ALERT AURA

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Abstract :

- **AI-Powered Safety App:** An app that autonomously reacts to emergency situations to enhance women's safety by integrating real-time data from sensors, video, speech, and crime history.
- **Real-Time Threat Detection:** Utilizes ML models for speech emotion detection, video analysis, and sensor data to identify distress, suspicious activity, and dangerous movements.
- **Crime History Prediction:** Assesses location-specific risk factors using historical crime data to anticipate emergency situations.
- **Automated Response:** Triggers SOS alerts, notifies authorities, and records evidence when danger is detected.
- **Comprehensive Safety:** Combines real-time analysis and historical data for context-aware emergency responses in high-risk areas.

Introduction :

- **Safety Concern for Women:** Addressing the gap in real-time response systems for women's safety, especially in urban environments where crime rates fluctuate.
- **AI-Powered Autonomous Response:** Proposes an app that uses ML models to automatically detect and respond to emergency situations, without relying on manual input.
- **Data-Driven Detection:** Analyzes speech, video, sensor data, and crime history to detect potential threats and signs of danger in real-time.
- **Automated Emergency Response:** Sends alerts, notifies law enforcement, and records events for evidence when danger is detected.
- **Seamless Safety Solution:** Enhances women’s security through AI-driven, real-time, and automated interventions in both familiar and unfamiliar environments.

Objectives :

1. **Enhance Personal Safety**: Develop an AI-powered mobile app that autonomously identifies and reacts to emergency situations to protect women in real-time.

2. **Integrated Data Analysis**: Leverage sensor inputs, video feeds, speech samples, and crime history to provide comprehensive threat detection and response.

3. **Automated Emergency Actions**: Enable immediate actions such as sending alerts, notifying authorities, and capturing evidence for legal or investigative use.

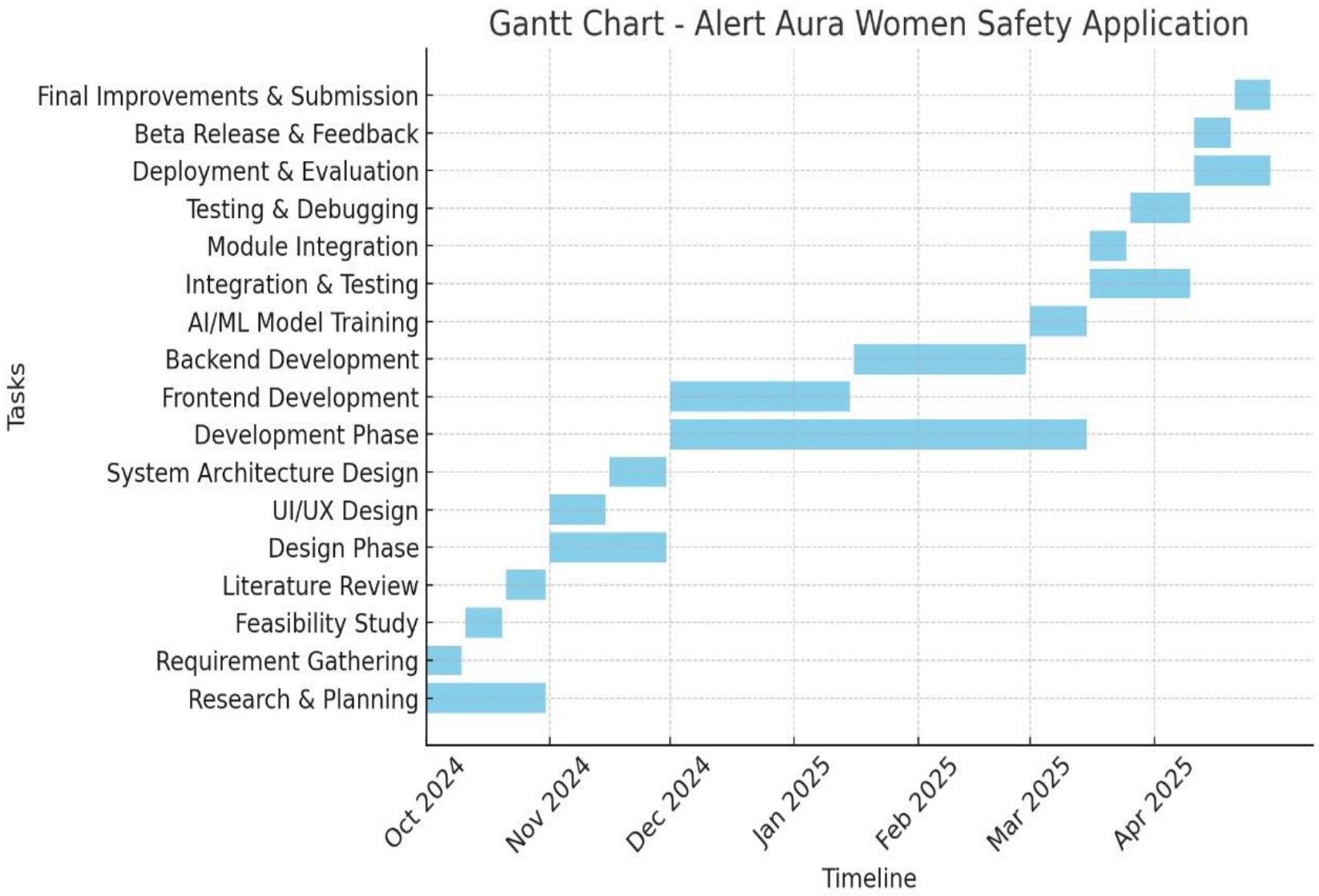
4. **Location-Based Risk Assessment**: Use crime history and contextual data to predict and mitigate risks in specific areas.

