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Women Safety Application

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ABSTRACT: The safety of women is an urgent concern, particularly with the increase in incidents like eve teasing, sexual assault, and domestic violence. To tackle these issues, smartphones can provide a rapid and efficient way for women to seek assistance. This project focuses on creating an Android application aimed at enhancing the safety of women in different situations they face in their everyday lives. Our app offers a range of safety features that can be activated with just a few taps, providing swift access to assistance or helping women escape dangerous situations. The app uses GPS tracking to allow registered contacts to quickly identify the user's location in case of an emergency, enabling them to provide help or reach the user promptly. The app will also offer features such as voice recording to document evidence for law enforcement or personal use, a siren to draw the attention of nearby individuals in emergencies, and a compilation of emergency helpline numbers for quick access to essential services. These elements work together to provide women with a straightforward and effective means of enhancing their safety.

KEYWORDS: Women Safety Android App; GPS; SOS; siren.

I. INTRODUCTION

In today's society, the safety of women has emerged as a significant concern, with harassment occurring in schools, workplaces, and even at home. Many women are becoming increasingly reluctant to step outside their comfort zones due to the growing prevalence of crimes against them, which restricts their freedom. Dangerous situations can arise unexpectedly, making an Android application that enables women to quickly seek help or escape essential.

One of the key issues with law enforcement's response to such incidents is the delay in addressing emergency calls. This lag often stems from a lack of real-time information about the crime's location or the authorities' unawareness of the situation. Furthermore, victims may find it challenging to contact the police discreetly and confidently. To tackle these problems, we present the Women's Safety Application—a smartphone app designed to provide women with a dependable way to connect with law enforcement during emergencies. This app seeks to empower women who are often denied their fundamental rights, aiming to restore a sense of safety by enabling rapid assistance.

Gender-based violence has become a pressing issue both nationally and globally, fueled by decades of advocacy from civil society and women's organizations. While many nations have enacted comprehensive laws to address domestic violence, sexual assault, and other forms of abuse aimed at protecting women, the enforcement of these laws often poses a significant challenge. As a result, women continue to experience injustice and insecurity, with many offenders evading accountability. It is our shared duty to strive for a world where women can enjoy equality and safety.

In cases of sexual aggression, perpetrators frequently feel emboldened by their power. To empower women in defending themselves against such threats, it's crucial to modernize self-defense strategies through the use of advanced technology. This initiative is dedicated to all women, affirming their right to live in a secure environment. In emergencies, a women's safety Android application can be activated with just one click. The app employs GPS technology to pinpoint the user's location and sends an alert, along with a location link, to designated contacts for immediate assistance. A notable feature of the app is its ability to provide continuous location updates every three minutes until the user presses the "Stop" button, facilitating quick responses and ensuring safe rescues. In today's world, traveling alone at night, especially for women, can be risky, as women may not have the physical strength to defend themselves against male attackers. Identifying and using available resources to escape dangerous situations is an effective way to reduce the risk of violent crime. A safety app on your phone can help minimize danger and provide immediate assistance when needed. Unlike other applications designed solely for emergencies, this app can be used both for precautionary measures and in high-risk situations. The old adage reminds us that it's wiser to prevent problems than to fix them

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later. The goal of this app is to create a safer environment by leveraging smartphones, which most people carry with them at all times. When activated, the app automatically sends a message to the police, including the user's current location and contact details of selected emergency contacts. This article outlines the app, its development, and its technical implementation.

ANDROID OS: THE OPTIMAL PLATFORM FOR MOBILE APPLICATION DEVELOPMENT

Android is a mobile operating system created by the Open Handset Alliance, spearheaded by Google and supported by various partners. This open-source, Linux-based OS is primarily designed for touchscreen devices such as smartphones and tablets. Its user interface emphasizes direct manipulation through touch gestures like swiping, tapping, and pinching, closely resembling natural interactions. Additionally, it includes a virtual keyboard for text input. Beyond smartphones and tablets, Google has adapted Android for other platforms, including Android TV for televisions, Android Auto for vehicles, and Android Wear for smartwatches, each featuring tailored user interfaces. Variants of Android are also utilized in notebooks, gaming consoles, digital cameras, and a variety of other electronic devices.

One of Android's significant strengths is its unified approach to application development. Developers can create applications that function seamlessly across a wide range of Android devices. The operating system's source code is publicly available under open-source licenses. Several reasons contribute to making Android an ideal development platform: it is open-source, boasts a large developer community, offers extensive marketing opportunities, supports inter-app integration, reduces development costs, has a higher likelihood of success, and provides a rich environment for development.

