

## An Android Based Application for Women and Child Safety

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### Introduction

**Abstract**— Women's safety is by far the most important topic. Women's safety is very important, whether at home, outside, or at work. Very few crimes against women, especially rape, are truly horrific and gruesome. Today, most women of all ages have experienced violence, domestic abuse and rape. Since women are usually expected to go out late at night, it is necessary to stay awake and safe.

With most women carrying their smartphones with them these days, it makes sense to have at least one personal security app installed. It is a user-friendly application available to anyone who installs it on a smartphone. Our goal is to provide you with the quickest and easiest way to contact the help closest to you.

In this system, the user needs to enter three contact numbers, in case of emergency, when the phone is moved up and down, the system will send a text message and call one of the numbers entered in the system with the location information. The phone starts vibrating and the siren starts ringing.

This feature works for both day-to-day security and real emergencies, making it the ultimate tool for everyone.

For children, we use IoT devices to obtain the position of the child via the guardian's phone number in case of danger.

**Keywords - Child Safety, Women Safety, SOS**

Since women sometimes have to travel late at night, it is important to stay awake and safe. While the government is taking the necessary steps to ensure their safety, there are also free safety apps for women to help keep them safe.

With most women carrying a smartphone with them these days, at least one of our personal safety apps is a must. This safety app for girls can help in one way or another.

But children don't have a smartphone, so they have to have something else to use in case of danger.

To this end, we have created an application that uses the Internet of Things (IoT) for children. We are focused on building an efficient, fast and reliable system that empowers women and children in India to feel safe and empowered.

Our platform will provide 24/7 active help and companionship to women and children so they never feel alone in a crisis. This will bring Indian citizens and the police together and allow them to solve a common problem.

The tool will act as the eyes and ears of the police, helping them to prevent crimes against women and children.

The tool is designed to cover a variety of situations in which a woman and child can be trapped, such as when she is alone or when she is in a crowded place or when she is on public transport. Or when children are playing in the park or at school, etc.

## Literature Review

[1] Gupta M et al developed a safety device to protect women from vulnerable activity and lonely travelling on the road using IoT based on the fingerprint security method. This device alerts close people as well as a police station if any wrong or criminal movements with that woman.

[2] Varade S et al proposed a gadget to locate a risky place and many threats for women through IoT modules like Arduino UNO controllers. So this controller is also integrated with Bluetooth devices, teaser and Android apps. But the overall system tracked the risky spots of the women with the help of GSM and GPS modules.

[3] Harini R and Hemashree P have designed an IoT-based smart system and android application that can track the nearest location of the bus and police station using the GPS module. Similarly, the IR sensor provides data about seat availability. But if any women harassment situation occurred then press an alert button that is available in a seat. When the button is pressed, it forwards the message to the nearest police station with the current spot of the bus.

[4] Snehal P. Umratkar et al. developed a Secure child-tracking android application that focuses only on the parameter of safety between the school and house and does not take into consideration the safety of the child in other frequent places that the child visits.

[5] Deepak Sharma and Abhijit Paradkar developed the SCIWARS Application that it Provides SOS service only through the action of the user and the user may not be able to access the application in case of a crisis.

[6] Shaista Khanam and Trupti Shah proposed an algorithm for women's safety using the fingerprint module. This paper gives a detailed approach towards women's safety. Here fingerprint is required for activation of the device, electric shock-producing circuit, GSM and GPS module for alerting and location tracking. In the time of emergency, it is hard

to place the finger in the fingerprint module and recognition is not possible if there is any undesired tuff (wet or dust) on the finger. To avoid this problem the fingerprint module will not be used in the proposed system.

[7] Naeemul Islam, Md. Anisuzzaman, Sikder Sunbeam Islam, Mohammed Rabiul Hossain, Abuja far Mohammad Obaidullah developed a device for the safety and protection of women. Here three push buttons are implemented to define the types of accident victims are facing. To control a whole system a PIC16F887A microcontroller is used. Since it is a 40-pin IC, it increases the device's size, making it difficult for women/children to carry it all the time.

