Suraksha-The Personal Safety Application

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Abstract - In today's world, the number of people using android phones has expanded rapidly and subsequently hence, an android application can be used efficiently for personal security or various other protection purposes. The main aim of the Suraksha application is to provide security for a person where the victim is present mentally at the time of situation that situation could be anything, for example, any attacks or robbery. In case of emergencies, Suraksha application will be useful for a person's safety by sending SOS to emergency contact and more...

Keywords: Security, thrice shake, SOS (Save Our Soul), keypress, GPS (Global Positioning System), API.

1. INTRODUCTION

In today's time, women's safety has become a major issue as they can't step out of their house at any given time due to a fear of attacks or violence. Even in the twenty-first century wherein the technology is swiftly developing, and new gadgets were advanced however still women and girls are going through troubles. Even these days in India, women cannot move at night in lots of locations or even at daytime crowded locations because hundreds and thousands of incidents of physical/sexual abuse happen to women each day. amongst different crimes, rape is the quickest growing crime in the country nowadays that is attacks on girl is growing daily and in this case of where she can't dialup to the police or other family members because that attack will be a fraction of time and victim cannot able to do anything at that time. So here, Suraksha is an android app that ensures the safety of women and will provide all the safety methods. Proposed system will be very much helpful in such cases where the victim is not able to open an app and perform any action. by using the Suraksha app women can travel anywhere at any time without having any trouble.

2. LITERATURE SURVEY

Numerous works have been done against attacks to provide safety. In this paper, Application helps in tracking the location of the registered user, along with one of the registered contacts will receive a call from the user in case of an emergency. Further, it sends SMS to a registered contact containing location using latitude and longitude provided GPS location tracking system of the device, the SMS message will be sent every 5 minutes until the user of the application stops it manually [1].

The user can trigger the calling function by shaking the phone or by the user interface of that application via the panic button and the respective location will be sent to emergency contacts as well as police [2].

There are multiple features like lock screen access and siren on the receiver device. The modules of the HearMe application can be accessed through hardware buttons with the intention to get quick access to the victim woman. Also, HearMe [3] blows a noisy siren on the receiver device even if the mobile is in silent mode, which increases the reliability of getting help.

This mobile software sends a message with the user's GPS coordinates to a listing of emergency contacts while a button on the app display is touched. The coordinates are updated and reset with each 300m trade-in location [4].

The authors describe an advanced women security system to provide the safety measure in public places and public transports. In this app it consists of SOS Keypress Module and Voice Recognition Module, Global Positioning System (GPS) module, Spy camera which detects Night-vision hidden cameras which are placed in changing rooms-hotels room etc.[5] In such cases it traces the location using GPS module and sends the notification to the user about unsafe place. Electric Shock for Self Defence as well as Screaming Alarm.

The Self Defence system uses technologies that are embedded into a compact device. The ladies carrying this device as a watch or band, just in case of any harassment or once she finds that someone is going to harass, she presses a switch that is situated on the watch or band the data about the attack along with the body posture and location is sent as SMS alarm to a couple of predefined crisis numbers[6].

The developer used GPS, GSM, and Zapper Circuit. Also, microcontrollers are the heart of the system. Whenever women press the emergency switch, the microcontroller and zapper circuit will get triggered. A Zapper circuit will produce a high volt at its ends. Whereas the GPS module collects the current location and sends SMS through a GSM module to the stored number. Same time the buzzer will get on and make noise for help [7].

Women Safety Device and Application-FEMME [9] is a security device designed for women in an emergency. A single click is to intimidate the instant location and sends the message to the cops so that unfortunate incidents can be averted and to provide real-time evidence for the action against the executioner of crime against women.

The system is designed to provide security for women, by sending a message to nearby police and to the control room.[12] The application also sends the location of the user who is in danger and also alerts the emergency contacts .

The author describes that It is difficult to press the button in a critical situation for victims who are in danger when the keypad is locked. This paper deals with voice recognition that a recognized voice will convert into the text to send messages.[12] Also, this Message will consist of GPS location information of the user as well as Message can be sent even if the keypad is locked.