Figure 1 illustrates the global mobile OS market share in terms of sales to end users from 2009 to 2024.

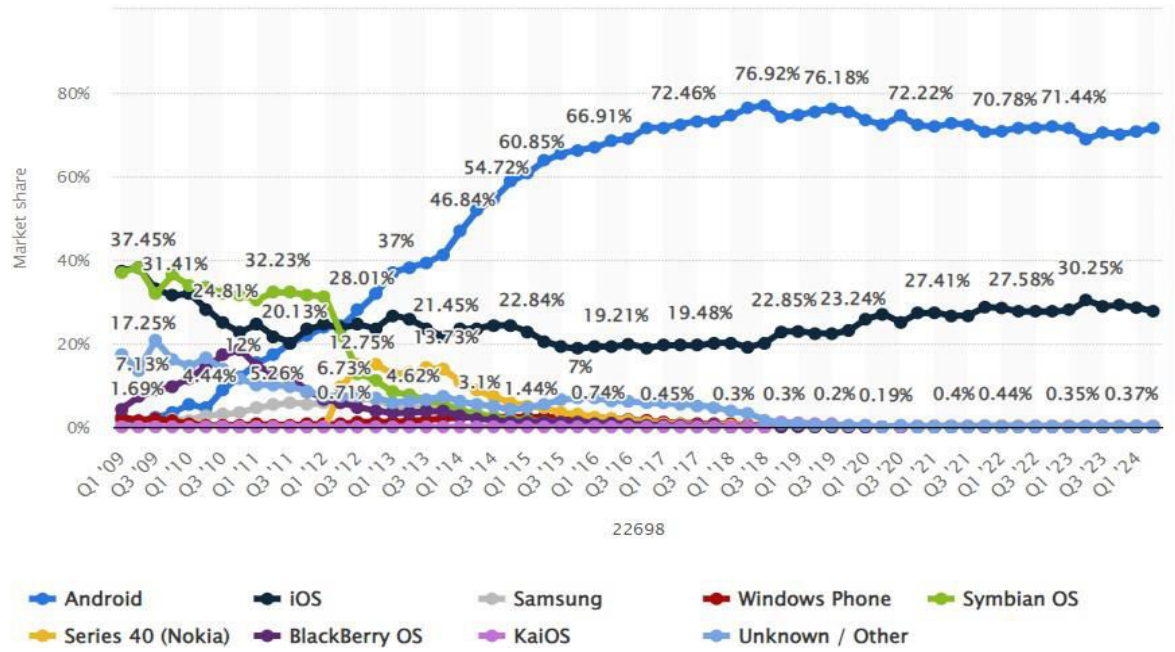

Fig 1. The global mobile OS market share, in terms of sales to end users, from 2009 to 2024.

II. RELATED WORK

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

In the study titled "S-ZONE: A System for Women Safety C Security," the authors emphasize that one of the most effective strategies to reduce the risk of violent crimes—such as robbery, sexual assault, rape, and domestic violence—is to provide tools that assist individuals in escaping potentially dangerous situations. The paper outlines the S-ZONE

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initiative, an Android application specifically designed to enhance women's safety by utilizing cutting-edge mobile technology. This application employs GPS to monitor the user's device, allowing emergency services to quickly locate and rescue individuals in perilous circumstances.

B. SHIELD: A PERSONAL SAFETY APPLICATION

The "SHIELD Application for Personal Security" lives up to its name by offering vital protection against threats. The app instantly sends a message with the device's location to all registered contacts, enabling live tracking of the user's movements and facilitating timely assistance. Its primary function centers on real-time GPS location tracking, which updates continuously. The SHIELD app monitors and reflects real-time changes in the user's location on its website, with updates appearing within 0.5 seconds, depending on the quality of the internet connection.

III. EXISTING SYSTEMS

Recent advancements in women's safety solutions encompass a range of technologies, including smartphone applications, security systems, and wearable accessories suitable for everyday use. One approach allows individuals to alert the police or designated contacts simply by pressing the power button, after which the system transmits their live location within a minute, continuously updating as the person moves. Another method employs fingerprint authentication, requiring the user to scan their fingerprint every minute. If the scanning ceases, the system automatically sends an SMS with the user's location to a registered contact, ensuring assistance is available during emergencies.

