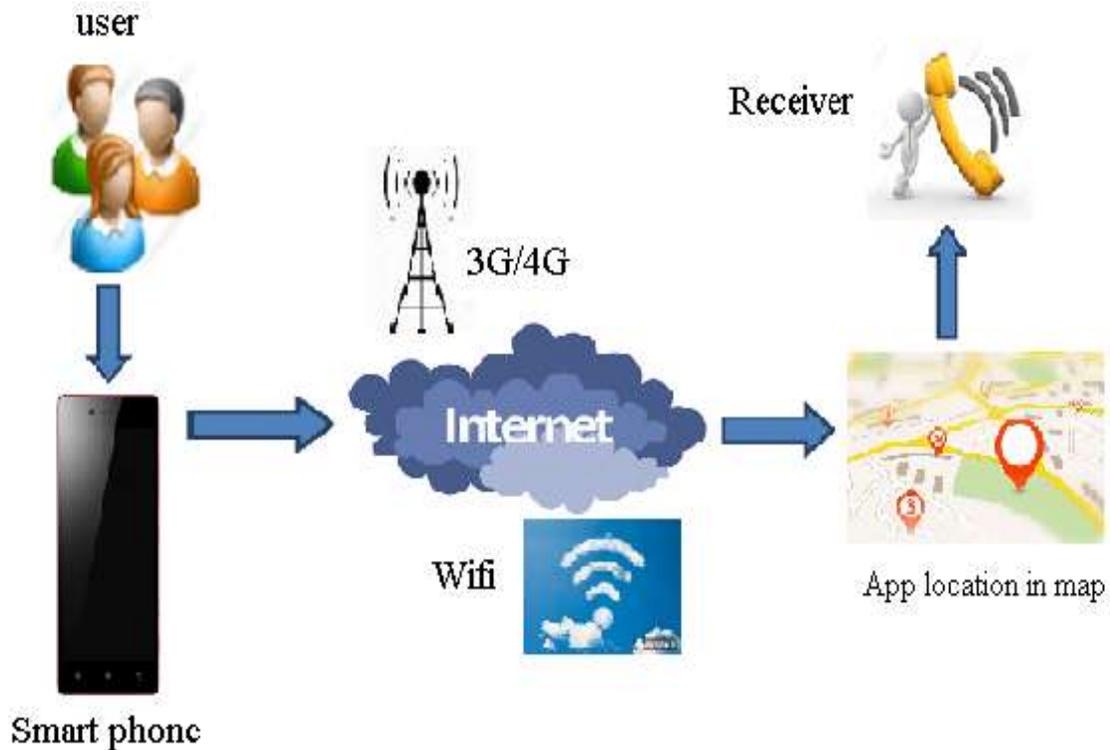


Figure 1. System architecture

The app picks up the user's exact GPS location (Current Location) and shares the image along with location to the nearest helpers (Ambulance, Police Station...etc.).The main feature is that the helper will get the details of user (Image, address and personal information) inorder to avoid or prevent fake details. The nearest helpers can be detected using cloud crawling according to the affected users.

II. RELATED WORK

As a part of literature survey, some applications are investigated that offer safety for user. In today's world smart phones play an important role for safety of a person. Some apps for security purpose are as follows

Hollaback[1], this application was developed to avoid street harassment. It takes the snapshot of harasser and uploads it in "ihollaback.org". The tag line of this app is "Hollaback! You have the power to end street harassment". The disadvantage is that immediate help is not provided, hence no self-protection. In case of danger the victim may not have time to capture the harasser photo.

VithU[2], this application runs when the power button is pressed twice and every 2 minutes user's location link will be tracked. This information is sent to the registered contacts. It sends a alert to one of the registered contacts if there is too much trouble. The disadvantage is that it doesn't provide features like abstracting information about Police Stations & Hospitals.

Fight Back [3], this app is technologically advanced by Mahindra group. In prior days, it was an payable app. Later Mahindra group made it free .this app sends a message that "user is in trouble" to dear ones (registered contacts) through E-mail and SMS.

Guardly [4], this application provides facility for user to put a call by your name and location to selected friends. It collects prior information from the user such as date of birth tallness, weight, blood-group, hair-color, etc.

Life 360 [5], this app informs friends and family at times of emergency. This app helps to recognize about your family on a personal map whether they are safe or not. And shows recorded crimes and sex offenders in that location.

Vanitha Alert [6], this app has a button HELP, when clicked sends distress text message to registered mobile number, E-mail, face book id seeking help along with user's location.

Raksha [7], this app sends location of user to registered contacts. At times of distress just by pressing single key it sends a loud buzzer to dear ones and also when there is no data connection this app alerts by sending SMS.

