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# Narishakti Women's Safety App

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**Abstract:** *Women's safety has emerged as a critical concern in modern society, necessitating innovative solutions to address personal security challenges. This paper presents the development of an Android application aimed at enhancing women's safety through the integration of advanced technologies. Built using Java, the application incorporates GPS and GSM functionalities to provide real-time location sharing and automatic emergency alerts to registered contacts and authorities. A key feature of the app is its ability to scan vehicle number plates, allowing users to capture and transmit details of suspicious vehicles alongside their current location for swift action.*

*Additionally, the app includes a danger zone alert system that notifies users upon entering high-crime areas based on preloaded unsafe location data. The emergency messaging and calling features enable users to send SOS messages with location information and initiate emergency calls with a single tap. To further support users in critical situations, the app offers instructional videos on basic self-defence techniques and situational awareness, as well as tutorials to facilitate the effective use of its safety features. A built-in camera function enhances security by allowing users to capture and store images in potentially hazardous scenarios.*

*This comprehensive and user-friendly application aims to empower individuals by addressing personal safety concerns and fostering a safer environment for society. Through the integration of real-time alerts, advanced security functionalities, and educational resources, this project aspires to set a benchmark in leveraging technology for women's safety.*

**Keywords:** *Women's safety, real-time location sharing, GPS, GSM, emergency alerts, danger zone alerts, vehicle number plate scanning, safety tutorials, camera functionality, Java development.*

## I. INTRODUCTION

Women's safety has emerged as a pressing issue in the modern world, where crimes targeting women and girls are alarmingly on the rise. Incidents often occur when women travel alone, particularly at night or in unfamiliar areas. The need for robust safety measures has become crucial, as women are increasingly participating in various sectors and striving for equality in all domains. Despite advancements in societal awareness and infrastructure, the statistics reveal a grim reality—women continue to face harassment and violence in public spaces, workplaces, and even their homes.

In today's digital era, smartphones and the widespread adoption of Android applications provide an excellent opportunity to develop innovative solutions aimed at addressing these safety challenges. Introduces a comprehensive Android-based application designed to enhance women's safety through the integration of cutting-edge technologies such as GPS and GSM [1]. By leveraging these technologies, the application provides real-time location sharing, automatic emergency alerts, and other critical safety functionalities. One of the app's unique features is the ability to scan vehicle number plates [2], enabling users to capture and transmit details of suspicious vehicles along with their current location to designated emergency contacts and authorities for prompt action. Additionally, the application includes a danger zone alert system [3] that warns users when entering areas with high crime rates based on preloaded data. These features aim to empower women to take proactive measures for their safety.

To further enhance its utility, the app incorporates emergency messaging and calling functionalities, allowing users to send SOS messages with location details and initiate emergency calls with a single tap. Beyond these real-time features, the application offers instructional safety videos on self-defence techniques and situational awareness, along with tutorials on effectively using the app during emergencies. In a built-in camera function [4] adds another layer of security by enabling users to capture and store images in potentially hazardous situations. The motivation behind this project stems from the urgent need to address the systemic issues contributing to women's vulnerability. Surveys conducted in metropolitan areas like Delhi reveal that a significant percentage of women experience fear for their safety due to inadequate infrastructure, ineffective law enforcement, and societal indifference.

These challenges necessitate a technological solution that not only responds to emergencies but also educates and empowers women to navigate their environments safely.

By presenting this application at an international platform, we aim to highlight its potential to foster a safer society through technology-driven solutions. The app's comprehensive design and user-friendly interface demonstrate its capability to bridge the gap between safety concerns and actionable measures, contributing to a world where women can confidently pursue their aspirations without fear. The development and implementation of this project align with global efforts to promote gender equality, ensuring that women can thrive in a secure and supportive environment.

## II. LITRATURE REVIEW

The GO SAFE app [5] is an Android-based mobile application designed to enhance women's safety in emergencies. By pressing a combination of buttons (power and volume), the app sends an alert message and the user's GPS location to pre-registered contacts. The app utilizes GPS tracking to continuously update the user's location, storing it in a database for quick access by emergency responders. Key features include real-time location sharing, database integration for registered contacts, and ease of use via simple activation mechanisms. The app aims to provide rapid assistance in unsafe situations, bridging the gap between victims and their rescuers. Existing apps like "Women's Security" and "Bsafe" inspired its development while improving functionality and ease of use. For future enhancements, the app can integrate directly with law enforcement databases for quicker responses. Go safe is a crucial step in leveraging mobile technology to reduce violence and ensure safety for women.