IV. PROPOSED SYSTEM

The proposed system aims to enhance women's safety by incorporating essential features such as live location tracking while integrating various functionalities from existing solutions, including GPS tracking and options for offline use. This flexibility enables women to select the most suitable feature based on their assessment of the situation. The objective of this project is to create a portable safety application for women with the following capabilities:

1. SOS: Sends an alert message to registered emergency contacts every 30 seconds, including the user's GPS location.
2. Siren: Activates a loud siren to alert those nearby and potentially deter an attacker.
3. Voice Recording: Captures ambient sounds, providing crucial evidence for any police investigations.
4. Helpline Numbers: Facilitates direct calls to emergency services through a dedicated function within the app.

V. DESIGN AND IMPLEMENTATION

This system employs a native mobile application, with MongoDB functioning as the backend database to securely store vital information. The database keeps user details, including personal information, registered emergency contacts, and helpline numbers. During emergencies, location links are sent to the contacts stored within the database to ensure prompt assistance.

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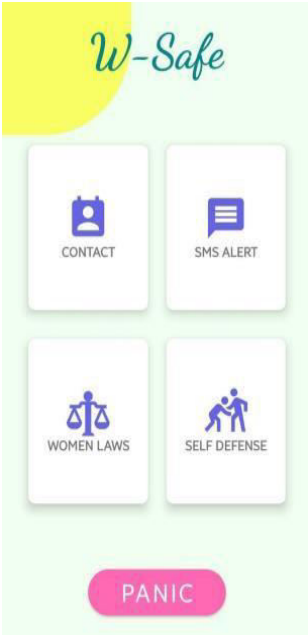
Home Page:

Fig1.home page



The first feature of the application is the SOS function, which sends alert messages to emergency contacts every 30 seconds. These messages contain a preset text along with a URL linking to the user's live GPS location, providing ongoing updates to the registered contacts.

Fig2.SOS Alert

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The SMS Activity is designed to manage the SMS service and facilitate user interaction. It features buttons to start and stop the service, along with an option to access helpline numbers. When the user clicks the start button, the activity verifies the necessary permissions and initiates a service known as Service Mine. Although the details of the Service Mine class are not included here, it is responsible for handling SMS functionality. Pressing the stop button sends a broadcast to terminate the Service Mine service if it is currently active. The helpline button directs the user to the Helpline Call activity, enabling access to emergency helpline numbers.

Helplines Feature:

Fig3. Helpline Numbers

The Helpline Call activity displays various buttons for different helpline services, such as distress, abuse, police, helpline, and ambulance. When the user clicks any of these buttons, an intent is created with the corresponding helpline number, and the device's dialler is opened to make the call.

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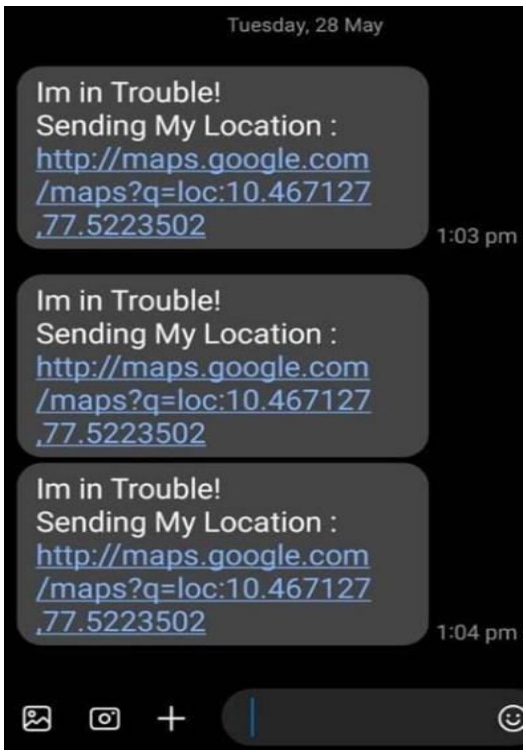

