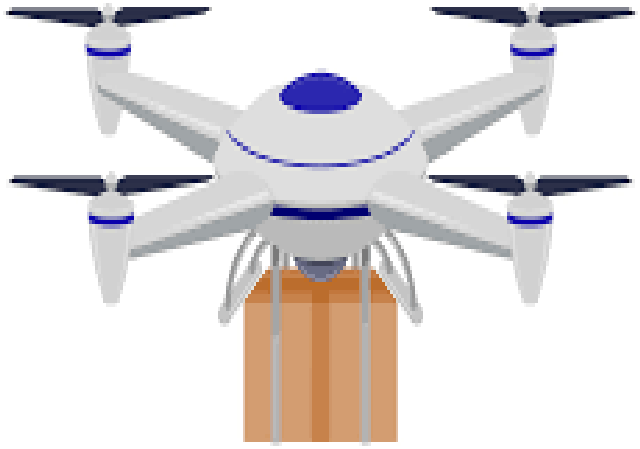
SOS TECH



Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation:

PS Code: 1475

Problem Statement Title: RESCUE TECH SYSTEM

Team Name: SOS TECH

Team Leader Name: Dhuruv Swamy R

Institute Code (AISHE): U-0460

Institute Name: Karunya Institute of Technology and Sciences

Theme Name: Robotics and Drones

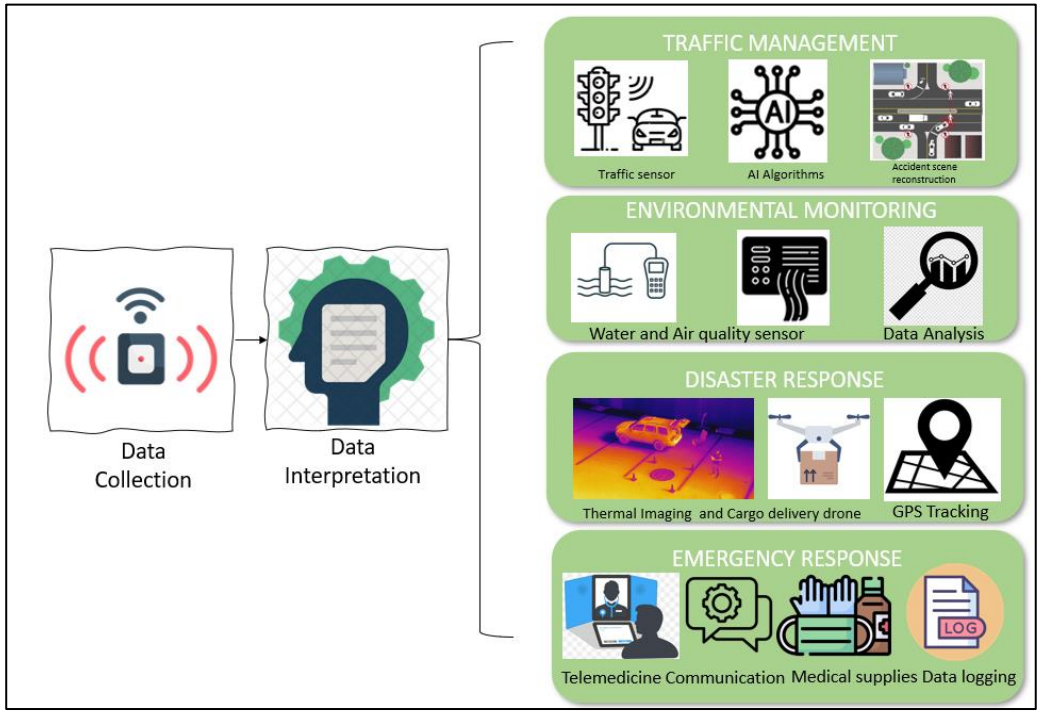
Idea/Approach Details

Idea/Solution/Prototype :

- The "RescueTech System" is an innovative and adaptable technology solution designed to address critical challenges in India, **spanning emergency response, traffic management, environmental monitoring, and medical emergencies.**
- This comprehensive system **employs a versatile modular robotic and drone platform** with the capability to transform into specialized modules, making it remarkably flexible and adaptable.

KEY POINTS:

- **Modular Robotic Platform:** Highly flexible and adaptable, the system addresses India's urgent needs in emergency response, traffic control, and environmental surveillance by swiftly configuring specialized modules as required.
- **Medical Emergency Assistance:** Beyond its core functions, the system deploys specialized drones for rapid healthcare crisis responses, reinforcing India's safety infrastructure and well-being.