The "Intelligent Women Safety App"[6] addresses the critical concern of women's safety in modern society. This Android-based application allows victims to send SOS alerts, GPS locations, and emergency messages to registered contacts with a single click. It includes functionalities like Bluetooth range alerts and periodic notifications to ensure prompt responses. Designed for easy use, the app automates safety measures in scenarios where victims cannot manually activate features, such as screaming to trigger emergency functions. The application utilizes technologies like Java, Android Studio, GPS, XML, and Firebase for seamless operation. It also incorporates time-interval messaging and database storage for effective communication. By empowering women with a reliable, real-time safety tool, this app ensures assistance during critical situations. The paper highlights limitations, such as dependency on mobile charging, and proposes additional features like self-defense tutorials for future enhancements. This app serves as a vital step toward improving women's security and independence.

The Raksha app [7] is an innovative women's safety platform leveraging advanced technology to address safety challenges. Designed for Android and iOS, the app offers features like real-time location sharing, an SOS alert system, and navigation to safe locations. Users can access a resource hub with self-defense techniques, legal rights, and safety tips. A community chat feature fosters collective support, while robust privacy measures protect user data. Raksha supports accessibility with features for visually impaired users and multiple languages. The app integrates emergency contacts and provides real-time updates on safety concerns using crowdsourced data. Future plans include wearable integration, predictive safety features, and global community expansion. Raksha is not just a tool but a movement aimed at empowering women and fostering a culture of safety and equality worldwide.

The Women Safety and Security System [8] using GSM and GPS provides a quick-response mechanism for women in danger. The system uses an Arduino-based device equipped with GPS and GSM modules, a buzzer, and a shock circuit for self-defense. By pressing a button, the device sends the victim's real-time location (latitude and longitude) via SMS to pre-registered contacts and nearby police stations. A buzzer alerts nearby individuals, while an electric shock circuit incapacitates the attacker. The system aims to empower women and address increasing safety concerns, especially during night shifts or in isolated areas. Enhancements, such as adding cameras and microphones, are proposed for future versions to capture evidence during emergencies. The device is portable, reliable, and offers a cost-effective solution to bolster women's safety and independence.

The FEMSAPP [9] is a mobile application designed to enhance women's safety by providing a quick, discreet way to signal for help. By pressing the volume button twice, users can activate the app, which captures images and records audio, sending the location and media to pre-selected emergency contacts. The app utilizes GPS for real-time location tracking and provides a link to the victim's location on Google Maps. It aims to address rising concerns regarding women's safety by enabling immediate action in emergency situations. Additionally, FEMSAPP integrates features like audio and image storage in the cloud for added security. The app is built using Android technologies and includes functionalities for messaging, location sharing, and alert notifications. The system is designed for ease of use, even in high-stress situations, with a focus on empowering women and ensuring their safety.



The Review Paper on Women Safety System [10] discusses the growing concern of women's safety in India, highlighting the challenges women face while commuting or working, especially during odd hours. It emphasizes the need for a robust safety system and presents the development of a safety solution using IoT technologies. The proposed system uses a panic button to alert emergency contacts via GPS coordinates, while also capturing audio, video, and images to help identify the attacker. The design incorporates a Raspberry Pi, GSM module, GPS, camera, and microphone to provide real-time tracking and alerts. This system aims to reduce violence against women and provide a reliable means of assistance. The paper also explores previous safety solutions and technologies like smart devices, GPS tracking, and wearable security systems. The proposed work is a cost-effective solution that aims to empower women and ensure their safety. Ultimately, the goal is to create an environment where women feel secure and can work without fear of harassment or violence.

The Women Security System project [11] focuses on creating a real-time, intelligent security system for women, aimed at providing safety and security in public spaces. The system uses a combination of hardware and software to alert emergency contacts and provide self-defense mechanisms when a woman is in danger. It features a panic button that activates a screaming alarm and electric shock device, while also sending the victim's geographic location and a message to two emergency contacts. The system utilizes a PIC 16F877A microcontroller, GPS for location tracking, and GSM for message communication. The goal of the project is to ensure women feel safe and empowered in public spaces by reducing the risk of violence and offering timely assistance.

