

Women's Safety Research App Article

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ABSTRACT

Women's safety is a major worry in today's society, which calls for creative solutions that use technology to deliver support and aid in a timely manner. This project offers a comprehensive women's safety app that is intended to improve women's security by offering a number of functions that facilitate prompt action during emergencies. The app has features like community-based alerts, one-touch emergency alerts, real-time location monitoring, and connection with local police enforcement. The app also includes features like emergency contacts, safe zone maps, and a quietly operated SOS button. This software seeks to provide women the freedom to move about safely and freely by utilising social networks, GPS, and real-time data. The creation of this app is an important step towards using technology to address the urgent problem of women's safety in both rural and urban settings.

KEYWORDS: *women's safety, sos app feature, GPS tracking for safety, emergency alert, safety solutions, emergency response*

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I. INTRODUCTION

Women's security has grown to be a significant concern in today's globe. Women experience harassment at work, in educational institutions, and even at home. Several Going outside of their comfort zone scares women. Women's freedom is declining in tandem with the rising number of these crimes against them. Critical circumstances might appear anywhere and at any time. An Android software that can make it easier for women in need to receive assistance or leave a situation is helpful in these situations.

The primary issue with the police's handling of these incidents is that they can't always react quickly to distress calls. These restrictions consist of not

It is challenging for the victim to phone the police quietly and confidently when they are aware of the crime's location or are unaware that it is happening at all. to facilitate the lifting of these restrictions. This article describes the Women's Safety Application, a dependable smartphone app that gives women a method to contact the police in an emergency. Human rights that are fundamental are frequently denied to women who are abused.

Women's organisations have contributed to decades of civil society work that has made gender-based violence a national and international concern.

Enforcing laws against domestic violence, sexual assault, and other forms of violence is a challenging task, even in countries where there are several laws protecting female citizens from abuse. Because of this, women experience insecurity and injustice in society, and the vast majority of criminals escape punishment. To enable all women to live in equality and fairness, we should work together to make the world a safer place for them.

In the current milieu, it is risky for women in particular to travel alone at night because they are weaker than men. Reducing your chances of becoming a victim of violent crime can be accomplished in part by recognising and using resources to help you escape dangerous circumstances. By using a safety app on your phone, you can reduce your risk and get assistance when you need it. This app is different from others in that it may be used for safety or preventative measures in

addition to emergencies or dangerous situations. The saying goes, "Prevention is preferable to cure."

Since most people now carry cellphones with them everywhere they go, the goal of this program was to create a safe atmosphere using smartphones. Instantaneously, the user sends a message to the police that includes the user's location and emergency contacts' contact information that they have already chosen. This page explains the creation and technical execution of the application.

II. REALATED WORK

A. S-ZONE: A WOMEN'S SAFETY AND SECURITY SYSTEM

The authors of the document "S-ZONE: A SYSTEM FOR WOMEN SAFETY & SECURITY SYSTEM" claim that "identifying and receiving assistance in escaping dangerous situations is the best way to reduce the chances of becoming a victim of violent crime (robbery, sexual assault, rape, and domestic violence)." This article presents the S-site program, which was created for the Android platform to enhance women's safety through the utilisation of cutting-edge mobile technological advancements. This program assists in tracking the root device by GPS, enabling emergency personnel to immediately remove a vulnerable person from dangerous situations. A one-touch button to send immediate alerts to designated contacts or local authorities

B. SHIELD: Use for Individual Safety

The app "SHIELD: Application for Personal Security" does exactly what its name implies—it shields, saves, and guards the user against harm. It instantly notifies all of the registered contacts of the device's location, enabling real-time tracking of the woman's whereabouts and the provision of aid. The system's primary functionality is centred on location tracking.

It is totally reliant on GPS location monitoring and real-time updates on the website. Real-time updates in the user area of SHIELD are determined and posted on the website. Depending on the internet connection, the update shows on the website in 0.5 seconds. Real-time location sharing with trusted contacts during emergencies

Maps that highlight safe walking routes and areas to avoid, possibly using crowd-sourced data.

