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Women Safety Android App

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Abstract: *In modern society, a girl's primary concern is for her protection and safety. A few years ago, a lady had to use the social media system to express her outrage and serve as a warning to others about sexual harassment that she had experienced. According to a report, of people must endure sexual harassment against their will. In public spaces, at work, and at home, the percentages, and respectively Police caseloads are initially a big problem, but there are other issues as well, such as not knowing the victim's precise location or whether the crime was committed at all, and when there is in- sufficient proof, the police cease their investigation. This study focuses on a novel Internet of Things-based evidence-gathering tool to guarantee women's safety and it gives us great pleasure in presenting the preliminary project report on Women Safety android app.*

Keywords: Women safety, Precise location

I. INTRODUCTION

Women's security is a significant issue in India, just as it is in many other countries. It isn't safe for women to travel alone at midnight or in unfamiliar places. There should be support for women since they are often not as physically strong as men. In this context, mobile phones can be a woman's best friend, allowing her to stay in contact with loved ones at any time. In case of an emergency, anyone can make a call or send a message from anywhere. we are introducing an app that ensures the safety of women. This app helps identify and send messages to resources that can assist someone in dangerous situations. It reduces risk and brings help when needed, while also allowing us to pinpoint the location of someone in danger. The Android SDK provides the tools and APIs necessary to create applications on the Android platform using the Java programming language. women in crisis can use a voice-based contact list, enabling them to operate the app through voice commands and make calls when required. The app also allows for sending short text messages between mobile devices, with voice recognition being the main feature of this application

II. LITERATURE SURVEY

Today in the current global scenario, women feel less secure to go outside. They are facing so many consequences in this independent world. Here ,we are focusing on a scenario where the women walking harassment either from the front or back side during day or night time. To overcome these issues, we have developed a smart portable device which can track the current location of the victim. When they feel insecure ,their heartbeat increases which can be measured by the pulse sensor and their stress level is monitored

In recent years, acts of assault and violence against women are rising at a menacing rate. With the escalation of female employees in industries and other sectors of the commercial market, it is now becoming a necessity for females to travel at late hours and visit distant and isolated locations as a part of their work regime. However, the exponential increase in assault, violence and attacks against women in the past few years, is posing a threat to the growth and development of women. Defense isn't the only measure that can suffice against this increasing abuse. A security solution that creates a sense of safety among women needs to be devised. In instances of attack, it is largely reported that women are immobilized. There is thus, a need of simpler safety solution that can be activated as simply as by pressing a switch and can instantly send out alerts to the near ones of the victim. In this paper we intend to design and implement such a system in the form of a partial wearable and partial portable system. Index Terms — GSM modem, GPS module, image streaming.

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III. METHODOLOGY

- **Requirement Gathering:** Define how KNN will aid in safety, such as identifying nearby safe zones or alerting users based on location data patterns.
- **Design & Algorithm Integration:** Design the app with KNN integration, focusing on location-based alerts. For instance, KNN could identify if the user is in a potentially unsafe area by comparing their location with historical incident data.
- **Data Collection for KNN:** Gather location and safety-related data (e.g., past incidents) for KNN training.
- **Testing KNN Accuracy:** Validate KNN's performance by checking prediction accuracy and refining parameters (like 'K' value) based on feedback.
- **Evaluation:** Assess KNN's real-world effectiveness in alerting users to risky areas.

IV. TECHNOLOGIES USED

- **Android Development**: Java/Kotlin, Android Studio for building the app.
- **Database**: SQLite for local storage; Firebase for real-time data sync.
- **Location Services**: Google Maps API, geolocation, and reverse geocoding for tracking.
- **Machine Learning**: K-Nearest Neighbors (KNN) for location safety classification.
- **Emergency Tools**: SMS, calls, and push notifications for alerting contacts.
- **Sensors**: Accelerometer, microphone, and camera for detecting emergencies and recording incidents.
- **Security**: AES encryption and OAuth for data protection.
- **Cloud Computing**: AWS/GCP for data processing and storage.
- **UI/UX**: XML and Material Design for a user-friendly interface.
- **Analytics**: Firebase Analytics and Crashlytics for app performance monitoring.

