

Women Security Application

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Abstract: *In the present scenario, women are keeping pace with men in every walk of life but unfortunately at cost of being subjected to abuse, harassment, and violence in public and even at their own houses. They cannot step out of their houses at any time of the day, cannot wear clothes as per their will, nor can they even go to work in peace. To provide security to the women from strangers in any situation. In this system user needs to feed three contact numbers, in case of an emergency on moving the phone up and down thrice, the system sends SMS and calls to one of the numbers fed into the system with the location. The Android SDK gives the instruments and APIs used to create applications on the Android stage utilizing the java programming language. Ladies in crisis use a voice-based contact list, they can work the application through voice and make the call when required. It permits sending short instant messages between cell phone gadgets. Voice acknowledgment is the fundamental procedure of this application..*

Keywords: Safety app, Women Safety Application, Android, SOS, GPS Tracking

I. INTRODUCTION

While the government has taken many steps, the crime rate against women is not minimized [3]. It is growing daily at a shocking rate. Eve teasing, harassment, molestation, rape, domestic violence, and abduction is becoming a part of everyday life. Many women's safety applications have been made to handle this emergency [1]. Here we are introducing an android app that ensures women's safety and minimizes danger by identifying the position of the person at risk.

Android is a mobile operating system based on a modified version of the Linux kernel and other open-source software, designed primarily for touch screen mobile devices such as smartphones and tablets. Android is developed by a consortium of developers known as the Open Handset Alliance and commercially sponsored by Google. It was unveiled in November 2007, with the first commercial Android device, the HTC Dream, being launched in September 2008.

We introduce an app that ensures the safety of women. This helps to identify and SMS on resources to help the one out of dangerous situations. This reduces risk and brings assistance when we need it and help us to identify the location of the one in danger. The Android SDK gives the instruments and APIs used to create applications on the Android stage utilizing the java programming language.

Ladies in crisis use a voice-based contact list, they can work the application through voice and make the call when required. It permits sending short instant messages between cell phone gadgets. Voice acknowledgment is the fundamental procedure of this application.

The main functionality of the app is, at first user has to make sure that the app is on when she steps out. Whenever any unfortunate event occurs, she has to press SOS or can scream to give the voice command for starting the main function of the app. After starting the main function, it will send an emergency message with the victim's current location to the registered contacts. And also, it will make a call to the helpline number. At the same time, it will start audio recording. The app can do live streaming so that the registered contacts can see the victim's current location from time to time. We have also kept an offline system. After the work is done with the app, the user has to turn it off to stop its functionality.

II. RELATED WORK

There is an app called "Raksha-women safety alert". This Raksha app has been made for women's safety so that a woman will always feel safe. It sends alert messages with the location to the specified contacts [5].

Here is another app named "I Go Safely" [6]. This application sends a 30 seconds audio recording and video clip to the registered contacts along with the emergency message. The app is activated if the user shakes the phone or will drop the



phone. But if anyone shakes the phone mistakenly it will start working which can make unnecessary problems. Similarly, to this, there is another app named shake to Alert" [9]. Another example of an application is named "Safety pin". The application has some features like emergency contact numbers and GPS Tracking. At the time of danger, the app pins the safe areas along with their security scores to go. It allows users to identify areas that are potentially unsafe to help others [4].

After studying some papers including the apps mentioned above, we got to the fact that, though various applications serve the same purpose as ours, they lack some features. For example, some send the location URL but cannot show safe places; some can do live streaming but cannot do any recording to keep evidence, etc. These facts led me to think about making a new application that has all those features altogether to guarantee a safer life.

III. LITERATURE SURVEY

With the concern of saving women from heinous crimes like molestation, many safety applications have been developed. Some of such applications offer solutions for atrocities of women using mobile buttons while some applications are designed in the form of hardware gadgets with sensors and microcontrollers etc. [2]. Many systems use technologies like SOS (Save our souls) message, GSM (Global System for Mobile), and WiFi (Wireless Fidelity) networks for message communications. We reviewed some previous solutions for women's safety which are explained further.