C. The Android App for Women Safety

As most people carry smartphones with them everywhere they go these days, the authors of the paper "Women Safety Android App" explain that their goal in creating this program was to create safe

conditions for smartphones. It is noted that even in cases when the victim lacks an internet or GPS connection, they can still notify the police and certain contacts by hitting the power button twice, rather than clicking the SOS button on the screen. Additionally, if the user or victim moved, the system would relay the victim's continuing location after one minute, giving them a better location. One of the program's main features, according to reports, is giving the police access to a control panel so they have a system where they can monitor whether or not there are any cases like this. The victim's position will be highlighted when they push the power button, making it simple for responding law enforcement officers to come to their aid and assist the victim.

D. Women's Safety Mobile App

The "Women Safety Mobile App," which is GPS-based, is demonstrated in this paper by the authors. This method initiates when the female user who verified her identity on the device scans her fingerprint. After that, the woman must continuously scan her finger print once per minute, or else the gadget will send an SMS message with its position to the registered phone and sound a buzzer to notify everyone close of the emergency. The woman only needs to cease scanning her fingerprint in the event of an emergency. The system is operated by the device using a microcontroller-based circuit, GPS, and GSM modem. When a lady is unable to activate or click the emergency feature, this system comes in very handy. Her GPS location is included in the SMS alert message, which can be sent straight to a select group of contacts so they can aid her when necessary.

III. PROPOSED WORK

The functions present in the current system, such as GPS tracking and other features that can be useful in the event of a data connection outage, are combined with all the unique capabilities of the proposed system, including the ability to track location in real time. The lady can also make use of any feature based on her assessment of the circumstances. This project aims to create a portable women's safety software tool that can do the following tasks:

- A. SOS: SOS sends an alert message to emergency registered contact containing the GPS location of the user every thirty seconds.
- B. Siren: A Siren which sounds a loud police siren. This can alert the nearby people of the situation and in some cases may deter the assailant from proceeding with his malicious intentions.
- C. Voice Recording: We have also provided a Recording function that records the surrounding sounds which can be used by the victim in case of a police investigation as evidence.

D. Helpline Numbers: The woman can directly call emergency services through the feature Helpline Numbers in the application.

Developing a women safety app requires a comprehensive approach that combines technology, user-centered design, and effective safety features. Below is a proposed work plan outlining the key stages of development for a women safety app:

Research and Requirement Gathering –

Identify User Needs: Assist women with their worries, situations, and feature requests by conducting focus groups, surveys, and interviews.

Create Account



Fig1.Creating a account

Examine Current Solutions: Determine opportunities, gaps, and best practices by examining current women's safety apps.

Work with Safety Professionals: Seek guidance on essential characteristics and emergency procedures from organisations, law enforcement, and specialists in women's safety.

Feature Planning- Core Features

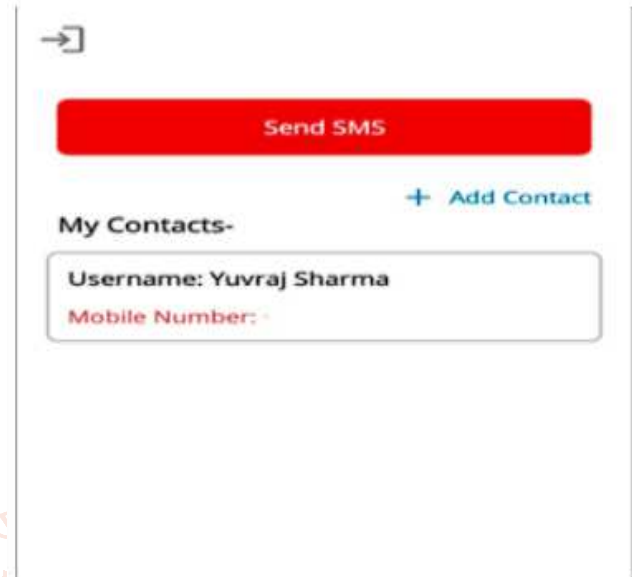
SOS Button : An easy-to-access button that allows you to transmit emergency notifications to authorities or pre-selected contacts along with your current location.



Dig. SOS

whereabouts Sharing : Constantly inform loved ones or friends of your whereabouts.

Voice/SMS/Panic Trigger : Prepare for emergencies with voice-activated triggers.



Dig. Contact information

Safety and Confidentiality-

Encrypt any sensitive data, such as contact information and location, to prevent unwanted access.