Street Safe [8], this app will call a community for help. An alarm and call must be initiated by pressing buttons. It updates location on face book and sends SMS to registered contacts.

Women's Security [9], this app records environmental voice for 45 seconds and then sends a text message containing user's location co-ordinates and recorded voice to addressee mobile number.

B-safe personal safety [10], this app is based on slogan "Never walk alone". It helps user to choose guardians in prior and sends a SOS message to the guardians and makes a call to one of the guardian in dangerous situation.

Safetipin [11], this app has GPS tracker, emergency key contacts and directions for safe house. It distinguishes between safe and unsafe Zone. Hence user can get prior information about the menaces in area he/she is wishing to go and take possible safety measures.

Scream Alarm [12], this app provides very loud volume of Scream (women's voice with agony). Whenever the user touches or pushes the app, the phone screams with loud noise which disheartens the attacker or strong trouble maker.

In [13], Kavita Sharma et al. describes about safety and security of women by using electronic device to both detect the problem & alert Authorities. The authors suggest a new perspective to use technology to protect women that is GPS and GSM based "Women Security System" app that provides the combination of GPS devices as-well-as provides alerts and message with an emergency button trigger. At times of danger the user has to press volume key button after which an alert message is sent to register contacts and a voice call to the first registered contact. The alert message is "I AM IN TROUBLE PLEASE HELP ME". The project was developed in Android which provides the level of reliability, availability and compatibility.

In [14], Arsha Saini et al. dealt with security of human beings and proposed Android Attack Application, an intelligent alert system that protect people from any kind of attack. If victims feels unsafe and helpless at any time then by pressing any key of mobile the alert message is send to friends, family members, police control room, ambulance which are in emergency list. The alert message will contain victim's entire location, place, images and video of that location which are taken by camera of her mobile.

In [15], Saleem Pasha et al. have developed bSecure a personal safety app. This application was developed with a focus on women safety. Whenever the user feels insecure they can use this application to be safe. When the user clicks the power button 3 times, the app activates and for every 30 seconds it sends the user's current location to the registered contact number in the form of SMS. If the helper's mobile is in silent mode, it automatically changes to general mode with a notification message "I'M IN DANGER..." to the address of the user repeatedly. Another feature is that it captures the surrounding environmental images by a single shake of the mobile. This captured image will be sent to the Email of the receiver. The registered contact and GPS location are updated and saved in a database.

In [16], Akshata V.S. et al. have proposed an application called B'Safe&B'Secure which ensures both safety and security for women. Android application was developed to provide safety for women. The unique feature of this app is that if the user is in trouble and doesn't have internet connection at that time, the user's current location will be sent to the registered contacts as text message using SOS technique and in case of emergency, the user can trace the location and contacts of nearby police stations using GPRS.

In this paper [17], Akshay Moorth et al. have proposed an idea to create an Android application that uses GPS to find people nearby (helpers). It allows helpers to track the user, using real time GPS tracking. It also alerts the police to provide assistance for user, while in danger.

In [18], Divya.S et al. have discussed about the “GO SAFE” android application which is focused to provide women safety. When the power button or volume button is pressed an alert message containing user’s location is sent to registered contacts. Also, the registered contacts and GPS location are saved from time to time in a database.

In [19], Dr. Sridhar Mandapati et al. have developed an android application called I Safety. This app works with the push of one button, an alert message that shares the location to selected contacts through SOS message at times of emergency. It also provides necessary first-aid measures that should be taken at the time of some dangerous situations and fake call option to escape from unnecessary conversation with hang-up provision.

In this paper [20], Akansha Raj et al. describes about an emergency notification application for mobile devices. This application has an interface which is capable of sending emergency notification messages. The application implements a location awareness system which gives the user’s current location, sends this location using Short Message Service (SMS) and shares location with dear ones and the voice recording is saved in the database for future reference. At first the user shares his/her location with the server from where other users can get this location if they have the authentication provided by the user.

In [21], Bramarambika Thota et al. have proposed Sauver, a personal safety android application. This app works with a single click and sends SMS notification containing location of user to the registered contacts for every few seconds. One of the registered contacts will get a call. Also, the registered contacts and GPS location are saved in the database from time to time. Also the author briefs about the usage of smart phones equipped with GPS navigation has rapidly increased over past five years and hence they developed this application that can provide security.

This paper [22], Dinesh Raut et al. elaborates the enhanced functionality of the emergency call for android. The application must be activated before one might get into an emergency situation i.e. before walking alone through a tunnel. Then the user has to press a button or touch on the screen. As soon as the finger is lift from the screen, the device will send an emergency call or message to a family, friends, doctors, and police with the exact current location.