Nadafet al., 2014 [6] developed an Android application called "B 'Safe & B' Secure" for women's security. If the user is in trouble, the information is delivered to the saved contacts along with the victim's location with the help of the SOS technique. The distinctive feature of this application is that it works in the absence of an internet connection.

Ansari et al., 2016 [7] proposed a smart portable device for the safety purpose of women that sends a message and live video to preset contacts. Force sensor, Raspberry pi as a microcontroller, and GPS/GSM module are used to pre-program the device. The gadget gets activated by pressing the panic button which can produce a high sound buzzer in the surrounding so that nearby people can help the victim.

Gaonkar & Megashree 2017 [11] developed an IOT Product in the form of a smartwatch namely "SAVVY BAND" for women to track their motion in case of emergencies. This device collects information from body parameters like vibrations of the hand and body along with the body temperature. The sensor measures overall sun-situated UV irradiance, the aggregate of the fragments of sun-controlled UV transmitted particularly, and those scattered in the atmosphere. The device sends the coordinates of the victim in need to the nearest police station requesting immediate action. Abhipriya et al., 2017[11] designed a prototype using an NS2 simulator for women's safety in cognitive networks. In this prototype an eternal location tracking via message is sent to the secondary users after every two minutes. Nevertheless, if an unfortunate event happens in a remote area that is out of frequency, then this application cannot work.

Vahini & Vijaykumar, 2017[13] proposed two wearable devices; wrist watch and a locket camera which have some extra features like Geo fencing and a camera in a locket that can take the picture of the attacker when the SoS button is pressed. They proposed a methodology in which a woman has to press a button for two seconds and an alert message and the attacker's picture will be sent to all stored emergency contacts.

Sravani et al., 2017 [12] have developed a prototype comprised of Arduino UNO, Flex Sensor, GSM, GPS, screaming alarm, Shock generating circuit and tear gas activation mechanism. The device gets activated when the flex sensor produces a trigger signal. The place of the victim will be traced and a message will be sent to the crisis contacts. On actuation of the caution, an alarm sound will be created to get out for help. The shock-generating circuit starts generating shock to the attacker allowing the victim to escape from the situation. The tear gas mechanism may avoid the attacker by spraying the tear gas which helps the victim to escape instantly.

Pande et al., 2018 [3] have proposed a software application namely "Helping Hands" that helps the victim in peril by sending messages of the user's location to the registered contacts. It has different options out of which the panic button sends a danger notification as an instant message to the enlisted contacts. Vijayalakshmi MM, 2018[5] has proposed a smart wearable band that consists of sensors that will measure different parameters and continuously send the values to the guardians and police resulting in tracking the device in an emergency. These reading values of the sensor are compared with threshold values and if the values crossed the limit, then an urgent message can be sent to the police.