5. **User-Friendly and Secure**: Ensure the application is accessible, easy to use, and maintains user data privacy and security.

Existing Systems

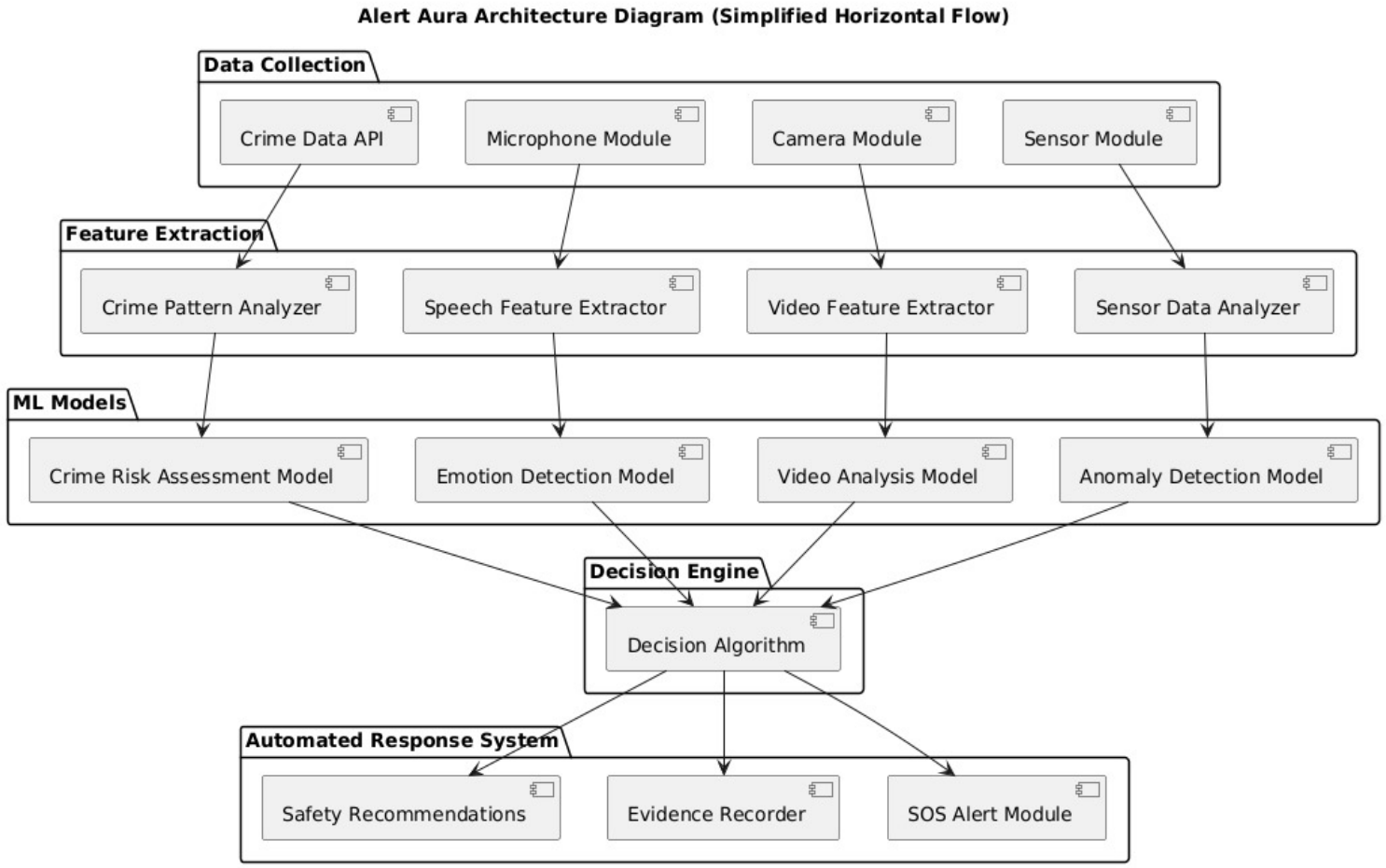
- **SOS Applications**: Apps like "Shake2Safety" allow users to trigger emergency alerts by shaking the phone or pressing a button.
- **Wearable Safety Devices**: Gadgets like smart rings or pendants that send distress signals when activated.
- **GPS Tracking Solutions**: Apps and devices that share real-time location with emergency contacts.
- **Crime Reporting Apps**: Platforms to report incidents to authorities, such as "Nirbhaya" in India.
- **Self-Defense Alarms**: Devices emitting loud alarms to deter attackers and alert bystanders.
- **Panic Button Integration**: Built into mobile operating systems for easy access during emergencies.