The Women Safety Device [12] aims to provide a compact and reliable solution for women's security, particularly in distress situations. This system, based on a microcontroller (ATmega8), includes a GSM module for communication and a GPS module to track the woman's location. In the event of an emergency, the user simply presses a button on a wearable device, which activates the alarm and sends a distress message to pre-selected contacts, including the police. The system also incorporates a shock generator for self-defense, intended to deter attackers. Unlike other systems, this device doesn't require a smartphone, making it accessible to more users. The device's real-time tracking allows for the victim's location to be monitored via Google Maps. This approach aims to reduce crime rates and ensure women's safety, offering a direct, efficient response to emergencies. The integration of these components ensures accuracy and reliability, addressing critical issues in women's security.

The Women Safety App [13] is designed to enhance security for women, especially when traveling alone. It uses GPS to track the user's location and sends real-time alerts to pre-selected emergency contacts. The app activates through a simple touch or shake, sending the victim's location and a message for help. Additionally, it provides self-defense guidance via educational videos. The app is easy to use and works even with low network connectivity. It allows adding multiple emergency contacts and ensures a quick response in times of danger. Future improvements include notifying nearby police patrols. This app aims to empower women and reduce the risk of harm in public spaces. It's a step toward creating a safer environment for women everywhere.

The Women Safety Devices and Applications Women's safety [13] is a critical concern, with numerous cases of harassment and violence reported worldwide. This paper discusses various devices and applications designed to enhance women's security using advanced technologies like GPS, GSM, and IoT. Wearable safety gadgets, mobile apps, and defense mechanisms are proposed for real-time location tracking, emergency alerts, and self-defense. Solutions like FEMME, smart bands, and portable systems integrate features like hidden camera detection, live streaming, and alarms to tackle threats effectively. The challenges identified include battery consumption, internet dependency, and ease of use for rural or uneducated users. Suggestions for improvement include incorporating voice activation, defense tools, and backup power options. A novel device with multi-functional buttons is proposed for enhanced accessibility and usability. These innovations aim to empower women and ensure swift action during emergencies while contributing to their overall safety and independence.

#### Drawbacks

To address the limitations identified in existing women's safety applications and devices, a new, more advanced solution must be developed. Current systems heavily rely on network connectivity and battery life, rendering them ineffective in low-signal or low-power situations. Manual activation mechanisms, such as panic buttons, are not always practical during emergencies, and existing GPS tracking solutions raise privacy concerns due to potential data misuse. Additionally, most applications lack AI-driven predictive analytics to warn users about high-risk areas dynamically. While some apps provide emergency alerts, they fail to integrate directly with law enforcement for immediate response.

The absence of robust evidence collection mechanisms, such as automatic media capture and vehicle number plate scanning, weakens the ability to identify perpetrators.

Furthermore, many existing solutions do not cater to diverse user groups due to limited multi-language support and accessibility features. Another significant gap is the lack of post-incident support, such as legal assistance and psychological counseling. To address these issues, the proposed application will incorporate AI-driven crime prediction, offline emergency alerts, voice-activated triggers, and real-time law enforcement integration while prioritizing user privacy and inclusivity. By bridging these gaps, the new app will provide a more reliable, proactive, and comprehensive approach to women's safety.

### III. METHODOLOGY

Ensuring women's safety requires a multi-faceted approach that combines advanced technology with proactive features. The proposed system integrates real-time tracking [15], automated alerts [16], geocencing, risk mitigation techniques [17] to enhance user security effectively.

The application leverages GPS and GSM technologies for location sharing, enabling real-time tracking of the user's location. When the panic button is activated, the app instantly sends the user's current location to predefined emergency contacts and law enforcement agencies via GSM or SMS communication channels. This ensures rapid response during emergencies. Additionally, the app incorporates a geofencing module to establish virtual boundaries around high-crime areas. When a user enters these designated danger zones, the app triggers notifications to alert the user and their emergency contacts about potential risks in the vicinity, facilitating proactive safety measures.

To further enhance situational awareness, the application integrates an OCR-based [18] number plate scanning feature. This module allows users to scan vehicle number plates, which are then cross-referenced with a central database to identify vehicles flagged for criminal activity or associated risks. This feature aids in identifying and mitigating threats effectively.

The app also empowers users by providing access to safety and self-defence [19] instructional videos. These resources include tutorials on precautions, situational awareness, and the effective use of the app's features during emergencies, ensuring users are well-prepared to handle potential threats. A panic button feature is included to enable immediate emergency assistance, enhancing the system's usability and responsiveness.