Fig4.Message containing URL

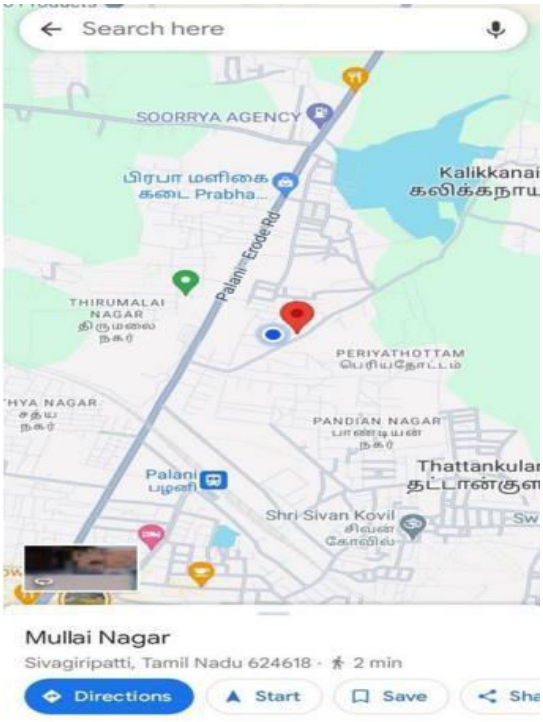

Fig5. Google map

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Contacts and Nearby Feature:

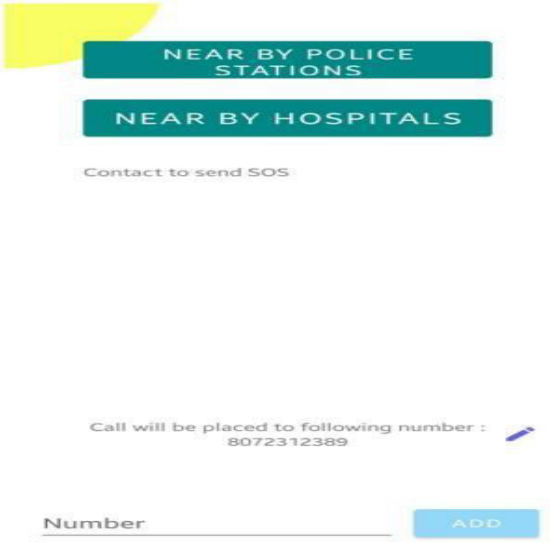

Fig6

The Contact Activity in the Android app allows users to manage emergency contact numbers. It provides a UI to add, delete, and view contacts, with key actions such as adding or editing the primary contact, stored in Shared Preferences. When editing the primary contact, a dialog prompts the user to enter a valid 10-digit number. The activity also uses a Recycler View with a Contacts Adapter to display and manage the contact list, allowing users to delete contacts via a delete icon. Additionally, buttons are provided to find nearby police stations or hospitals, launching Google Maps with relevant search queries.

Self-Défense Feature:

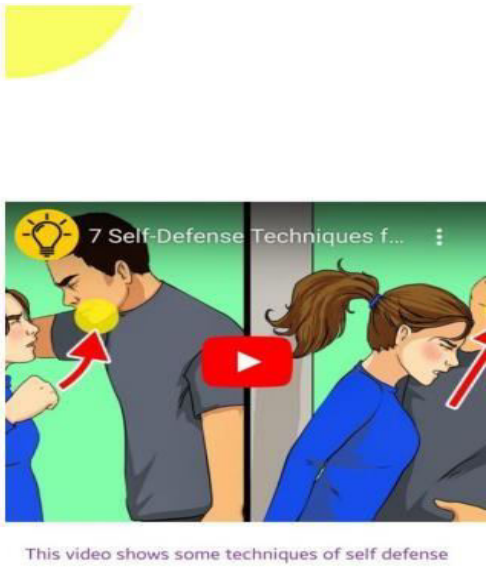

Fig 7

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Shake Detection:
Upon detecting the shake, the app can send the user's real-time GPS location to pre- selected emergency contacts via SMS, along with a predefined distress message. The message can include a Google Maps link for easy tracking.
A shake could also trigger a loud siren or alarm on the phone, which may help in scaring off attackers or alerting nearby people to the user's distress.

VI. CONCLUSION

In this study, we developed and implemented a women's safety system in the form of an application. A location tracking subsystem was successfully created, fulfilling the project's objectives, and key findings were documented. The system is designed to evolve in accordance with future goals. Additionally, the study investigates the application of GPS technology to monitor a victim's position using latitude and longitude coordinates.

Overall, our app fosters a safer environment for women, allowing them to work late at night with greater confidence. It aims to deter potential criminals and decrease the frequency of crimes against women. Functioning on any Android smartphone, the app serves as a protective resource for women's safety and security. With ongoing research and development, the system could be adapted for use in small wearable devices like watches, necklaces, or bracelets that include GPS and GSM modules. Once activated, the GPS module collects location data and generates a Google Maps link, which is then sent via text message to designated family members and friends.

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