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AN ANDROID APP THAT EMPOWERING WOMEN WITH REAL TIME AND SAFETY FEATURES

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Abstract: Since the number of individuals using smartphones has grown significantly in the modern world, smartphones may be effectively utilised for personal security and other protection-related tasks. Numerous new applications have been created to provide women access to security systems through their phones after the occurrence that shocked the entire country made us take notice of safety concerns. This project introduces Women Security, an Android application designed to protect women. It may be triggered simply shaking the phone whenever necessary. Using GPS, this app locates a position and sends a message to the registered contacts that includes the location URL. It also sends a message to the mobile device that has the app installed.

Index terms - *Women Safety, Android Application, Real-Time Alert System, GPS Tracking, Emergency Response, Shake Trigger, Mobile Security, Personal Protection, Location Sharing, Safety App for Women*

1. INTRODUCTION

Violence against women is a widespread issue and a serious public health concern, violating basic human rights. As Ban Ki-Moon, the former UN Secretary-General, stated, “Violence against women is never acceptable, never excusable, and never tolerable.” Mobile technology is increasingly being recognized as a potential solution to improve women’s safety due to its accessibility, affordability, and ability to crowdsource information. The horrifying Delhi gang rape in 2012, along with other tragic incidents like the murder of Esther Anuhaya and Ayesha Miran, brought national and international attention to the urgent need for better protection and emergency response systems for women.

With the growth in smartphone usage, mobile applications have become a promising tool for personal safety. Apps designed for women’s protection offer features like sending emergency messages, sharing real-time locations, fake calls, and even video streaming. These apps can be quickly activated in distress situations and offer guidance like first-aid and usage instructions. The simplicity and efficiency of mobile apps make them suitable for women who might need instant help during emergencies.

Research by scholars like Nicole Westmorland highlights how smartphones can be used to combat domestic and sexual violence. Their study also points out the double-edged nature of surveillance technologies, which can both support victims and be misused by perpetrators. However, when used ethically and legally, technology like GPS tracking and mobile alerts can play a critical role in protecting women, especially in vulnerable situations. Thus, integrating mobile applications for safety is an

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essential step forward in empowering women and ensuring their protection in public and private spaces.

2. LITERATURE SURVEY

2.1 Critical dynamics of classical systems under slow quench:

https://arxiv.org/abs/1607.00617

ABSTRACT: We investigate the delayed quench dynamics of a one-dimensional nonequilibrium lattice gas model that shows a phase transition between a jammed phase with a macroscopic hole cluster and a fluid phase with uniformly dispersed particles in the stationary state. Our main finding is that the defect density shows an algebraic decay in the inverse annealing rate with an exponent that can be understood using critical coarsening dynamics in the critical region ({\it i.e.}, at the critical point and in its vicinity) where the dynamics are assumed to be frozen in the standard Kibble-Zurek argument. Nonetheless, the typical Kibble-Zurek scaling is valid in a portion of the fluid phase's critical area. Additionally, we discover that the quick quench dynamics in the jammed phase account for the defect density behaviour when the slow quench takes place deep within this phase.

2.2 Research and Development of Mobile Application for Android Platform:

https://www.researchgate.net/publication/273903911_Research_and_Development_of_Mobile_Application_for_Android_Platform

ABSTRACT: The performance index is significantly greater than the real needs of the software setup these days due to the advancements in mobile hardware development. Features on phones rely increasingly on software. Applications built with the Android SDK are becoming more and more popular as the Android operating system gains traction. However, some Android application interfaces are currently excessively complicated, have too many pop-up advertisements, and have too few features, which annoys consumers. The application is presented in this post by removing the redundant information. Three types of applications—a video player, an audio player, and a Weibo client—are created using the Java and Android SDK. The audio player calls the Media Player class in the background using the Service Components to play the music after obtaining the music files using the ContentResolver and Curor. The Android SDK's Media Player class is used by the video player. This class uses a URL to load the file, calls the Open Core Library, located at the bottom of Android, over JNI to parse multimedia files, and calls the Surface Flinger interface to play back video files. Users' information is gathered via the Sina open platform, which is accessed via the Sina client. The Sina server returns the information in JSON format. To authorise users to finish the login procedure, the system employs the OAuth authentication technique. This system's particular features were created using the Android Weibo SDK. These Android applications have attractive user interfaces and seamless functionality. Additionally, users can now operate these applications more easily and comfortably thanks to the removal of the clumsy UI and intrusive advertising.