V. SYSTEM ARCHITECTURE

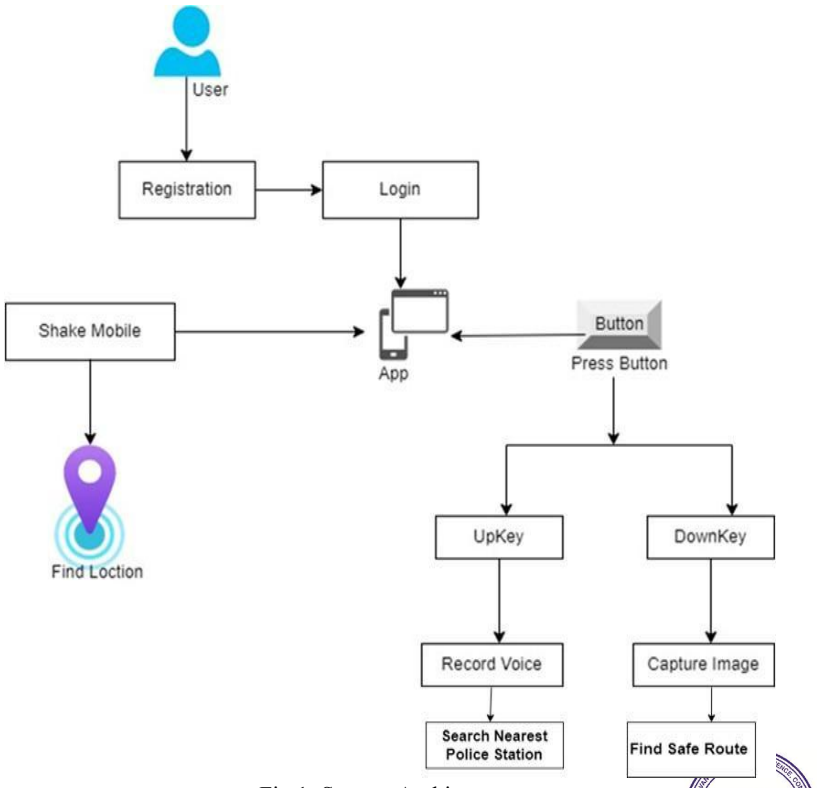

Fig.1. System Architecture

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DATAFLOW

Fig.2. Data Flow Diagram

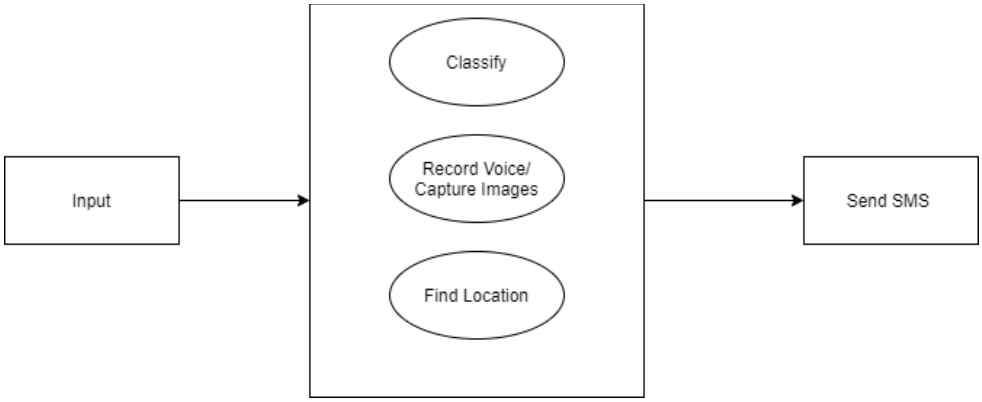

Figure 5.2: DFD Level 0

SOFTWARE INTERFACE

A women's safety Android app includes key software interfaces that work together to provide a safe, user-friendly experience. The main user interface features an SOS button, a profile setup for emergency contacts, notifications, and settings to adjust preferences. The app's backend securely stores data, handles location tracking, sends messages to contacts, and issues alerts when needed. It connects with map and SMS services to track the user's location and share it in emergencies, potentially linking with local authorities too. Additionally, the app can predict risky situations using data and a K-Nearest Neighbors (KNN) algorithm, continuously improving with user feedback. Privacy and security features ensure personal information is kept safe, while in-app communication options like quick calling or texting let users reach out easily in emergencies.

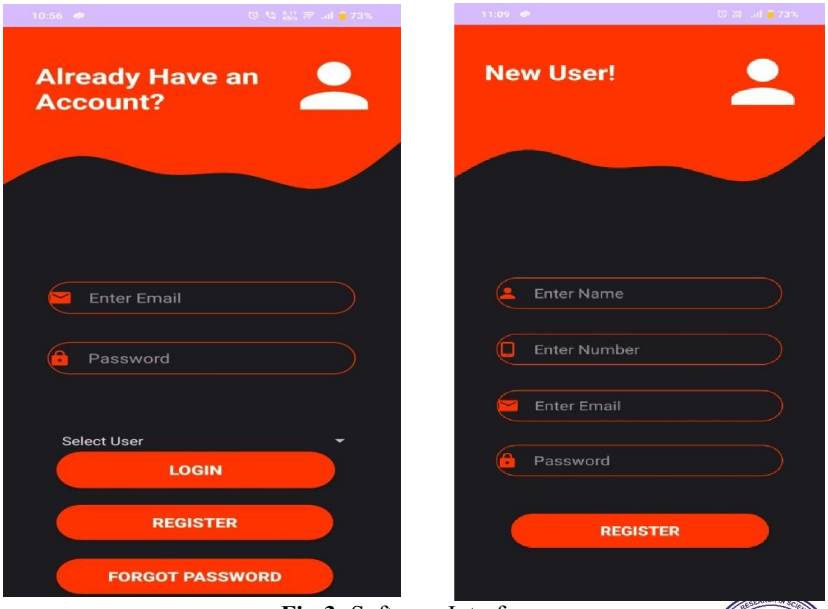

Fig-3: Software Interface

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VI. CONCLUSION

The **Woman Safety Android App** offers an essential tool for enhancing women's safety and empowerment in today's world. With its combination of real-time tracking, emergency alerts, fake call simulations, and automatic audio/video recording, the app serves as a multi-functional safety companion that prioritizes quick response and ease of use in crisis situations.

By utilizing the power of mobile technology, this app can make a tangible impact on personal security, giving women and their loved ones a heightened sense of safety and support. The app not only addresses emergencies but also provides resources for awareness and prevention, contributing to a larger movement toward creating safer public spaces.

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