AN INTEGRATED SAFETY APPLICATION FOR WOMEN

[1]Afsy B Karim, [2]Anjana Sasi, 3Pavithra C A, [4]Afsiya S, [5]Shanavas K A

[1,2,3,4]B. Tech Scholar, [5]Assistant Professor
Computer Science and Engineering,
Ilahia College of Engineering and Technology
Mulavoor, India.

Abstract- **The number of crimes committed against women in the nation has significantly increased. We frequently hear reports of molestations, eve-teasing, and other similar behaviors occurring in public. These days, the safety of women is the first priority, so it is very crucial for women to develop a safety device that can operate as a rescue and shield in the event of danger.53 percent of women and kids said they don't feel safe. For the benefit of the country's prosperity, harassment of women must end totally. The suggested design will address important difficulties women encounter and offer protection. It may be argued that this tool gives them protection and a sense of independence. The victim's location to pre-set phone numbers for contact. There are two ways to operate it: manually and automatically while taking accelerometer readings into consideration. The alert is delivered to pre-set contacts to help them deal with the problem. Alert messages are now displayed in blacklisted regions. This sophisticated safety system allows for the filing of complaints against offenders. The user has the ability to document and report potentially hazardous situations. It also contains laws and safety recommendations for women. Machine learning is utilized for threat detection.**

Index Terms- **Alert, panic button, emergency call, machine learning (ML)**

I. INTRODUCTION

As the world goes digital, smartphones have become an integral part of our daily lives. Given the rise in crime against women, a cell phone that keeps women safe is essential. The program can provide immediate assistance in an emergency and give women the confidence they need to live independently. The Women's Safety mobile app may have an SOS button or similar functionality. If a woman is feeling scared or uncomfortable, the app's location tracking feature can alert her family and emergency services.

In addition, the app can provide self-defense tips, hotlines and emergency calls. The app can provide women with security awareness while fending off attackers. Finally, smartphone apps for women's safety can be very useful tools in keeping them safe. Women who feel threatened or at risk can benefit from his help and support. In addition, these practices can help support a safe environment for women and make women aware of their own safety.

Women support every business and influence the future of their country. She used to stay at home to take care of the children but now she works and lives in the same place and women have a job just like men. In a long-standing effort for gender equality in the workplace, the Indian government will amend the Factories Act 1948 to allow women to work at night. The Amendment states that only employers will provide adequate protection for health and safety at work, equal employment opportunities for women, adequate protection of women's dignity and respect, and transportation from the factory site to a nearby location. Night work is allowed.
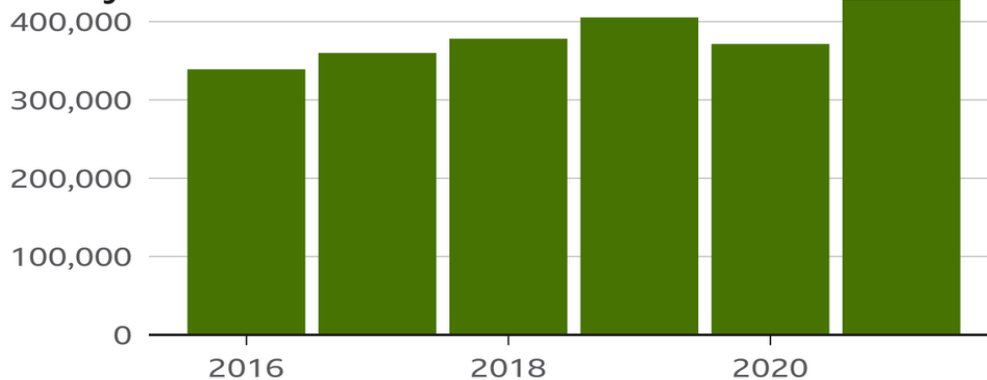

Fig 1: Crime Against Women in India 2016-21 (Source: National Crime Records Bureau 2016-21).