[8] Sharifa Rania Mahmud, Jannatul Maowa, and Ferry Wahyu Wibowo proposed an algorithm for women's empowerment. This paper discusses violence against women and also different health issues of women. It is an application-based system. During the event of molestation using the application present in the victim's smartphone will automatically send out an emergency call to the assigned contacts. This can be done only when GPS is enabled in the smartphone and if not the time delay taken to turn on the GPS is noted to be the downside of the project.

[9] Anand Jatti, Madhvi Kannan, Alisha RM, Vijayalakshmi P, and Shrestha Sinha developed a wearable device, which uses physiological signals like galvanic skin resistance and body temperature. Data is monitored using a cloud platform and analyzed using MATLAB simultaneously. If there is any sudden change in the physiological parameter, intimation will be sent to the parents. But body temperature may also change due to some other reasons. So, it is not fair to consider body temperature as a parameter to design a device for women's safety.

[10] Sunil K Punjabi, Suvarna Chaur, Ujwala Ravale, and Deepti Reddy developed an intelligent system for women and children. In this system, they are using a pressure switch. When they feel unsafe, she has to compress the switch, then an intimation will be sent to parents followed by a call. If it is

unanswered the call will be redirected to a nearby police station.

[11] M. Kavitha, and V. Sivachidambara Nathan proposed a device for women's self-protection using IoT. In this system, there are few biosensors used to sense the user's bodily changes. If there are any abnormalities detected in women an intimation will be sent to the guardian as per the pre-program of the device.

[12] R. Pavithra and S. Karthikeyan developed a survey on women's safety mobile applications. This application helps women to discover and help them in any critical situations. It helps find out the exact area of the individual and sends an SMS to the parents.

[13] Madhura Mahajan, KTV Reddy, and Manita Rajput designed a rescue system for the safety of women. It is a simpler safety solution that can be achieved by pressing a switch and instantly sending out alerts to the near ones of individuals.

[14] Nandita Viswanath, Naga Vaishnavi Pakyala, G. Muneeswari developed a smart foot device for women's safety. This smart device will be clipped to the footwear of the user. If the foot has been tapped behind the others four times, an alert will be sent through Bluetooth.

## Research Objective

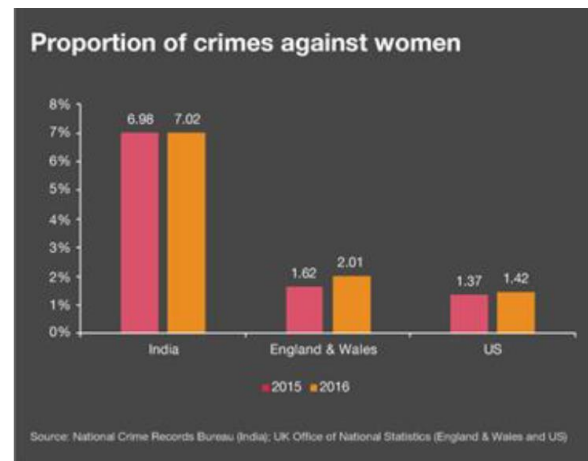
The Nirbhaya incident in 2012 outraged the whole country and woke us up to security issues, so many new apps were developed to provide women with security systems through mobile phones. This article introduces a female safety android app that can be activated with just one click whenever needed. With just one click, the app identifies the location of a place via GPS and sends a message containing the URL of that location to registered contacts for assistance in dangerous situations.

Rape is the fourth most common crime against women in India. According to the National Crime Records Bureau (NCRB) 2021 annual report, 31,677 rapes were recorded across the country, an average

of 86 per day, an increase of 28,046 from 2020 and 32,033 recorded in 2019. Of a total of 31,677 rapes, 28,147 (almost 89%) were committed by someone known to the victim. 10% of the victims were minors or under the age of 18 (the legal age of consent).