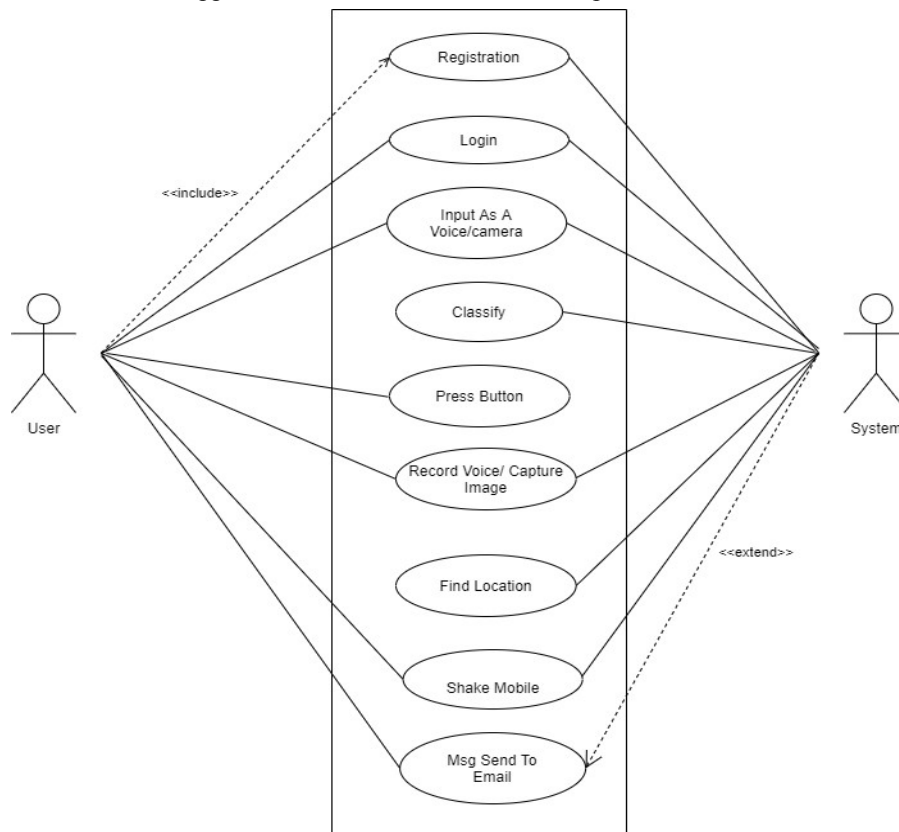
IV. PROPOSED SYSTEM

Our system is designed in such a way that it will be unique from other existing apps by integrating all the features offered by those. The user needs to initialize the application by registering. Users can log in with their registered email and password. The user has to put three contact numbers manually. They will be registered with the Firebase Database. Every time the user uses this application, she needs to start the app by turning on the on/Off button. Then the app will start working until the user turns it off. Whenever the user presses the SOS key or screams with the voice command the app will start its emergency service and will send an alert message containing the user's name with the location to the registered contacts. The location will be sent in every 5 minutes to the contacts so that if the person changes his/her place, they can know about it and reaches out for help [1]. Also, there is a system of live streaming. When the user travels from one place to another, the registered contacts can watch his/her positions

There is a system of audio recording. After getting the SOS command the system will start recording the surrounding for the first 5 minutes so that the user can use it later as proof. With the safe zone, options users can see nearer police stations through the map. Besides the emergency contacts, there is another option called the emergency number which is the country's helpline number. Whenever the application gets an SOS command, it will make a call to that number which is toll-free. The user needs to put that helpline number manually as we are planning this application for worldwide use.

We have used android studio 3.3.2 and java JDK 11.0 to build our app "Women's Security Application". To use all the features, the app does not require any external hardware. And it can be used with any GPS-enabled android phone.

The user writes the message content and also selects the contacts to which the message has to be sent and saves it. So, when he is in some danger by just opening the app and pressing the HELP button, the message stored will be sent to those numbers he has added to this application. So that he can receive help at the correct time.



Use-Case Model of the Proposed System

The figure represents the use case model of our system “Women Security Application” where the user has access to the Login / Registration page, previously saved audio recording files, user interface, and map and can give voice command/SOS. The system can use the database, GPS, and recordings can send texts and can take voice command/SOS commands.

V. CONCLUSION

This paper proposes a new women's safety model that aims to provide a very safe environment. Many unfortunate incidents took place in the case of women. Problems can come from anywhere. This paper analyses the key needs of the intelligent security system with technology demand and system-building challenges. Since the prediction of such incidents is not possible hence to minimize it our proposed mobile application will be very helpful. It will not only help the women but also the children as it can work with voice command which is easy for a child to operate. And men can also use it when they face any big trouble and need help. Not only in sexual-related problems, but it can also be used when someone faces an accident or hijacking, or public attack. Whenever anyone is in any kind of danger, our system will help to decrease the risk and make the world a better and safer place.

In the future, we will work on making it more secure so that we can decrease the crimes to the lowest level possible. We are planning to implement two unique features in this application which are new in the safety app. That is a hidden camera and microphone detection. As this is also a safety issue for women. Users can check whether there is a camera or microphone hidden in the place. There are two ways to find a hidden camera using our mobile app. One is to look for magnetic activity and another is to detect non-visible white light. We will use the magnetic sensor of the smartphone's hardware (magnetometer) and the infrared sensor (IR) in the camera to detect the hidden camera. Users can move his/her phone around the suspected area, if a strong field is detected, the user can be sure about a hidden device that is secreted within the wall or object. Another way is by detecting light reflecting from a lens that can be caught by the phone's camera.

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