II. LITERATURE SURVEY

In [1] an agility method was used to develop the application. This This application can be used when a person is in a dangerous situation. Some features include sending current location to saved emergency contacts, an alarm button activates will scare the attacker and personalized emergency call and text service will be provided. Users can add up to 4 emergency contacts who will

receive the message. In this the user has entered an unknown location, they can share their living location with family or friends. Technology can be used to help women in distress or traveling to uncomfortable places or Unknown destination [2] show an application that has panic button to send a message to the nearest police station and an SMS to the registered family member. One Prerecorded messages will be sent. Other features include that you can call the nearest police station directly or send GPS location. Video and audio recording is also done. In this way, it is possible to help women in difficulty. [3] Suggest an application for health emergencies, if you need immediate help, such as an accident, crime, incident, etc. This application is completely dependent on the user's geolocation. This Android-based application provides location information based on geolocation functionality. Also, if you want to call 911 instead of going to an emergency number, You can call 911 directly by tapping the SOS button. In this proposed system user data is provided automatically to the responder employed at the time of registration. This application is also available as a website and app. This website has similar functionality to the mobile application. Fetch and send the required information from the database Via web application. The app has a home module View news feeds such as traffic accidents and fires. It also includes an emergency section with two. Buttons - SOS and help buttons. SOS button Press to bring up a dialog box with options to send. If the user wants to enter a message, the help button is pushed. In [4] the event of an emergency, women can choose from a number of options for issue types and sites and contacts regarding such conditions are given accordingly by the system. The system also has a live tracking module will continuously track the location of women and a woman can share this location with her contacts with the intention [5] It helps us sound the alarm and you can call for help in life-threatening emergencies. Rear when installing the app, you must first enter your PIN number for your safety, if you need an emergency contact register for the app. Tap the safe button to notify your contacts of location coordinates. [6] send the user's location information to registered contacts, users can also retrieve contact location details. An emergency call with loud volume at the touch of a button summer to our near and dear ones. can add more contacts to this app and here if you don't have a data connection app notifies contacts via SMS. [7] This application asks for help from the community in any critical situation and have four crisis functions just click a button to start. Feature something like first, it updates automatically on facebook account in your last place. then an SMS is sent to selected employees in your area. the third is an alarm started with a loud volume on your phone. the fourth ,call must be located at the emergency number chosen. [8] This app is mainly designed for women safety to make a call with your name, your current location and an emergency call to your selected friends. In this application, you need to enter your contact information in the profile card, e.g. date of birth, weight, eye colour, blood type, hair color, that sort of things. This app is additionally utilized in I-Phone, I-Pad, BlackBerry, Windows Phone etc. [9] presents a mobile application designed to enhance women's safety by utilizing GPS and GSM technologies. The app has various features, including the ability to send emergency messages to predefined contacts, real-time tracking of the user's location, and the ability to detect if the user is in danger based on the user's movements. The app is designed to be easy to use and customize, with the user having the option to choose which features to enable or disable. The authors also discuss the implementation of the app and the challenges faced during the development process. [10] The paper proposes a women's safety application that uses IoT and GPS technologies. The app has various features, including a panic button that sends an alert to predefined contacts, automatic location tracking and sharing with emergency contacts, and the ability to record and store audio and video in case of an emergency. The app also has a feature that allows the user to send a fake call or SMS to distract an attacker. The authors discuss the implementation of the app and its potential to enhance women's safety in various situations. The paper also highlights the importance of user privacy and data security in such applications. [11] The paper proposes a safety system for women that uses Internet of Things (IoT) technology. The system consists of a wearable device and a mobile application. The wearable device is equipped with sensors that can detect falls, abnormal heart rates, and sudden movements. If any of these events occur, the device sends an alert to the mobile application, which can be used to notify emergency services or the user's emergency contacts. The authors suggest that their proposed system can be an effective tool to ensure women's safety, especially in high-risk areas. [12] The paper proposes a safety system for women that uses wireless sensor networks (WSNs). The system consists of a wearable device, a base station, and a mobile application. The wearable device is equipped with various sensors that can detect falls, heart rates, and sudden movements. The data from these sensors is transmitted to the base station through WSNs. The base station processes the data and sends alerts to the mobile application in case of an emergency. The authors suggest that their proposed system can be an effective tool to ensure women's safety, especially in areas with poor network connectivity.

III. PROPOSED WORK

A. MOTIVATION AND OBJECTIVES

The rising incidents of crimes against women have raised concerns about their safety and security, especially in public places. The objective of the Women Safety App is to provide a comprehensive safety solution to women that can help them in distress situations and prevent incidents of violence. The app is designed to offer women a sense of security, independence and self-confidence while moving in public spaces. The primary motivation behind developing the app is to provide women with a tool to address safety concerns that can be easily accessible, effective and efficient. their safety and security by offering them timely assistance and support. The key objectives of the Women Safety App are:

1. Quick assistance in distress situations
2. Prevention of violence
3. Increased awareness
4. Easy accessibility
5. Enhanced safety features
6. Self-defense training

In summary, the Women Safety App is designed to provide women with a comprehensive safety solution that empowers them to take control of their safety and security. The app aims to create awareness, prevent violence, and provide quick assistance during emergencies, making public spaces safer for women.