In 2019, India reported a rape every 16 minutes. This number was 15 minutes in 2018. In 2019, the national average rate of rape (per 100,000 population) was 4.9, slightly lower than 5.2 in 2018 and 2017.

So this stat shows that attacks on women have increased. Recently, Delhi was declared the most dangerous capital in the world.



The above figure shows that the cases in India against women are very high compared to some developed countries. To overcome this, we have decided to create this application.

## Methodology

### 1. S/w

Android Studio → To create an android studio

Firebase -. For storing data in the database

InDesign and Figma → For the designing part of the application

## 2. h/w

Processor: Snapdragon, Dual Core

RAM: 512 MB

GSM Module

GPS Module

Arduino

Battery

Push Button

### Implementation

This Android application is useful when the user faces a problem or needs help. When the user opens the app, a location icon button is visible. When a user has a problem or needs help, all they have to do is open the app and click on the “Location” button. The app sends a message to his registered contact number.

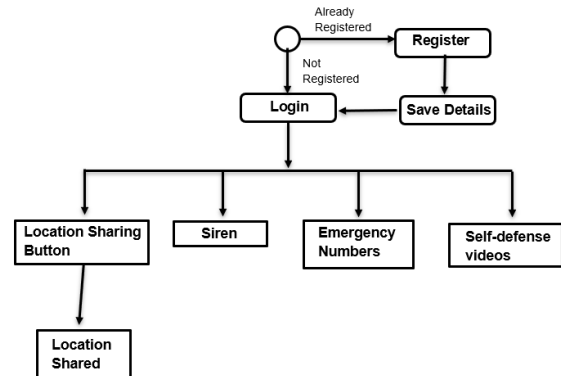
The first step is to register by providing the appropriate information and verifications.

These contacts can be our family or our friends. The above contact details must be provided when first installing the application on the smartphone.

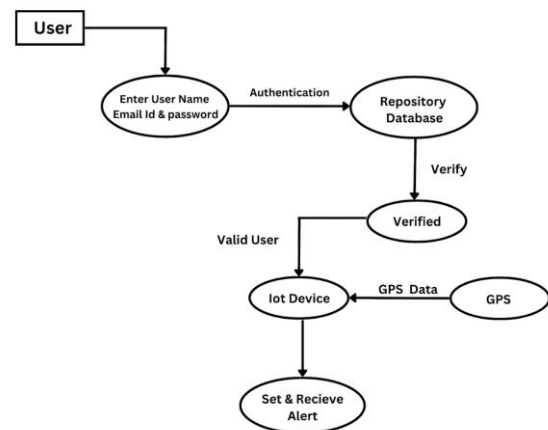
The application will save the information entered. The second major step is to be rescued when in danger or when a person needs to be rescued. This step is only performed when the backup button is pressed in the app.

The whole process of this step will only be done if the device is connected to the right mobile network and location services (GPS) are enabled on the device.

Other services include sounding sirens, calling emergency numbers like the women's helpline, fake calls and self-defence videos to protect you from such troubles.



For kids, users can use our IoT device so can send their location and emergency contact number



### Results

Compared to existing computerized systems, our system gives a better user-friendly environment for the users. When the user touches the mobile. This system will send a message to the guardian number. After installing the application, the user has to register in our application and fill in the details. Once the registration is done the contact number is authenticated using OTP.

Once the number is authenticated, the user is logged into our device and can use our application.

Whenever the user feels she is in danger, she can press the location button which shares the location with the user’s guardian’s number as SMS. She can



press the siren button to play the police vehicle sound.

If the user wants, she can call an emergency helpline number using our application. Our application is also for children as well where an IoT device is used to send the location of the child to their guardian's number whenever the button is pressed.

If the user presses the logout button the user has to login again to our device.

### Conclusion

This is the "Android Application for women and child security system" which is a very useful application. We can send our location to our family members or the number that is saved by clicking a button. Also, the application has other features like a siren, self-defence training and helpline numbers. For children, we have an IoT device through which the location is shared with the guardians of the child

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