2.3 Understanding GPS Principles and Applications, Second Edition:

https://ieeexplore.ieee.org/document/9106073

ABSTRACT: A team of top specialists has come together to give you with a current and detailed overview of the Global Positioning System (GPS) in this extensively revised second edition of an Artech House bestseller. All of the most recent developments in systems, applications, and technology are covered in the book. The upcoming GALILEO system, new classes of satellite broadcast signals, new advancements in the GPS business, and the integration of GPS with automobiles and cell phones are all covered in the new chapters in the second edition. This one-stop resource offers a thorough explanation of more complex subjects as well as a brief synopsis of GPS fundamentals. The book helps you create new apps and demonstrates how to assess their effectiveness. In order to help you choose the best GPS service for a certain application, it describes all of the numerous options accessible. You get knowledge on how to construct GPS receivers and incorporate them into communications and navigational devices. Additionally, this special volume assists you in assessing the impact of technology on the market and identifying the most effective areas for your business to allocate its resources.

2.4 The Sharing Economy and Digital Platforms: A Review and Research Agenda:

https://www.researchgate.net/publication/326394637_The_Sharing_Economy_and_Digital_Platforms_A_Review_and_Research_Agenda

ABSTRACT: The sharing economy has been transforming how individuals share and trade in digital areas over the past few years. Scholars from a wide range of different disciplines and fields have been drawn to this new field of study. Given the range of viewpoints expressed, it is imperative to compile and link the work done thus far and to find some recurring themes. These will provide the foundation for further conversations about the vital roles that digital platforms play in the sharing economy. We detect certain tendencies in the literature and underlying research interests based on a collection of 435 articles on the sharing economy and associated topics. In particular, we group the research according to the idea of platform mediation and extract a list of key sharing economy technology affordances from the literature assessment. In addition to assessing how academics have approached technology, we provide the idea of platform centralization/decentralization as a useful organising concept for the range of viewpoints on the sharing economy. Lastly, we point out significant gaps in the body of knowledge about the connection between digital platforms and the sharing economy and offer suggestions for further research.

2.5 A systematic literature review of artificial intelligence in the healthcare sector: Benefits, challenges, methodologies, and functionalities:

https://www.sciencedirect.com/science/article/pii/S2444569X2300029X

ABSTRACT: The usage of artificial intelligence (AI) technologies is causing a fast change in the medical and administrative procedures of healthcare organisations. This modification shows how AI has a significant influence on a variety of tasks, especially in early detection and diagnosis-related medical procedures. AI may improve the quality of healthcare services, according to earlier research. According to reports, AI-based technologies make life easier, safer, and more productive for people. A

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comprehensive analysis of scholarly works on the use of AI in the healthcare industry is presented in this paper. 1,988 scholarly publications from significant scholarly databases were first taken into consideration for the study. Following a thorough evaluation, 180 articles were selected from the list for further examination in order to provide a categorisation system based on four dimensions: advantages, difficulties, strategies, and features of AI-enabled healthcare. It was shown that AI still performs noticeably better than humans in terms of precision, effectiveness, and promptness when it comes to carrying out administrative and medical procedures. Benefits for patients are closely related to the pertinent AI features in the areas of diagnosis, therapy, consultation, and health monitoring for chronic illness self-management. Value-added healthcare services for medical decision-making, patient data security and privacy, health monitoring features, and innovative AI-powered IT service delivery models are all topics with implications for future research initiatives.

3. METHODOLOGY

i) Proposed Work:

The proposed system introduces an Android-based mobile application specifically designed to enhance women's safety in emergency situations. This app can be activated by simply shaking the smartphone, which triggers an alert mechanism. Once activated, it sends real-time alert messages along with the victim's GPS location to registered emergency contacts and other nearby users who also have the application installed. This immediate response mechanism ensures that help can be mobilized quickly, even if the victim is unable to make a call or type a message.