It presents an emergency response scenario recognizing app referred as IPROB[13] to produce women safety although things like terrorist attacks or natural disaster, by simply shaking the mobile predefined threshold value automatically activate the system, also It, starts recording the encompassing voice to check and make sure the unsafe IPROB state of affairs wherever it raised the notification .

SCIWARS (Spy Camera Identification and Women Attack Rescue System) facilitate an attack or spy camera. SCIWARS [14] contains two modules, first will detect Hidden cameras, which are hidden in the hotel's room, changing rooms. and, The second will helps victims from an attack like physical violence, if victims feel insecure and helpless at any time then by pressing any key of her mobile endlessly the alert message is dispatched to the closest police room, family, Ambulance, Friends which are in the emergency list that alert message will contain the entire location of that victim's place and images of that location which are taken by the camera of her mobile.

Although other applications that aim to provide protection to ladies exist, **SURAKSHA** stands aside in that even supposing the mobile is not always connected to the internet the instantaneous message will be dispatched to emergency contacts via shaking phone thricely. Additionally, it is free of cost as well as open source.

3. PROPOSED WORK

Proposed application is divided into various modules as shown in Fig. 1
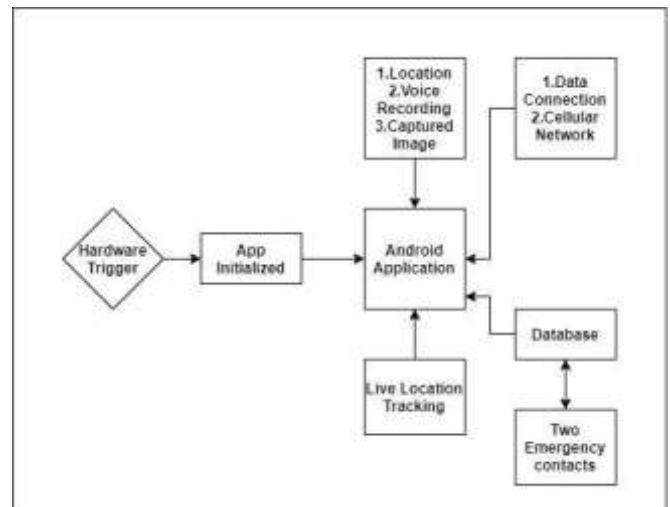
3.1 Hardware Trigger

For shaking the phone Hardware trigger is used and speech recognised triggers such as saying a key phrase in the application program which will initiate a panic alert which will send SOS messages to emergency contacts.

3.2 SOS Message

To send SOS message containing location, audio recording and image captured following APIs are used:

3.2.1 Location

Fused Location API is used in the proposed system which uses a GPS sensor of device which gives latitude and longitude of user by which the user's last location can locate, also declared a foreground service, which will allowing app to get location details continuously even after app is running in the background.

3.2.2 Voice Recording

Media Recorder API is used in the proposed system which is provided in android SDK for the purpose of recording voice. Application will record audio for two minutes and will upload it to a database, which will generate an URL and this URL will be sent to emergency contact via SOS message

3.2.3 Image Capture

Camera2API is used in the proposed system which is provided in android SDK21+ and CameraAPI for SDK version less than 21 to capture images from the rear camera when triggered.

3.3 Live Location Tracking

Live Location feature which allows you to share a user's real time location for a specific amount of time with the user's emergency contacts, it is implemented using HyperTrack API.