Project Planning - Gantt Chart

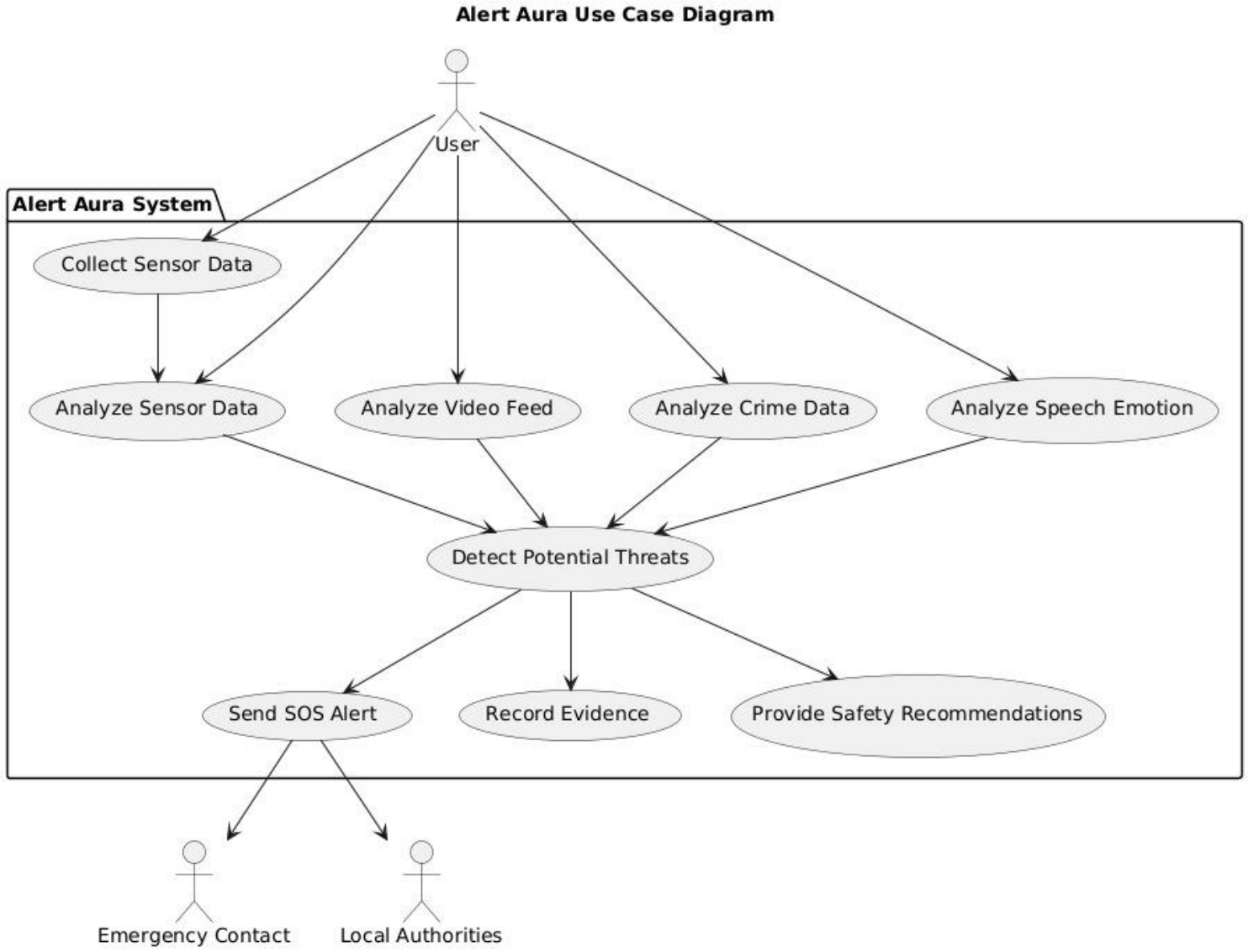


UML Diagrams

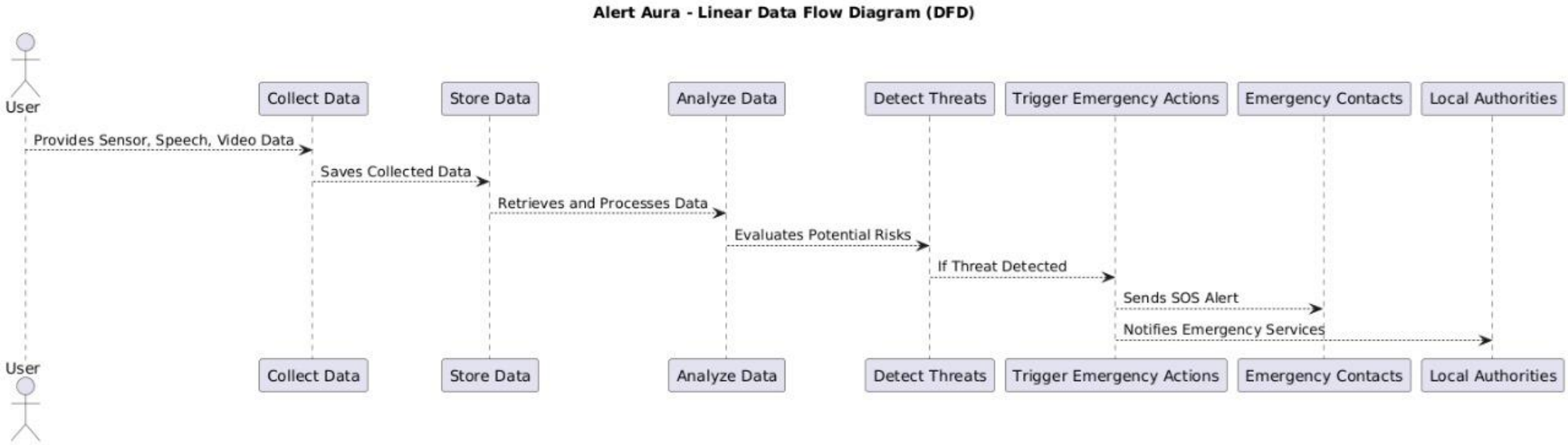
Architecture Diagram



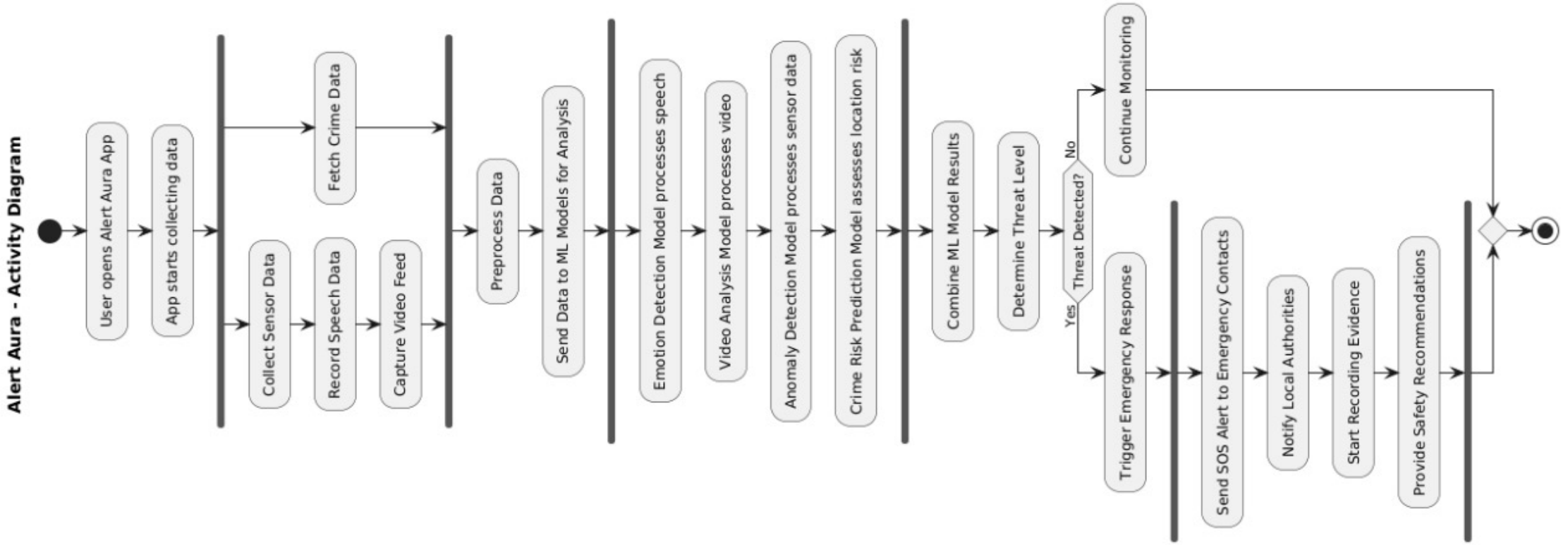
Use Case Diagram



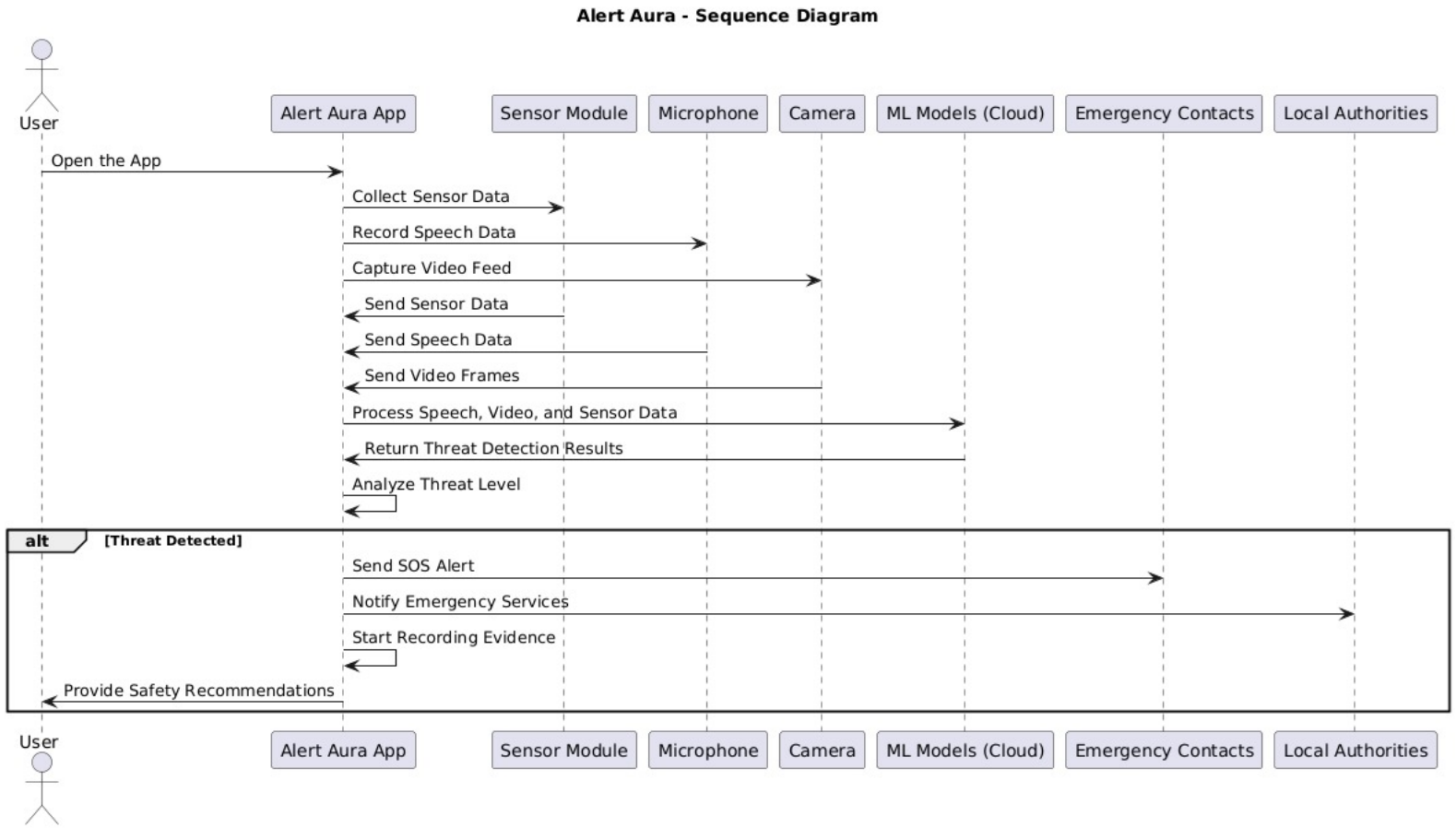
