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Women Safety Application

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Abstract: Ensuring the safety of women has become a critical concern in modern society, especially due to the increasing number of unsafe situations faced in daily life. One of the major challenges in such situations is the delay in getting immediate help. To address this issue, this project presents a mobile-based Women Safety Application designed to provide quick assistance during emergencies.The application makes use of smartphone capabilities to send instant alerts and share live location details with trusted contacts. Key features include an SOS alert system, motion-based activation (shake detection), and real-time GPS tracking. These features help the user to seek help even when manual interaction is difficult.The system is designed to respond quickly and ensure that emergency information reaches the right people without delay. Overall, the application offers a simple, effective, and practical solution to improve personal safety and reduce response time in critical situations.

"Index Terms -*Women safety, mobile application, SOS alert, real-time location tracking, shake detection, emergency contacts, Android, Java, alert system, personal security.".*

I. INTRODUCTION

In recent years, women's safety has become an important issue due to the rise in cases of harassment and violence. Even though awareness programs and legal measures are being implemented, there is still a lack of immediate support during emergency situations. In many cases, victims are unable to contact others quickly, which increases the risk and severity of the situation.With the rapid growth of smartphone technology, it is now possible to create smart solutions that can help in such emergencies. Modern mobile devices are equipped with features like GPS, internet connectivity, and motion sensors, which can be used to build safety applications. However, many existing applications depend on manual input, which may not be practical in panic situations.To overcome this limitation, this project introduces a Women Safety Application that can automatically respond during emergencies. The

application is developed using Android technology and includes features such as SOS alerts, shake detection, and live location sharing. These features help in sending alerts quickly, even if the user is unable to operate the phone manually.The main objective of this system is to reduce response time

and ensure that help reaches the user as soon as possible. By combining multiple safety features into a single application, this project aims to provide a reliable and easy-to-use solution for enhancing women's security.

II. RELATED WORK

Many researchers and developers have worked on improving women's safety using mobile and digital technologies. Several applications have been developed that provide emergency alert systems and location sharing features. These applications mainly allow users to send distress messages to selected contacts during dangerous situations.Some of the earlier systems depend completely on manual activation, where the user has to press a button to send alerts. While these systems are useful, they may not be effective in situations where the user is unable to access the phone.To improve this, some advanced solutions use smartphone sensors to detect unusual activities. Features such as motion detection and voice recognition are used to automatically trigger alerts. These systems help reduce dependency on manual actions, but they may sometimes generate false alarms if not properly designed.Location tracking is another important feature used in most safety applications. GPS technology helps in identifying the exact position of the user, making it easier for others to provide assistance. However, continuous tracking may consume battery and depends on network availability.Some systems also include wearable devices for added safety, but they increase cost and are not always accessible to everyone. Compared to these methods, the proposed application focuses on combining essential features into a single mobile app that is simple, affordable, and easy to use.

III. MATERIALS AND METHODS

The proposed system is designed as a mobile-based solution to improve women's safety by using the built-in features of smartphones. The application is developed on the Android platform and makes use of components such as GPS, motion sensors, and communication services to handle emergency situations effectively.The system mainly depends on sensor-based inputs to detect unusual conditions. One of the important features is motion detection, where the application identifies a specific shaking pattern of the mobile device. When such a pattern is detected, the system automatically triggers an emergency alert without requiring the user to manually operate the phone.Once the alert is activated, the application sends a message to the pre-registered emergency contacts. This message includes the current location of the user, which is obtained using GPS technology. The location is shared in the form of a link, allowing contacts to easily track the user's position in real time.The system ensures that alerts are sent quickly and accurately. By combining sensor inputs with communication features, the application provides a reliable method to request help during critical situations

IV. PROPOSED SYSTEM

The proposed Women Safety Application is designed to provide quick and reliable assistance during emergencies by integrating multiple safety features into a single platform. The system makes use of smartphone capabilities to ensure fast response, accuracy, and ease of use.

The application includes the following main features:

- SOS Alert

This feature allows the user to send an emergency message to selected contacts. The message includes the user's current location, enabling others to quickly identify where help is needed. The alert can be activated manually or automatically through motion detection, ensuring flexibility in critical situations.

- Live Location Tracking

The application provides continuous sharing of the user's real-time location once the SOS alert is triggered. This feature allows emergency contacts to monitor the user's movement and reach them without delay. The location is updated at regular intervals, ensuring accurate tracking throughout the emergency period.

- Shake Detection

This functionality enables the user to activate the emergency alert simply by shaking the mobile device. It is especially useful in situations where the user cannot interact with the phone directly. Once the motion is detected, the system immediately triggers the alert and shares location details.

- Siren Feature

The application includes a siren option that produces a loud sound when activated. This helps in attracting attention from nearby people and may discourage potential threats.

- Helpline Numbers

The system provides quick access to important emergency numbers such as police, ambulance, and women helpline services. Users can make calls directly with a single tap, saving valuable time during emergencies.

