**SafeSight: AI-Powered Women Safety Analytics System**

**Problem Statement**

Women’s safety remains a critical issue in modern societies, especially in urban environments. According to the National Crime Records Bureau (NCRB), over 300,000 cases of crimes against women were reported in 2023 in India, with a considerable number of incidents occurring in low-lit, isolated areas. The lack of real-time monitoring systems in public spaces like parks, transit stations, and walking paths leaves women vulnerable, restricting their mobility and affecting their participation in social and economic activities.

**Problem Validation**

The lack of safe public spaces contributes to anxiety and limits women’s ability to travel freely, particularly at night. Traditional safety measures, such as surveillance cameras or emergency hotlines, often lack real-time response capabilities. Women hesitate to report incidents due to lengthy processes, making timely intervention difficult. Studies have shown that areas with active monitoring systems have significantly lower crime rates, indicating a need for accessible and effective real-time safety solutions.

**Existing Solutions and Their Limitations**

* **CCTV Surveillance Systems**: These provide only visual monitoring, with no proactive mechanism to detect distress signals or alert authorities in real time. They are also ineffective in areas with poor lighting or when the cameras are damaged.
* **Safety Mobile Apps**: Apps like "bSafe" and "Raksha" allow users to send SOS alerts to predefined contacts. However, they rely heavily on stable internet connections, making them unreliable in remote or low-connectivity areas.
* **Wearable Safety Devices**: Gadgets like smart rings or bracelets offer quick SOS alert features but require user intervention, which may not be possible during a distressing situation.

These solutions either depend on continuous human monitoring or fail to provide real-time support in emergency situations, leaving critical gaps in ensuring safety.

**Proposed Solution**

**ML Models:** This project integrates five key machine learning models: **Person Detection Model** for identifying individuals and their gender, **Anomaly Detection Model** for recognizing critical situations like a lone woman at night, **Gesture Recognition Model** for triggering SOS alerts through actions, **Voice Recognition Model** for activating alerts via voice commands, and **Safe Route Prediction Model** for suggesting safer routes using historical data.

**App Features:** The app ensures user safety through real-time location sharing, an emergency SOS button, and AI-driven monitoring for detecting dangerous situations. It includes features like fake incoming calls, automatic audio/video recording during emergencies, safe zone identification, and safe route suggestions. Data security is a priority, with encrypted communication and secure cloud storage

**Technical Description and Feasibility:**

SafeSight integrates computer vision models with real-time data analysis to ensure quick detection and response. The backend system is built using Python with TensorFlow for deep learning-based person detection and gesture recognition models. Data from nearby mobile devices and edge servers is processed using lightweight algorithms to ensure smooth performance without draining battery life. SafeSight’s alert mechanism is built on a hybrid communication model that switches between online and offline modes based on connectivity status.

**Technical Stack**:

* **Front-End**: React Native for mobile application development.
* **Back-End**: Python with Flask, integrated with MySQL for data storage.
* **Machine Learning Models**: TensorFlow-based object detection and gesture recognition.

**Uniqueness**:

* **Connectivity**: Uses Wi-Fi Direct and Bluetooth for offline SOS alerts.

**Prototype images and Flowchart**

 

 