All user interactions within the app including panic button activations [20], number plate scans, and location logs, are recorded in the backend system. This data provides valuable insights for law enforcement [21] and supports the analysis of app performance to facilitate continuous improvements. Furthermore, the app adheres to strict privacy and security protocols by encrypting sensitive data such as location and personal information. Data sharing is limited exclusively to trusted emergency contacts and authorized personnel, ensuring the user's safety and confidentiality.

This methodology outlines a comprehensive and user-centric approach to leveraging technology for women's safety, addressing key concerns while fostering confidence and security.

### IV. SYSTEM ARCHITECTURE

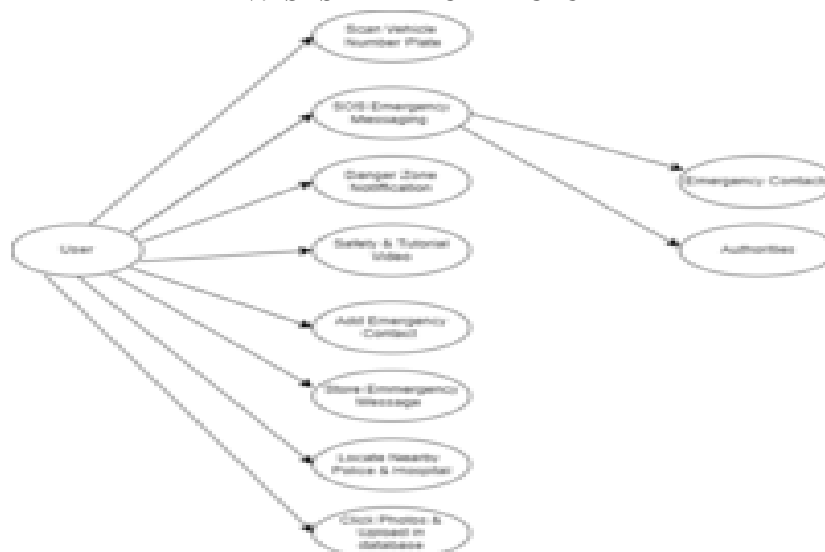


Fig 1 – Use Case Diagram

This diagram represents the functional workflow of a women's safety application, illustrating various features designed to enhance user security in emergency situations. Below is a detailed explanation of each component:

- 1) User: The central entity who interacts with the application and utilizes its features.
- 2) Scan Vehicle Number Plate: Allows the user to scan a suspicious vehicle's number plate. This information can be stored and transmitted for security purposes.
- 3) SOS Emergency Messaging [22]: A critical feature that enables the user to send emergency messages when in danger.
  - Emergency Contacts [23]: The app forwards SOS messages to pre-registered emergency contacts.
  - Authorities: The app also notifies relevant authorities (such as the police) to ensure immediate assistance.
- 4) Danger Zone Notification: Alerts users when they enter a high-risk area [24] based on preloaded crime data, helping them take preventive action.
- 5) Safety & Tutorial Video: Provides instructional videos on self-defence techniques and how to use the app effectively during emergencies.
- 6) Add Emergency Contact [25]: Allows users to register and manage emergency contacts who will receive alerts when needed.
- 7) Store Emergency Message: Enables users to pre-record an emergency message that can be sent instantly during a crisis.
- 8) Locate nearby Police & Hospital [26]: Helps users find and navigate to the nearest police stations or hospitals for immediate assistance.
- 9) Click Photos & Upload in Database [27]: Allows users to take pictures in unsafe situations and upload them to a secure database, providing evidence if needed.