Permission Management: Give consumers complete control over their data and make sure the app only asks for the minimal amount of permissions, such as location and contacts.

Compliance with Data Regulations: For data management and user privacy, make sure that data protection rules like the CCPA or GDPR are followed.

IV. PROPOSED RESEARCH MODEL

When a user is having difficulty or needs help, this Android application comes in handy. A HELP button is visible to the user when opening this application. They can save three phone contacts and a message as well. All the user has to do is launch the app, select the "HELP" option, and ask for assistance if they need it. The message is sent to the contact numbers he has stored by this program.

There are three main processes that make up the entire evaluation, each of which is explained separately. Three main processes comprise the evaluation of the application's entire implementation.

Entering the contact information in the developed application is the first important step. These people could be our friends, family, or the chief police officer of the city in which we currently reside. The aforementioned contact information should be entered when the app is first loaded on the smartphone.

The provided data will be saved by the application. The second important step is to provide the registered contacts with GPS information (which can be Coordinates or a URL that can be used to locate the person using stock map applications from third-party apps like Google, Nokia, etc.) in case the person is in danger or needs to be rescued. This action is taken.

The effort involved in regularly sending the message with the location URL to the registered contacts makes up the third main phase. Since the time interval in this case is set to five minutes, an SMS will be sent to the registered contacts every five minutes. Thus, the program can continually track the person's specific location, which is the main goal of the suggested method, allowing for the person's rescue.

The total evaluation can be done in three major steps which are described individually. Evaluation describes the whole implementation of the application in three major steps.



Fig. Implementation of proposed work.

V. PERFORMANACE EVOLUTION

Screenshots of the main device and the contact's device captured at different times are included with the testing findings of the aforementioned three parts. In this context, the term "root device" refers to the user's device, which is the one over which the rescue program is launched. The device to which the user sends location data on a regular basis is referred to as the contact's device. Before installing the app on the phone, make sure to tick the box labeled "allow nonmarket apps to be worked over the device" in the settings, as illustrated in the following figure. shows the device's settings so that the app can only be installed on the device by checking the corresponding icon. The Security Alert app icon can be set anywhere on the phone's home screen, allowing us to quickly access the app when we're in danger. Upon initial installation of the application on the mobile device, the interface depicted in figure 7 will manifest. The settings icon and the HELP button are shown in Figure 7. Figure 8 will show up when you click on the settings icon. The blocks in the contact list, the save

button, and the customized message are shown in Figure.

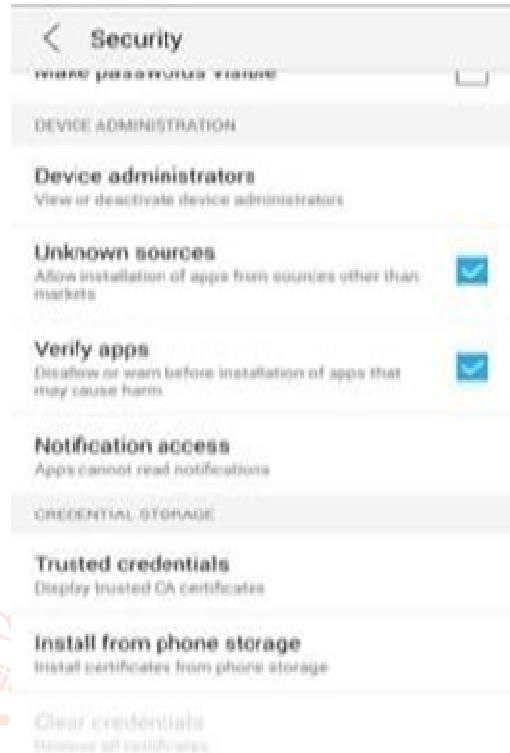


Fig. Settings of the device



Fig. Layout of the second page for details



Dig. Layout of the second page for details



Dig. Details entered in the application



Dig. Layout of the app immediately after installation.

After entering the custom message and the contact details, the application screen appears as depicted in the figure . After completion of writing the custom message and registering the contact details in the application, the save button must be clicked by the finger else the message and the contacts will not be saved.

After pressing the settings symbol, the application screen appears as depicted in the figure . Figure depicts the custom message and the contact list blocks and save button.