Data Flow Diagram



Activity Diagram



Sequence Diagram



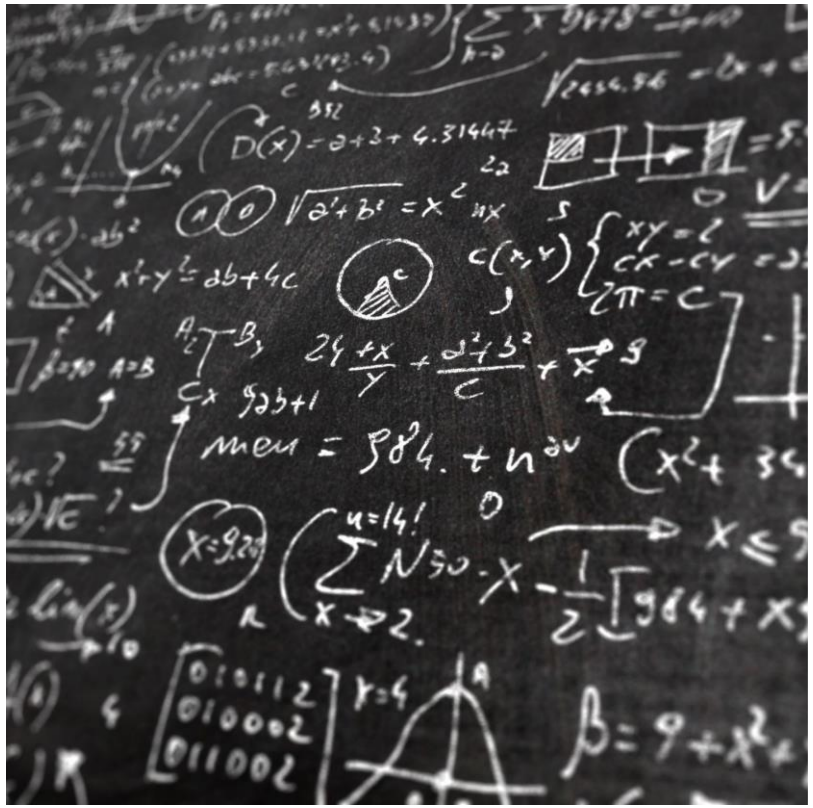
Literature Survey

Paper - I

- **Title**: Women Safety App to detect Danger and Prevent Automatically using machine learning.
- **Author's**: Kopanati Shankar, Siripurapu Chalice Prajwal, Vallem Govardhan Kumar, Penaganti Anusha
- **Summary** : The women's safety application utilizes advanced technologies like audio sensing, machine learning, and geolocation to enhance personal security. It empowers women to seek assistance quickly, record evidence, and access safe locations during emergencies. Designed for usability on mobile phones, the app ensures reliability through testing and user feedback. This comprehensive tool fosters a safer environment, helping women feel secure and protected.