B. PROPOSED SYSTEM

The proposed system will address key issues facing women and ensure safety. Presumably the app is protecting them by sending the victim's location to the first call number, allowing them to be free. It has two operating modes, manual and automatic, and takes accelerometer values into account. An alert is sent to the negotiators first to help them resolve the issue. There is now a warning in the blacklist field.

Complaints against criminals can be made using this smart security system. Users can take photos and report dangerous activities. It also includes safety and legal advice on women's safety. Threat detection tools also increase the accuracy of the system.

IV. ALGORITHMS

A. DECISION TREE ALGORITHM

The decision tree algorithm is a machine learning technique used for classification and replication. The algorithm works by recursively dividing the data into subsets based on the importance of the input properties up to the emergency stop. The result is a tree model with leaves corresponding to the output or target variable. Decision tree algorithms are popular because of their interpretation and simplicity. The decision tree algorithm consists of the following steps:

• Data collection: The first step in the decision tree algorithm is data collection.

• Build a decision tree: After the relevant features are selected, a tree model is created using the decision tree algorithm. The tree is created by iteratively subdividing the data into subsets based on the characteristics that best distinguish the data.

• Pruning Trees: Once a tree is decided to be made, it can be pruned to improve its performance. This includes removing some branches that have not improved its function.

• Model Evaluation: Once a decision tree has been created and trimmed, it should be evaluated on the test data. The performance of the decision model is evaluated using indicators such as accuracy, precision, recall and F1 score.

• Decision: After the decision model has been evaluated, it can be used to make predictions on new data. A decision tree takes values for the input and uses the tree to predict the outcome variable.

B. Java:

It is a popular programming language that is used to develop a wide range of software applications, including desktop and web-based applications, mobile apps, and enterprise systems. It was originally developed by James Gosling at Sun Microsystems and was released in 1995. Java is known for its portability, security, and robustness, and is widely used in the development of enterprise-grade applications.

C. Android SDK:

Software Development Kit is a collection of tools and resources that are used to develop Android applications. It includes a comprehensive set of development tools, libraries, and documentation that enable developers to build highquality apps for Android devices. The SDK includes tools for debugging, testing, and profiling Android applications, as well as APIs and sample code that can be used as a starting point for developing new apps.

D. Google Firebase:

It is a mobile and web application development platform that provides a suite of tools and services for developers. It includes tools for authentication, real-time database, cloud storage, cloud messaging, and analytics, among others. Firebase makes it easy for developers to build high-quality applications without worrying about infrastructure, scalability, and security.

E. Third-Party Libraries And APIs :

They are tools that developers can use to add additional functionality to their software applications. Third-party libraries are pre-written versions of code designed to be integrated into larger software projects. They can provide various functions such as data entry, customer communication or encryption techniques. Using third-party libraries saves developers time and effort because they don't have to write all the code themselves. However, it is important to choose well-known and secure libraries, because using bad or outdated libraries can create security vulnerabilities in the software.

An API or Application Programming Interface allows different software programs to communicate with each other. An API defines rules and procedures that allow different software to exchange data and information. They can be used to integrate business from third-party services such as social media platforms, payment gateways, or weather information providers. By leveraging APIs, developers can add powerful features to their apps without having to build them from scratch

F. .Google Map Direction API:

Google Maps Direction API is a service provided by Google that allows developers to access and integrate Google Maps' functionality into their applications. This API enables developers to display routes, directions, and other navigationrelated information to their users .By using the Google Maps Directions API, developers can provide their users with various types of routing options such as driving, walking, bicycling, and public transit directions. The API also offers options to include traffic information and alternative routes.

G. Google Cloud Messaging (GCM) API:

Google Cloud Messaging (GCM) was a mobile notification service developed by Google that allowed app developers to send messages and notifications to their users on Android devices. However, GCM has been replaced by Firebase Cloud Messaging (FCM) which is now the recommended way to send push notifications to Android devices.

H. SQLite API:

SQLite is a software library that provides a relational database management system (RDBMS) for use as a database in software applications. SQLite provides an API that allows developers to interact with data from various programming languages. To use SQLite in your application, you must include the SQLite library in your project and use the appropriate programming language API to interact with the data. This API can be used to create and manage local files in the application.