TECHNOLOGICAL STACK:

1. Modular Robotics and Drones
2. Sensors
3. Artificial Intelligence (AI)
4. Communication Infrastructure
5. Mapping and Geographic Information Systems (GIS)
6. Data Analytics Platforms
7. Mobile Apps and User Interfaces
8. Cloud Infrastructure
9. Security Protocols
10. Power Management

Idea/Approach Details

Use Cases

- **Emergency Response:** Rapid deployment of drones for search and rescue operations, providing real-time situational awareness and assistance during disasters.
- **Traffic Management**: Monitoring and controlling traffic flow to reduce congestion and improve road safety.
- **Environmental Monitoring:** Assessing air and water quality, detecting pollution sources, and providing data for informed environmental policies.
- **Medical Emergencies:** Dispatching medical emergency drones to deliver critical supplies, conduct remote medical assessments, and facilitate swift responses to healthcare crises.
- **Disaster Response**: Deploying specialized modules to handle disaster scenarios, such as fire-fighting drones and flood monitoring.

The Drone developed by our team can be utilized for

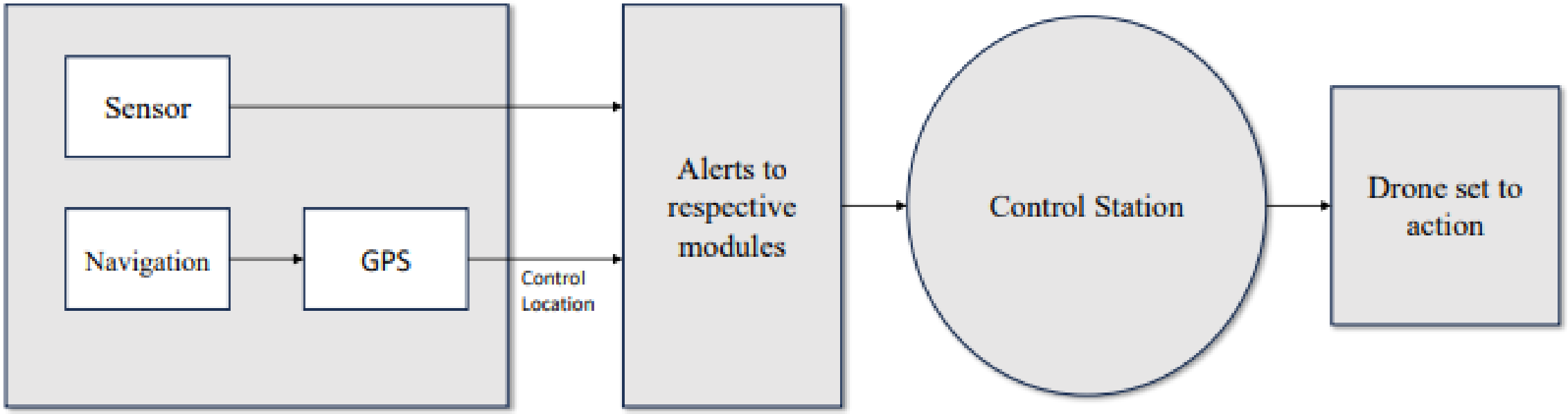
- Search and Rescue (SAR)
- Disaster Assessment
- Medical Supply Delivery
- Hazmat and Environmental Monitoring
- Traffic and Crowd Management
- Post-disaster Assessment