In [23], J.Nagaraju et al. dealt with emergency situations in which woman can press an emergency button which will activate the GPS for location tracking and SMS is sent to the police and family members along with time. This prevents the increase in regular kidnap and chain snatchings. They are providing three methods of Safety and security for women using LPC2148 ARM7Microcontroller. Alertness will be sent to the existing contacts through GSM technology by all the three methods. The purpose of using GPRS is that to track the location and position.

In this paper [24], Prof. Basavaraj Chougula et al. suggests a new perspective to use technology to protect women. The system resembles a normal belt which when activated, tracks the location of the user using GPS and message is sent with through GSM to three registered contacts and the police control room. The system also includes a screaming alarm that uses real-time clock in order to call out for help. It also generates an electric shock for self-defense and to injure the attacker. The user does not need any smart phone like other applications. The use of sophisticated components ensures accuracy and makes it reliable. The belt provides security to the victim in any kind of emergency situations.

Stay Safe is an innovative safety application that provides assistance for women, senior citizens and anyone in an emergency situation.

In this paper [25], Mr. Indrajeet A. Mane et al. have proposed a new model for the women security in public places which aims to provide the 100% safe environment. This paper describes “Stay Safe Application” that provides the combination of GPS device and specialized software to track the location of user for providing alert messages along with images captured. The victim’s information provided by the device can be viewed on Google maps using Internet.

In [26], Isha Goel et al. present an android application called “Vsecure”. It provides safety and security for 24x7. It is mainly developed with a unique approach for strengthening woman’s personal

security and safety. This application is also helpful for older people, senior citizens and children. It is a button based app that generates an emergency alerts to the caregiver, including Police Station ,hospitals or Fire Station so that the user can easily get an instant help.

Women Safety Application [27] can be used to help women, who are in emergency danger. In this paper, N. Saranya et al. have developed an android application that shows the exact location of the user to helpers (relatives, guardian and friends). Women Safety Application system offers the added protection of being tracked by relatives on different time interval and different location. In the addition to this family, parents can also easily track and monitor their beloved ones.

III. SUMMARY OF SURVEY

The application are compared based on criteria’s like location tracking, emergency contact list, notification , audio/video recorder, image support, fake call provision and download cost. Majority of the applications use GPS for location tracking and GSM for voice call. Mostly all the application sends alert message through SMS and SOS. Stay safe app provides fake call option with hang-up provision. Certain applications only support image capturing feature and audio/video recording for few seconds. All the applications are free to download except Stay safe app. Almost all the applications have limited contacts in emergency list, only I safe and Vsecure app can have unlimited contacts.

Table 1. Summary of the survey

Author / Criteria	Location tracking	Audio/video Recorder	Contacts in emergency list	Notification	Image Support	Fake call feature	Download cost
Kavita Sharma et al [13]	GPS & GSM	No	limited	SMS & Voice call	No	No	Free
Arsha Saini et al [14]	GPS	Audio & video	limited	SMS	Yes	No	Free
Saleem Pasha et al [15]	GPS	No	limited	SMS	Yes	No	Free
Akshata V.S. et al [16]	GPRS	No	limited	SOS message	No	No	Free
Akshay Moorthy et al [17]	GPS	No	limited	SMS	No	No	Free
Divya.S et al [18]	GPS	Audio	limited	SOS message	No	No	Free
Dr. Sridhar Mandapati et al[19]	GPS	Video	unlimited	SMS	No	Yes	Free
Akansha Raj et al [20]	GPS	Audio	limited	SMS	No	No	Free
Bramarambilka Thota et al [21]	GPS	No	limited	SMS	No	No	Free
Dinesh Rautetal [22]	GPS	No	limited	SMS & Voice call	No	No	Free
J.Nagaraju et al [23]	GPS	No	limited	SMS	No	No	Free
Prof. Basavaraj Chougula et al [24]	GPS & GSM	No	limited	SMS & Voice call	No	No	Free
Mr. Indrajeet A.Mane et al [25]	GPS & GSM	No	limited	SMS	Yes	No	\$6.99
Isha Goel et al [26]	GPS	Audio & video	unlimited	SMS & Voice call	No	Yes	Free
N.Saranya et al [27]	GPS &	No	limited	SMS	No	No	Free

IV. CONCLUSION

This paper describes an android application for personal security application that is designed with recent improvements in android and mobile technology for personal safety. Thus it can be used in

emergency situations providing confidence to user and effective solution. For future development emotions and pressure sensor can be used to detect dangerous situations.

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