I. Retrofit API:

Retrofit is a type-safe HTTP client for Android and Java. It allows you to easily consume restful web services by turning the API into a Java interface, and provides easy-to-use methods to perform HTTP requests and handle responses. This API can be used to make network calls and communicate with web services. Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar.
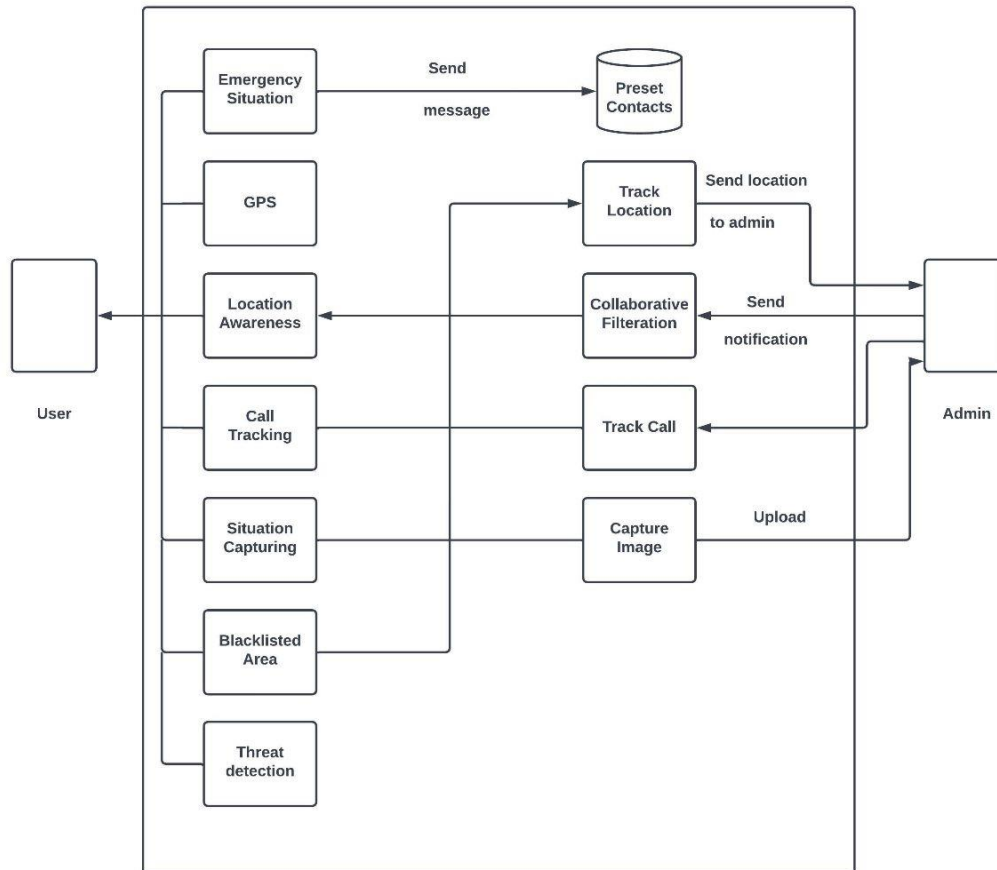

Fig. 1. Architecture of proposed system

V. METHODOLOGIES

A. Admin Module

Using a legitimate user name and password, the administrator must log in to the application's admin module. After successfully logging in, the user can carry out a number of actions, including seeing who has registered for the app, who has used it recently, and user input that helps the developer to improve the programme and make it more widely used. He can also change the application's data.

B. User Module

Users must sign in or register to use this module's functions, which include register complaints, locate themselves, and receive alerts about black listed areas, threat detection, self defense video, laws and regulations regarding women safety. This application can be work in two modes, manually and automatically by taking accelerometer values in consideration.

VI. FUTURE SCOPE

The new features added can be the flexibility of a comprehensive and functioning system, which can easily accommodate new features and modules as technology advances or user requirements change. The system is built on objectoriented architecture, which enables easy adaptation to any future adjustments. Additionally, emerging technologies can be used to enhance the system's security to tackle any security challenges that may arise. Overall, the system can be continuously improved and updated to remain relevant and efficient in meeting user needs

VII. CONCLUSION

As a result, our software provides a safe and secure environment for women in society, keeping them safe even in the middle of the night. When used in a timely manner, the program can reduce crimes against women and thus increase women's protection. The campaign provides safety and security to customers with location-based services, SMS services and GPS services. It has two operating modes, manual and automatic, and takes accelerometer values into account. An alert is sent to the negotiators first to help them resolve the issue. There is now a warning in the blacklist field. Complaints against criminals can be made using this smart security system. Users can take photos and report dangerous activities. It also includes safety and legal advice on women's safety.

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