## V. RESULT

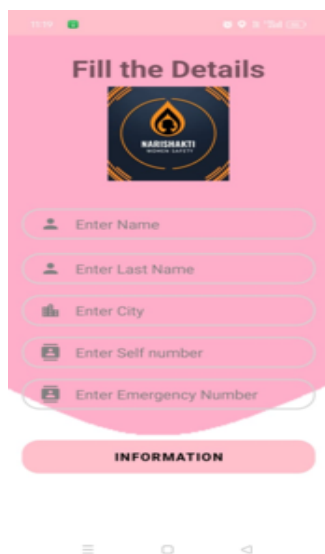


Fig 2 - User Information

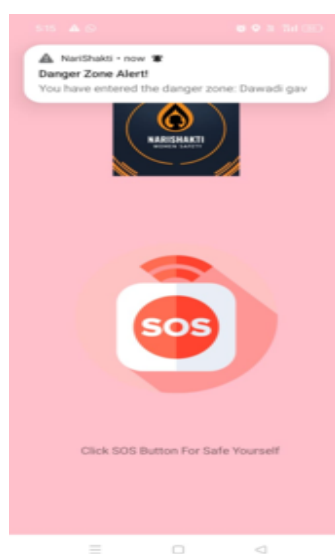


Fig 3 - SOS Button

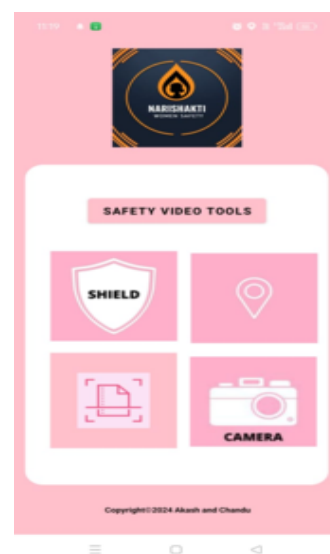


Fig 4 - Dashboard

- Fig 2 - The image shows a user registration screen for a women's safety app, requiring details like name, city, self-number, and emergency contact.
- Fig 3 - The image displays a danger zone alert notification and an SOS button interface in a women's safety app, allowing users to send emergency alerts when in distress.
- Fig 4 - The image shows the dashboard of a women's safety app, featuring safety video tools such as a shield button, location tracking, number plate scanning, and a camera function.

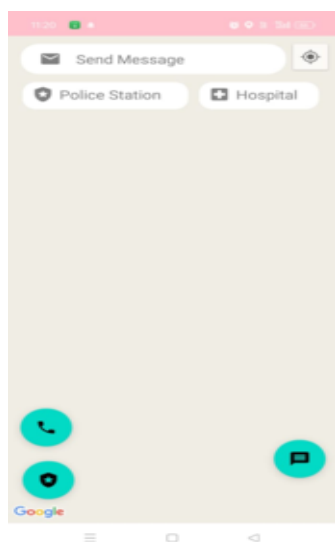


Fig 5 - Shield Menu

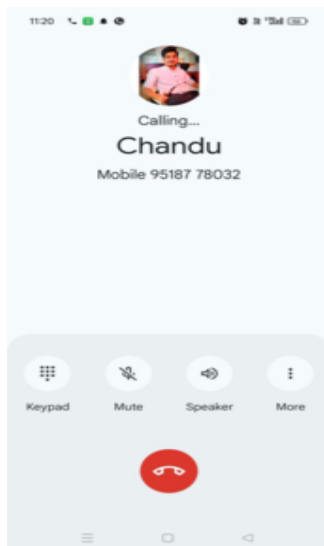


Fig 6 - Call Added Number

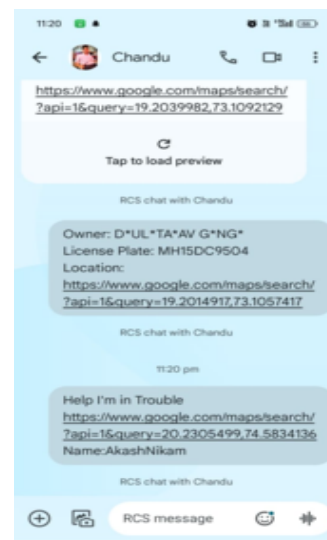


Fig 7 - SMS Added Number

- Fig 5 – The image displays a women's safety app interface that opens after clicking the "Shield" button, providing options to send messages, locate nearby police stations and hospitals, and quick-access buttons for calling and messaging.
- Fig 6 – The image shows the women's safety app initiating an emergency call to a saved contact after triggering the SOS feature.
- Fig 7 – The image shows the women's safety app initiating an emergency SMS and live location to a saved contact after triggering the SOS feature.