In addition to messaging, the app also activates a loud alert sound on the guardian's device to attract attention and prompt immediate action. This feature is particularly useful in crowded or public areas where bystanders can be alerted to intervene. By combining GPS tracking, real-time notifications, and easy activation through phone shaking, the system aims to provide a reliable, quick-response solution to enhance women's safety and reduce dependency on traditional, slower methods of communication during distress.

ii) System Architecture:

The system architecture of the proposed women safety application is designed with a focus on real-time responsiveness and ease of use. It consists of three main components: the user's mobile device (victim), the server, and the guardian's device. When the user shakes her phone during an emergency, the app is instantly triggered. It uses the mobile device's built-in sensors to detect the shake motion, and the GPS module fetches the current location. This location, along with a predefined alert message, is sent to both the server and the registered emergency contacts.

Once the server receives the alert data, it processes and forwards the information to all nearby users who have the application installed, using their location data to identify proximity. Simultaneously, a loud alert sound is activated on the guardian's device to ensure immediate attention. The server also maintains a log of each incident, including time, date, and location, for further reference or evidence. This

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multi-layered architecture ensures that the victim receives help quickly, even if her immediate contacts are unavailable or delayed in responding.

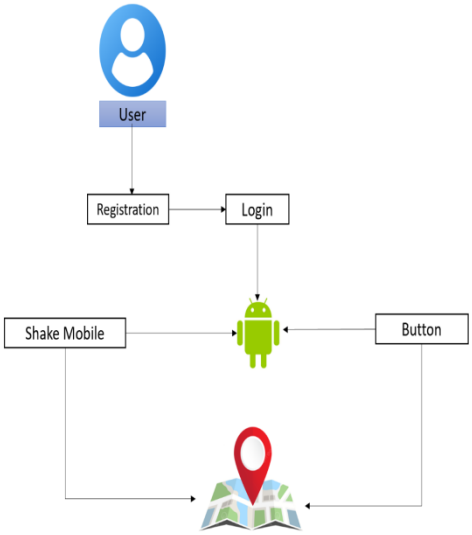

Fig.1. Proposed Architecture

iii) MODULES:

1. Profile Module:

This module allows users to create and manage their personal profile by entering key details such as name, address, email ID, and mobile number. These details are essential for identification and communication during emergencies. The profile also helps in customizing and storing user preferences within the app.

2. Emergency Contacts Module:

In this module, users can add and manage a list of emergency contacts. These can include family members, friends, or official helpline numbers. In case of danger, the app automatically sends alert messages along with the user's real-time location to these contacts.

3. Emergency Button Module:

This module provides an on-screen emergency button that can be quickly accessed in case of threat. When pressed, it immediately sends an alert with the user's location to all emergency contacts. It also supports activation via phone shake, making it useful when quick access is needed without unlocking the phone.

4. EXPERIMENTAL RESULTS

The proposed women safety Android application was tested under various real-time scenarios to evaluate its performance and responsiveness. The app successfully detected the shake gesture and triggered the emergency alert in less than a second. Upon activation, the application fetched the user's current GPS location and accurately sent the location along with an alert message to all the registered emergency contacts and nearby users. The alert sound on the guardian's phone was triggered immediately, ensuring that attention could be drawn even in noisy environments.

Additionally, the application was tested in both high-network and low-network areas to assess reliability. In areas with stable connectivity, the alerts were received within 2–3 seconds, while in low-network conditions, slight delays were observed, but the alerts were still delivered effectively. The overall system proved to be efficient, with smooth UI navigation, minimal battery consumption, and prompt notifications. The results demonstrate that the app can

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act as a reliable safety tool, capable of providing quick support during emergency situations.