Help button must be clicked to start the application immediately. There is no obligation of entering the message and the contact details each and every time when we open the application. Once entered and saved they will be registered in application till we change them.

Message received by the contact device immediately after starting the application. When we click help button of the application, it starts and the GPS starts running over the device and immediately the user's location will be sent as shown in figure 10.

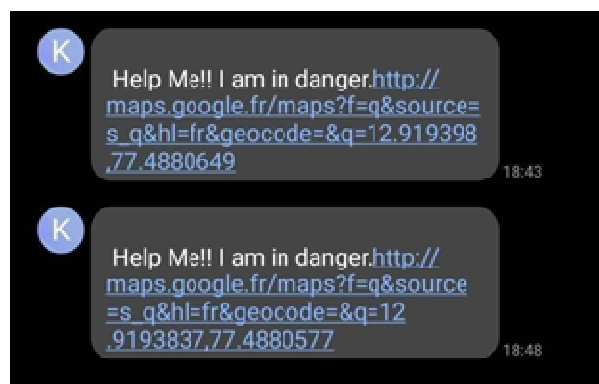


Fig.0.1Receiving message

Message received by another contact device immediately after pressing the Help button in the application.

After completion of saving the contact details, save button must be clicked to exit from the application



Fig. Location

Screen shown after clicking URL in the message received by the contact device. Figure depicts the Google Maps application which appears just after clicking the URL in the received message. The blue block “directions” in the application shows the exact location of the user.

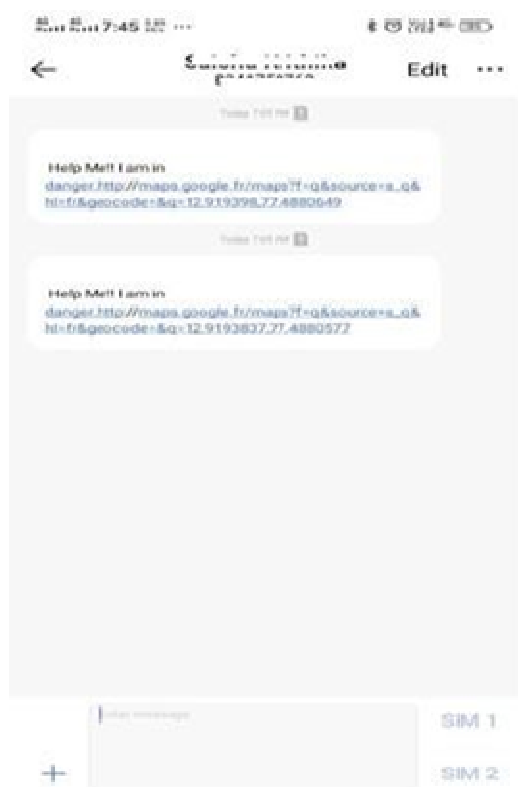


Fig.0.2 Message received

Message received by one of the contacts after five minutes span of time. Figure depicts the message received by one of the contact devices after five minutes of the start of the application. This mode of tracking the user i.e., getting user’s location at periodic intervals for every five minutes will be helpful when the user is moving i.e., if she is caught by the kidnapper and if they are taking her, we can rescue her by knowing the location in this manner. After receiving the message from the user, the URL in the message has to be clicked in order to know the exact location of the user.

to send SMS to register user. For future development, this application can be integrated with the law enforcement database (e.g., city police control room database) instead of experimental database used here in the project. Also, some further upgrade can be done when the mobile network is not available for the root device and also if the root device is switched off. Thus, this app can help in a big way to rescue the women or men from unsafe conditions.

VI. CONCLUSION AND FUTURE WORK

This paper describes the application, Security Alert that is designed in android platform for safety of women with the aid of recent improvements in mobile technology. In this project to use which is useful for the user when he is in some problem or needs any help. When the user opens this application, he can see a HELP button. Also, he can store a message and 3 contact numbers. When the user is in some difficulty or needs any help button. So, when the user opens this application can see a HELP button. Click that button to send SMS to register user. For future development, this application can be integrated with the law enforcement database (e.g., city police control room database) instead of experimental database used here

in the project. Also, some further upgrade can be done when the mobile network is not available for the root device and also if the root device is switched off. Thus, this app can help in a big way to rescue the women or men from unsafe conditions.

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