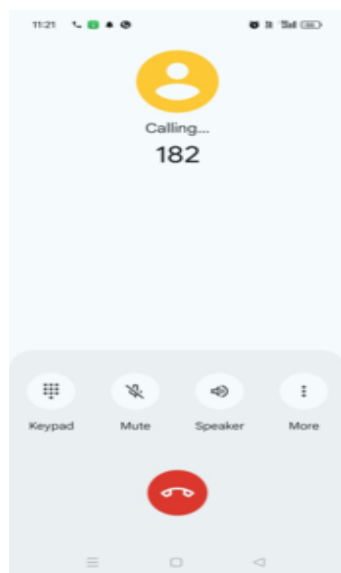


Fig 8 - Call Emergency Number

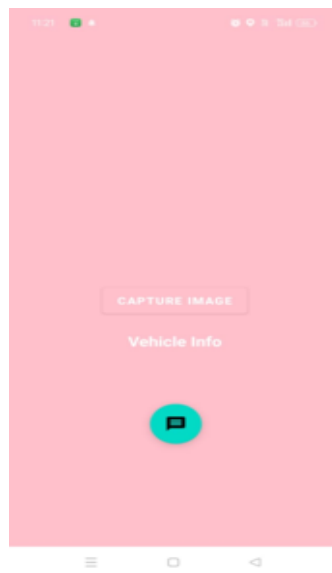


Fig 9 - Number Plate Scanning



Fig 10 - Number Plate Information

- Fig 8 – The image shows the women's safety app initiating an emergency call to emergency help line number [28] after triggering the SOS feature.

- Fig 9 – The image displays a women's safety app designed to capture number plates, retrieve vehicle information [29], and send emergency SMS along with the user's location.
- Fig 10 – The image shows the women's safety app successfully capturing a vehicle's number plate and retrieving partial owner details. It looks like the app is processing and displaying vehicle information.

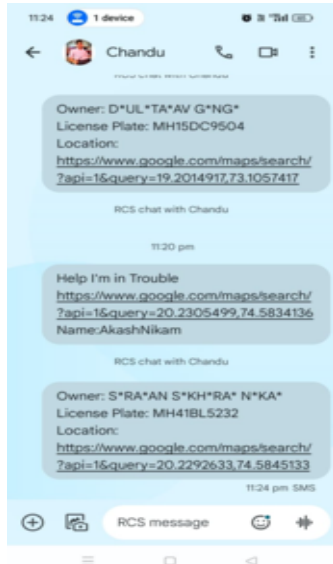


Fig 11 - SMS for Vehicle information



Fig 12- Camera Menu

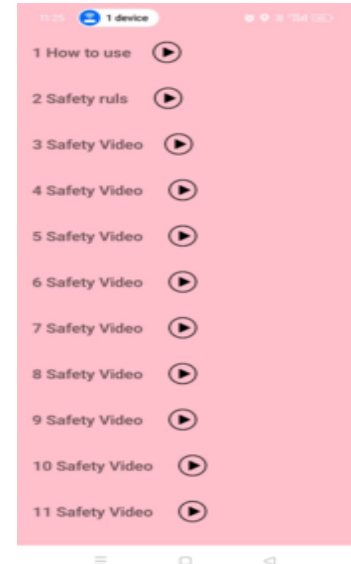


Fig 13 - Safety Tutorial

- Fig 11 – The image displays the women's safety app successfully sending the captured number plate, owner details, and live location to an emergency contact.
- Fig 12 – The image showcases a feature in the women's safety app that allows users to capture video and images, which can be stored in the database as emergency evidence.
- Fig 13 - The image showcases a women's safety app feature that provides safety videos for self-defense. This is a great addition to help users learn essential protective techniques.

## VI. CONCLUSION

Women's safety remains a critical issue requiring immediate and effective solutions. The proposed Android application addresses these concerns by leveraging advanced technologies such as GPS, GSM, and real-time communication [30] features. By enabling location sharing, emergency alerts, and vehicle number plate scanning, the app empowers users to take proactive measures for their safety. Additionally, the inclusion of educational resources, such as self-defence tutorials and situational awareness videos, equips women with the knowledge and skills to handle potential threats effectively.

The app's integration of a danger zone alert system and a built-in camera function enhances its utility by providing real-time crime zone notifications and enabling evidence collection. These features, combined with a user-friendly interface, make the application a reliable and accessible tool for improving personal security.

This project emphasizes the importance of utilizing technology to address societal challenges, particularly those affecting vulnerable groups like women. By fostering awareness, preparedness, and swift response to emergencies, the application not only supports individual users but also contributes to creating a safer community.

In conclusion, the development of this application is a significant step toward empowering women and fostering a culture of safety. With further enhancements and widespread adoption, this technology has the potential to set a global benchmark for addressing safety concerns through innovation. By promoting security and confidence, the app aims to inspire societal progress toward gender equality and a safer, more inclusive world.



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