3.4 Database

Database for application using firebase platform which will store two emergency contacts of the user and will help store captured image and recorded audio. The application uses Firebase for database purpose, Firebase Realtime Database is a cloud-hosted database. Data is stored as JSON and synchronized in real-time to every connected client.
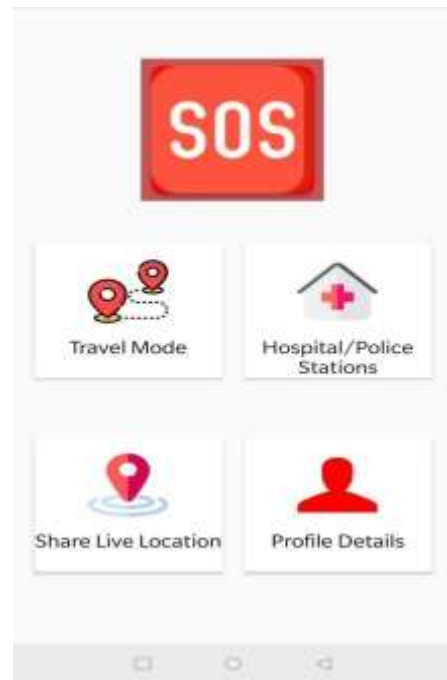
4. RESULT

Fig. 2 Login Screen

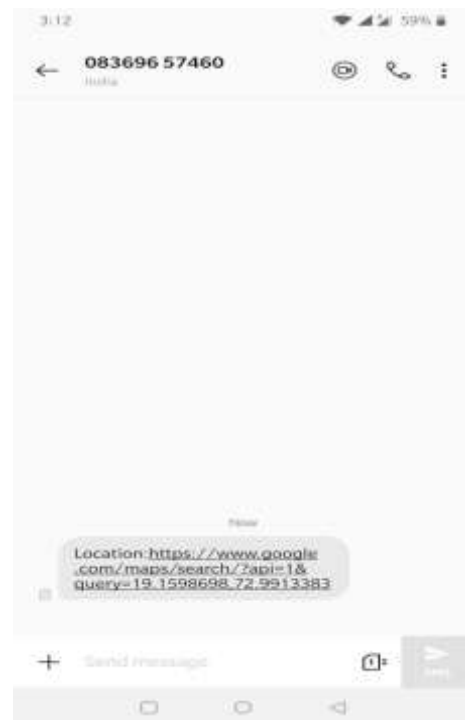**Fig. 3 After Successfully Logged In**
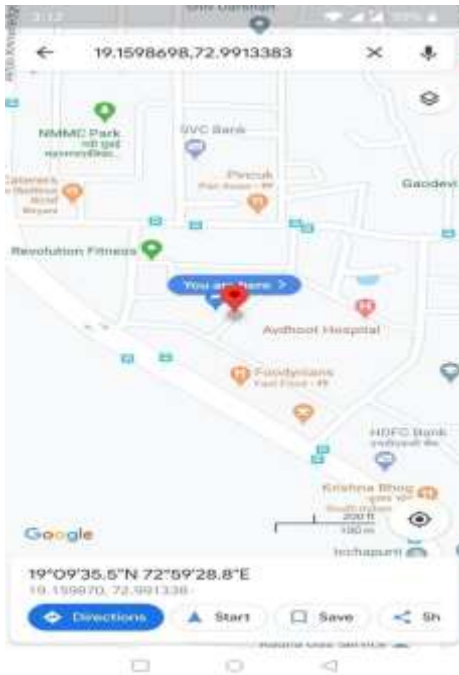

Fig. 4 Received Message

Fig. 5 Location Update

5. CONCLUSION

Thus, the proposed system's primary goal is to ensure every woman in society feels safe and secured. The unique features of Suraksha include offline SMS. This device will probably be very useful for women, especially those who work till late nights. This system would be faster as compared to others and easy to handle. Its quick action response will provide safety and security to an individual user.

Table 1: Comparison between existing system and Suraksha

Functionalities	Abhaya	WoSApp	IPROB	bSafe	ProposedApp
SOS message	✓	✓	✓	✓	✓
GPS Tracking	✓	✓	✓	✓	✓
Shaking phone functionality for instant SOS		✓	✓		✓
Free for all	✓	✓			✓
Live Location tracking				✓	✓
Offline SMS(Without Internet Connectivity)					✓
Nearby Places Including Police Stations, Pharmacy,Hospital,ambulance	**	*			✓

* Represents Police Stations only

** Represents Police Stations/Hospitals only

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