The proposed system is simple, efficient, and does not require any additional hardware. It is designed to work on standard Android devices, making it accessible to a wide range of users. By combining alert systems with real-time location tracking, the application ensures faster response and improved personal safety.

V. IMPLEMENTATION AND DESIGN

The application is developed as a native Android mobile application using Java. It utilizes various smartphone features such as GPS, sensors, and messaging services to implement safety functionalities.When the user opens the application, they are taken directly to the home screen, where all the features are clearly displayed. The interface is designed to be simple and easy to understand so that users can quickly access the required options during emergencies

Fig. 1. Architecture of Women Safety App

When the user opens the application, they are taken directly to the Home Page, where all the features are clearly shown. There is no need to register or sign up, which makes it quick and easy to use, especially in emergency situations.The Home Page includes important safety features like SOS alert, shake detection, siren, and helpline numbers. The user can choose any feature depending on their need at that moment. The design is simple and easy to understand, so anyone can use the app without confusion or delay.

The first feature of the application is the SOS alert. When this option is used, a message is automatically sent to the user's emergency contacts along with their current GPS location. A preset message and a location link are included, which helps others know exactly where the user is during an emergency.The location link can be opened in map services, making it easy to find the user's exact position. This helps the emergency contacts reach the user quickly and provide help without delay.The second feature is the siren. In this section, there are two buttons: start and stop. When the user presses the start button, a loud alarm sound is played. This can attract attention from people nearby and may help in avoiding dangerous situations.The third feature is shake detection. This works automatically by sensing sudden movements of the phone. When such movement is detected, it sends an alert without the user needing to press anything. This is helpful if the user is unable to operate the phone in a critical situation.The fourth feature is helpline numbers. This section provides important

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emergency contacts like police, ambulance, and women safety services. By tapping on any number, the call is made instantly, allowing the user to get help quickly.

Fig.2 :- App Icon

Fig.3 :- Home page of App

The first feature of the application is SOS. When activated, it sends an alert message to the user's emergency contacts along with their current GPS location. The app continues to send a predefined message with a location link to the registered contacts every 30 seconds, helping them track the user's location in real time.

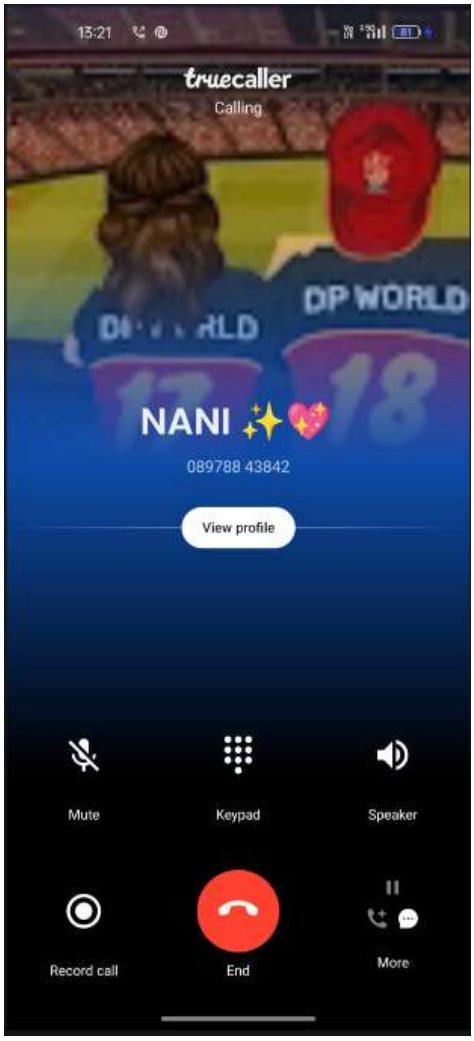

Fig. 4. SOS Alert and call activated

The call activation feature allows the user to make an emergency call just by shaking the phone. When a contact number is selected, the app quickly makes the call without any delay. This helps the user reach out for help easily during urgent situations.

Fig. 5. Message containing URL

Fig. 6. Google map

It sends an alert message to the user's emergency contacts along with their GPS location. The app continues to send a predefined message with a location link to the saved contacts every 30 seconds.

VI. CONCLUSION

In this study, we designed and developed a women's safety application. A location tracking system was successfully created based on the project goals, and the results were observed clearly. The system can be further improved in the future by adding more features as planned. The application uses GPS technology to track the user's location using latitude and longitude values. This helps in identifying the exact position of the user during emergency situations.Overall, this app aims to provide a safer environment for women, especially when they are outside or working late. It can help reduce the chances of crime by allowing quick access to help. The application works on any Android smartphone and is easy to use. In the future, this idea can be developed into a small wearable device like a watch, necklace, or bracelet using GPS and GSM modules. When the system is activated, the GPS collects location data and converts it into a Google Maps link, which is then sent as a message to family members and friends.

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