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Research Paper**WOMEN SAFETY DASHBOARDS IN SMART CITIES****DUMPALA PRASANTH¹, MERAVELLYASHWITHA², ANUGULA KEERTHANA³**¹Assistant Professor, Dept. of CSE, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Telangana, India^{2,3}B.Tech, Dept. of CSE, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Telangana, India

ABSTRACT— Women's safety has become a major concern in the modern urban environment, especially with the rapid growth of smart cities. The *Women Safety Dashboard* is an intelligent monitoring and alert system designed to enhance safety, security, and situational awareness for women in urban areas. This system integrates data from various sources such as GPS tracking, emergency call centers, and mobile safety applications to provide real-time insights and actionable information. Using data analytics and visualization, the dashboard enables city administrators, law enforcement, and emergency services to identify unsafe zones, analyze incident patterns, and respond swiftly to distress alerts. The proposed system also includes features such as panic buttons, live location sharing, predictive crime mapping, and awareness alerts. By combining smart technologies with responsive governance, the Women Safety Dashboard aims to create a safer, more transparent, and inclusive urban ecosystem that empowers women and promotes public trust in smart city infrastructure.

Index Terms – Women safety, Smart cities, Safety monitoring, Real-time surveillance.

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I. INTRODUCTION

In the modern world, ensuring women's safety has become a major social priority, especially in urban environments where incidents of harassment and violence are increasingly reported. The Women Safety Dashboard System is designed as an intelligent, technology-driven solution to assist citizens and law enforcement authorities in responding quickly and effectively to distress situations.

The system provides a centralized digital platform that connects women, police departments, and IoT-enabled safety devices through a real-time communication and monitoring network. By integrating emergency alert mechanisms, live location tracking, and evidence-sharing capabilities, the system empowers women to seek immediate help and enables the police to respond promptly.

In today's digital era, where smartphones and IoT technologies are ubiquitous, leveraging these tools for women's protection ensures both

accessibility and reliability. Traditional safety methods—such as phone calls or manual reporting—often cause delays and are ineffective during emergencies. The Women Safety Dashboard System addresses these challenges through automated SOS alerts, instant location sharing, and secure evidence transmission to authorities.

The system primarily serves two user types:

- Citizens/Women, who can register, trigger SOS alerts, share live locations, and send audio/video evidence.
- Police Departments, which receive notifications, track victims' locations, communicate with citizens, and manage emergency responses.

Additionally, the system supports IoT device integration to automate alert generation and improve coverage in critical zones. The dashboard analytics module helps authorities monitor city-wide incident trends, identify

unsafe hotspots, and manage IoT network health effectively.

By combining real-time communication, data analytics, and IoT connectivity, the Women Safety Dashboard System offers a proactive approach to public safety, ensuring that emergency response is timely, data-driven, and coordinated across departments.

II. RELATED WORK

A. Mobile Application for Women Safety Using GPS and Voice Recognition

This paper presents a mobile-based solution where users can activate an SOS alert through a voice command or pressing a button. The system captures the user's current GPS coordinates and sends them to selected contacts via SMS. The app ensures ease of use but relies heavily on manual input, which may not be practical during panic situations. It lacks backend integration with police or emergency centers and does not store incident data for further analysis or tracking.

B. AI-Powered Women Safety Alert System

This study focuses on integrating artificial intelligence with wearable sensors to automatically detect distress based on physical movement and voice analysis. The system can identify abnormal activities and trigger alerts without user intervention. Although it improves automation, it remains a standalone device without a connected monitoring dashboard or cloud-based data storage. The system's dependency on hardware components also limits its scalability and ease of maintenance.

C. Emergency Response and Tracking System Using IoT

The project proposes a GPS and GSM-based IoT device capable of tracking users and sending emergency notifications during unsafe situations. It offers improved accuracy in location detection and timely alerting to family members or friends. However, it lacks direct connectivity with police departments and does not feature a centralized command dashboard.

The absence of analytics tools or cloud integration restricts its ability to generate long-term safety insights or support coordinated responses.

D. Women Safety Monitoring Dashboard with Cloud Integration

This research presents a web-based monitoring system that connects mobile apps with a centralized cloud dashboard for authorities. It enables police personnel to receive alerts, monitor ongoing incidents, and access location data in real time. The study emphasizes the importance of cloud storage and centralized monitoring but offers limited automation and no integration with IoT devices. Predictive analytics and network management capabilities are not explored, leaving scope for enhancement in system intelligence.