Dependencies / Show stopper

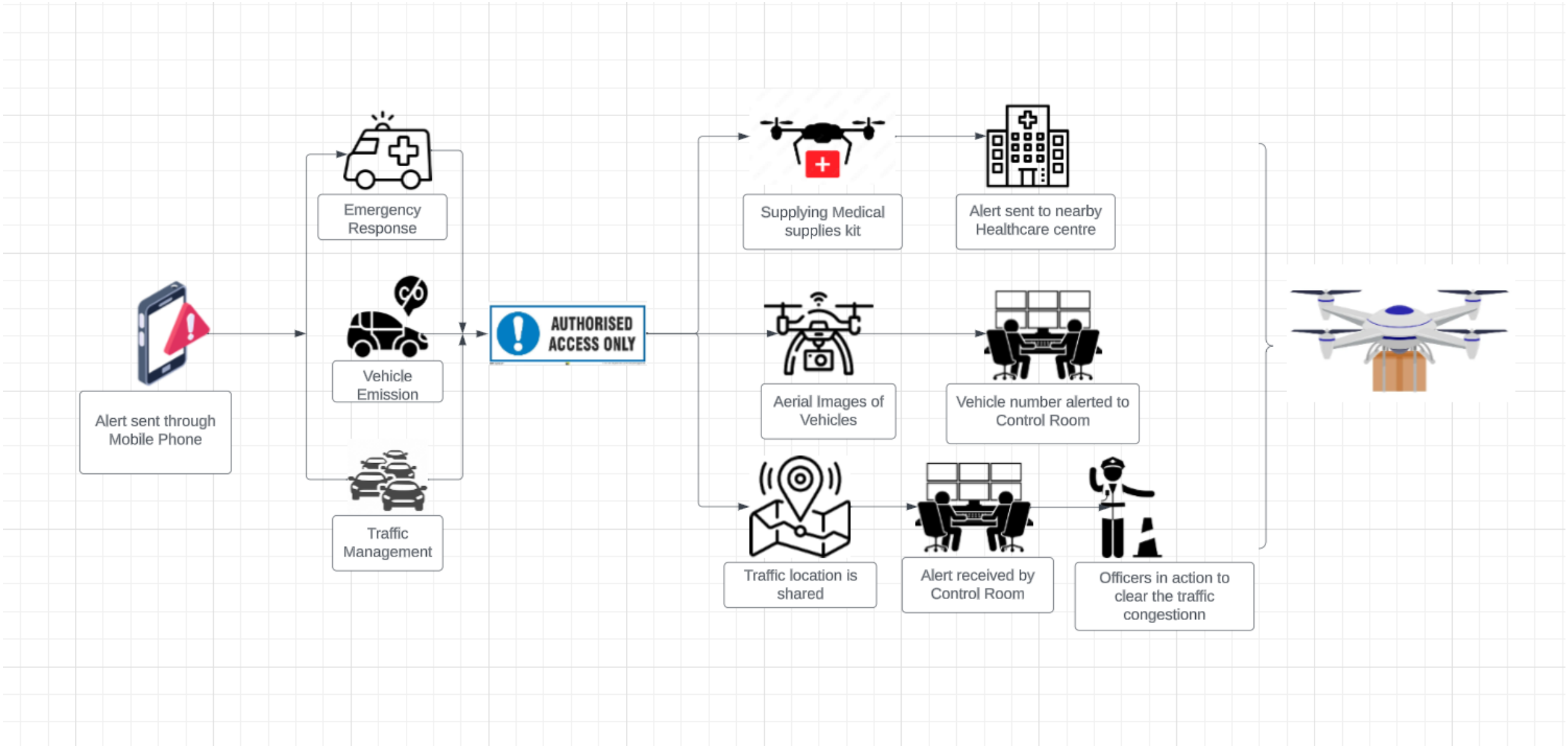
Dependencies: Cost Management, Scalability, Data Security, Maintenance and Training

Showstoppers:
Regulatory Approvals, Infrastructure, Integration Challenges

BLOCK DIAGRAM:



FLOW DIAGRAM:



Features:

TRAFFIC MANAGEMENT

- **Accident and Incident Response:** Drones can quickly reach accident or incident scenes, providing a bird's-eye view to assess the situation. They can transmit images and videos to emergency responders, aiding in their decision-making and resource allocation.

- **Emergency Response:** Drones can be deployed rapidly in emergency situations, such as natural disasters or major accidents, to assess road conditions and help guide first responders to affected areas.

DISASTER MANAGEMENT

- **Aerial Reconnaissance:** Disaster management drones can conduct aerial surveys to assess the extent of damage and identify hazards after natural disasters such as earthquakes, hurricanes, or floods.

- **Search and Rescue Support:** Equipped with thermal imaging cameras and GPS, drones help locate and rescue survivors in disaster-stricken areas, even in low light or difficult conditions.

MEDICAL MANAGEMENT

- **Emergency Scene Assessment:** Drones can provide aerial views of accident scenes or disaster zones, helping medical teams assess the situation and allocate resources effectively.

- **AED Deployment:** Some drones are equipped with automated external defibrillators (AEDs) to provide life-saving assistance in cardiac emergencies. MedicaFon and Blood Delivery: They can carry vital medications, blood samples, or yaccines to remote or hard-to-reach locations for Fmely medical intervention.

Monitoring Scenarios:

- **Traffic Conditions**
- **Accident Scenes**
- **Medical Emergencies**
- **Traffic Emission**
- **Traffic violations**
- **Environmental conditions**

ADVANTAGES:

- **Traffic Management: Traffic Surveillance Drones, Law Enforcement Drones, Traffic Survey Drones, Traffic Control and Communication Drones**
- **Environmental Management: Environmental Monitoring Drones, Agricultural Drones, Wildlife Conservation Drones, Disaster Response Drones**
- **Medical Drones: Medical Delivery Drones, Telemedicine Drones, Search and Rescue Drones, Medevac Drones**

Team Member Details

Team Leader Name: DHURUV SWAMY R

Branch (B.tech): AI & DS | Stream (CSE): | Year (I,II,III,IV): II

Team Member 1 Name: BHARATH KUMAR S

Branch (B.tech): AI & DS | Stream (CSE): | Year (I,II,III,IV): II

Team Member 2 Name: HARIHARAN

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Branch (B.tech): CSE (AI) | Stream (CSE): | Year (I,II,III,IV): II

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Team Member 5 Name: P CELCIA

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