Paper - II

- **Title**: Survey of Deep Representation Learning for Speech Emotion Recognition
- **Author's**: Siddique Latif, Rajib Rana, Sara Khalifa, Raja Jurdak.
- **Summary** :This survey explores deep learning techniques for speech emotion recognition, focusing on methods like CNNs, RNNs, and attention mechanisms. It highlights advancements in recognizing emotions such as fear or distress from audio signals, which are vital for applications like emergency response systems. The paper also discusses challenges like data scarcity and cross-linguistic generalization

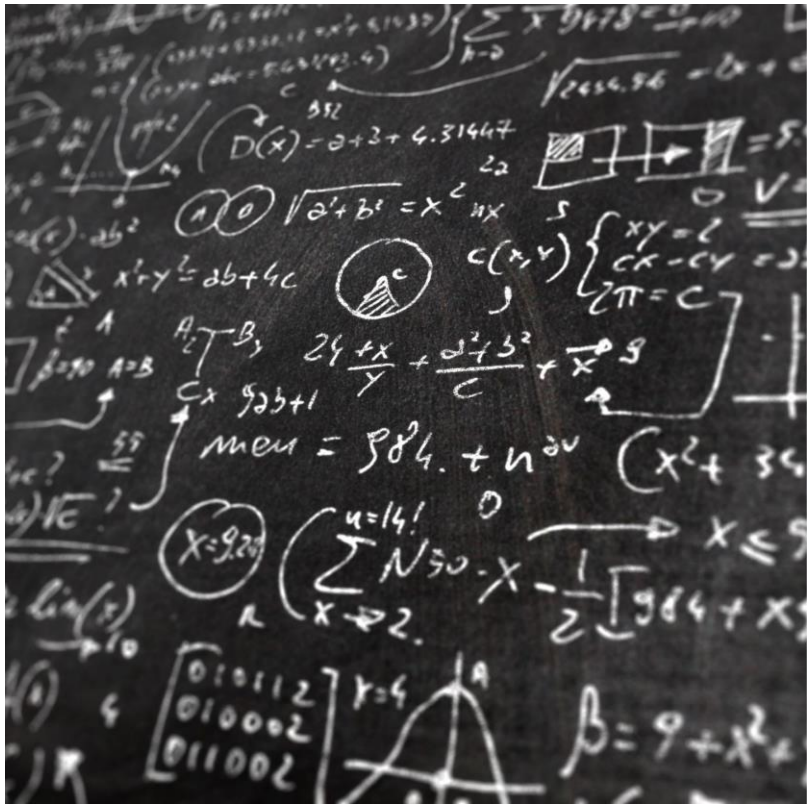


Paper - III

- **Title**: Protecting Sensory Data against Sensitive Inferences 2018
- **Authors**: Mohammad Malekzadeh, Richard G. Clegg, Andrea Cavallaro, Hamed Haddadi
- **Summary** : This paper introduces the GEN framework for transforming sensor data on mobile edge devices, balancing application needs and user privacy. Its efficiency was evaluated using RealWorld motion datasets, highlighting the utility-privacy trade-off. Future work will address sensitive information leakage bounds and attribute dependencies, such as gender and height. Additionally, the study assesses GEN's costs and requirements for edge device implementation.

Paper - IV

- **Title:** Speech Emotion Recognition Using Deep Learning Techniques
- **Author's**: Tariqullah Jan , Mohammad Haseeb Zafar , And Thamer Alhussain
- **Summary** : This paper reviews deep learning techniques for Speech Emotion Recognition (SER), focusing on methods like Deep Boltzmann Machines (DBM), Recurrent Neural Networks (RNN), Deep Belief Networks (DBN), Convolutional Neural Networks (CNN), and Autoencoders (AE). These techniques help classify emotions such as happiness, sadness, surprise, fear, and anger. The research provides a foundation for assessing current methods and explores ways to develop better SER systems in the future.



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THANK
YOU!