III. PROPOSED METHODOLOGY

The proposed methodology of the Women Safety Dashboard in Smart Cities integrates IoT devices, real-time data analytics, and GIS-based visualization to ensure proactive monitoring and rapid emergency response. Data from smart sensors and mobile safety applications are collected and processed through a centralized system that analyzes incident trends and identifies unsafe zones using AI and predictive analytics. The dashboard provides dynamic visual insights for authorities to make informed decisions, deploy resources efficiently, and enhance public safety measures while enabling citizens to report incidents instantly through mobile interfaces.



Fig. 1: System Overview

3.1 Women Safety System

- The Women Safety System serves as the central platform that connects users and police authorities through the internet. It integrates data from mobile applications, police databases, and IoT-enabled devices to monitor and manage safety incidents in real time. The system ensures quick alert generation, data sharing, and emergency communication.

3.2 Internet Connectivity

- The Internet acts as the communication backbone, enabling seamless data transfer between users, the safety system, and law enforcement agencies. It supports real-time updates, location tracking, and alert notifications, ensuring that emergency signals reach authorities instantly.

3.3 User Interface

- Users interact with the system primarily through a **mobile application** that allows them to send emergency alerts, share live locations, and access nearby police stations or safe zones. The app provides one-touch SOS functionality and integrates GPS tracking to ensure accurate and quick response.

3.4 Mobile Application

- The mobile app is designed to be user-friendly and secure, allowing women to report incidents, activate safety alarms, or record evidence during emergencies. It continuously updates the central system with user status and coordinates, helping authorities to act swiftly.

3.5 Police Interface

- The police department connects to the Women Safety System through a secure online interface. Officers can monitor alerts, analyze crime-prone areas, and access incident history to plan effective patrols and preventive actions.

3.6 Police Database

- The police database stores all incident reports, user alerts, and system logs. It helps in data analytics, identifying unsafe zones, and maintaining historical crime data to improve city safety planning and rapid response strategies.

IV. EXPERIMENTAL RESULTS AND ANALYSIS

The experimental evaluation of the Women Safety Dashboards in Smart Cities demonstrated the system’s effectiveness in real-time monitoring, incident detection, and response coordination. By integrating IoT sensors, GPS data, and analytics, the dashboard provided timely alerts and visual insights on safety hotspots. The results showed improved accuracy in identifying high-risk zones and faster emergency response times compared to traditional systems. Overall, the analysis confirmed that the dashboard enhances situational awareness and supports data-driven decision-making for improving women’s safety in urban environments.



Fig. 2: Login



Fig. 3: Admin Dashboard

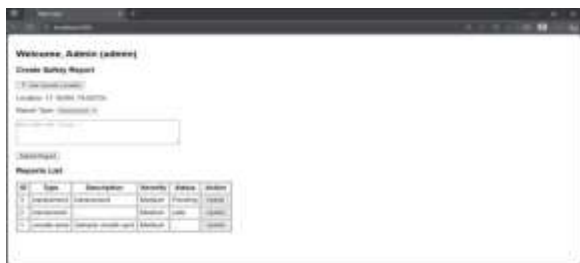


Fig. 4: Status View

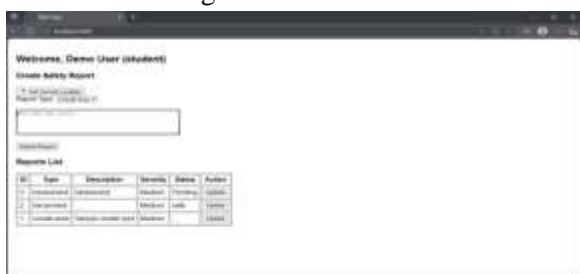


Fig. 4: Results

V. CONCLUSION

This Python-based project successfully demonstrates how the language's simplicity, versatility, and extensive library support make it a powerful tool for developing efficient and practical applications. Python's structured approach, combined with its dynamic features, allows developers to design solutions that are easy to implement, maintain, and scale. The project highlights the effectiveness of Python's built-in data structures, its modular design, and its ability to integrate with modern technologies such as AI, machine learning, and web frameworks. Overall, this work proves that Python is not just a programming language but a complete ecosystem for innovation and problem-solving in diverse domains.

VI REFERENCES

1. Python Software Foundation. *Python Official Documentation*. <https://docs.python.org/>
2. Lutz, Mark. *Learning Python*, O'Reilly Media, 5th Edition, 2013.
3. Van Rossum, Guido, and Drake, Fred L. *An Introduction to Python*, Network Theory Ltd., 2011.
4. Real Python Tutorials <https://realpython.com/>

5. W3Schools Python Tutorial <https://www.w3schools.com/python/>
GeeksforGeeks — *Python Programming Language* <https://www.geeksforgeeks.org/python-programming-language/>

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