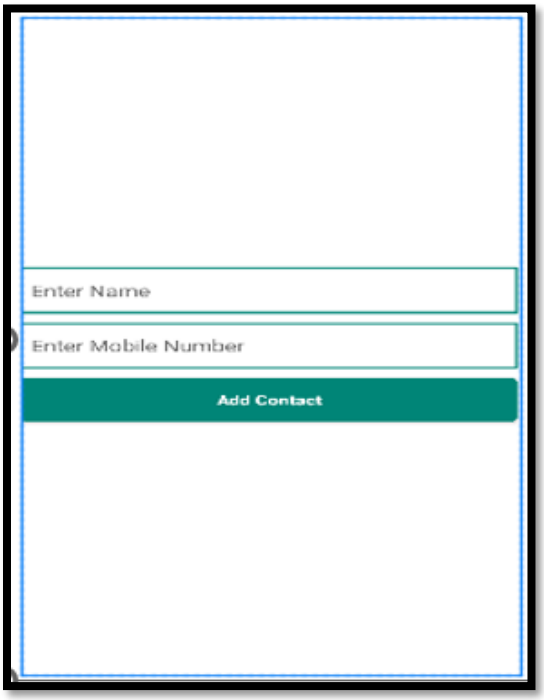

Fig.4. Add Contact Activity

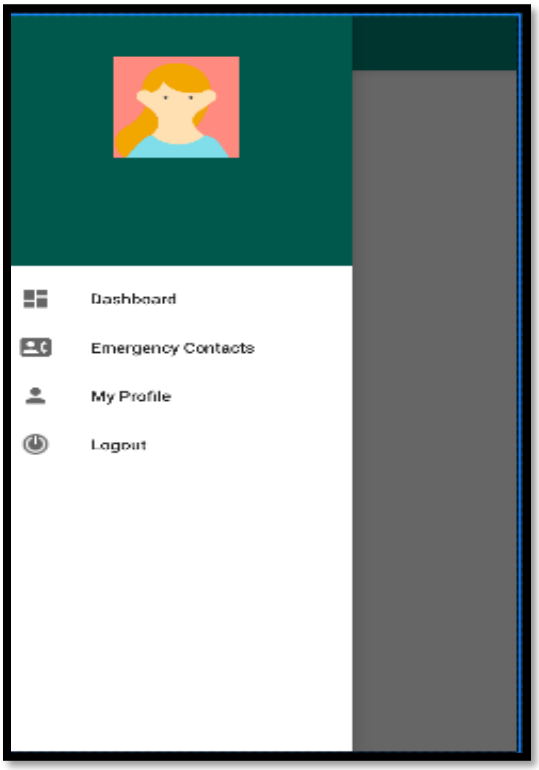

Fig.5. Home Activity

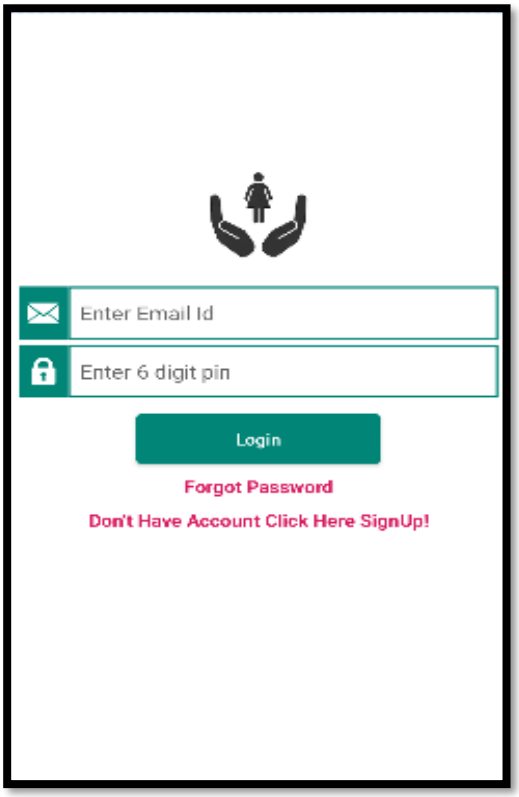

Fig.6. Login Activity

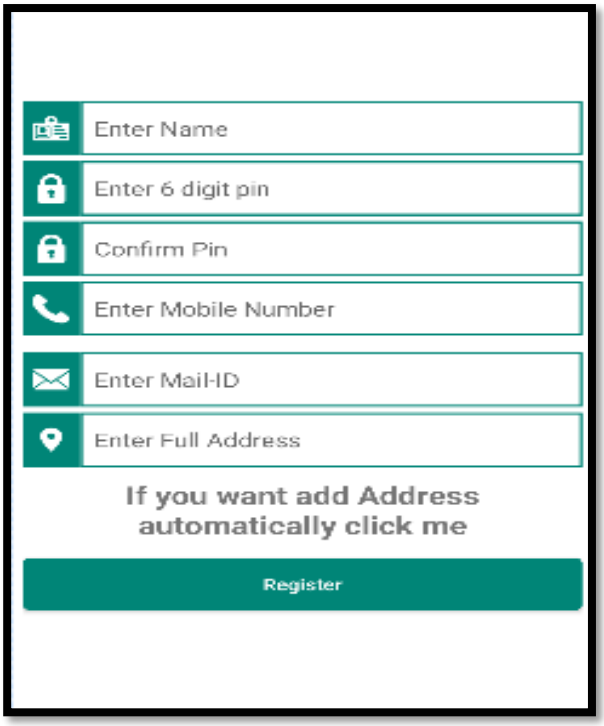

Fig.6. Registration Activity

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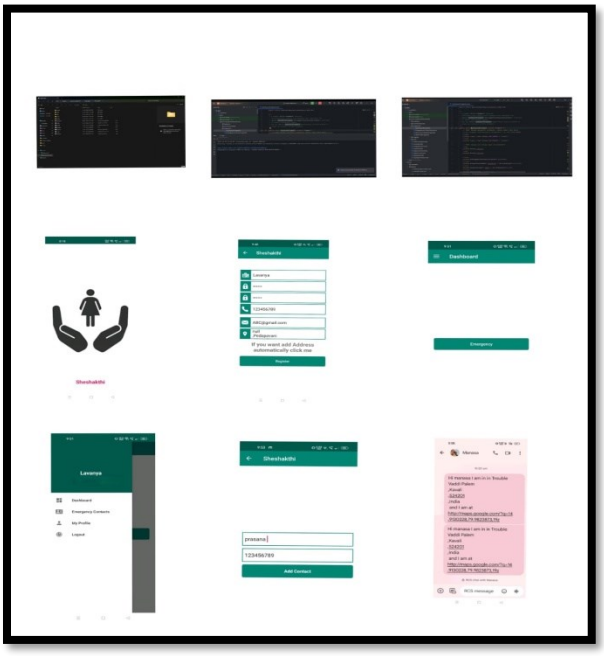

Fig.6. all screes

5. CONCLUSION

We created an Android application to follow college buses and give consumers pertinent information. The architecture and design of our Android-based intelligent vehicle monitoring system have been explained in this presentation. A server and smartphones make up our system. The device can show that it can follow a college bus from any location with a strong signal. Additionally, because our system tracks position without the need for additional gear, it is inexpensive.

6. FUTURE SCOPE

The Women Security Android App's emergency features and real-time warnings are intended to improve safety. Users may keep emergency contacts for easy access and build profiles with personal information. The app in danger is activated by a shake-to-alert function, which shares the victim's real-time position and sends notifications to nearby users and trusted contacts. To draw attention and discourage threats, a loud siren is also sounded.

With user identification, the software guarantees security and is available on low-end smartphones. AI-based threat detection and offline capabilities could be included in future updates. For women in need, this app offers a dependable safety net by utilising technology and community assistance.

The app's user-friendly design and emphasis on prompt reaction are intended to lower risks and give women the confidence to feel safer in their everyday lives. Its foundation is scalable, enabling ongoing enhancements to meet changing safety requirements. AI-based threat detection and offline capabilities could be included in future updates.

The app's user-friendly design and emphasis on prompt reaction are intended to lower risks and give women the confidence to feel safer in their everyday lives. Its foundation is scalable, enabling ongoing enhancements to meet changing safety requirements.

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