



RAKSHAPATH

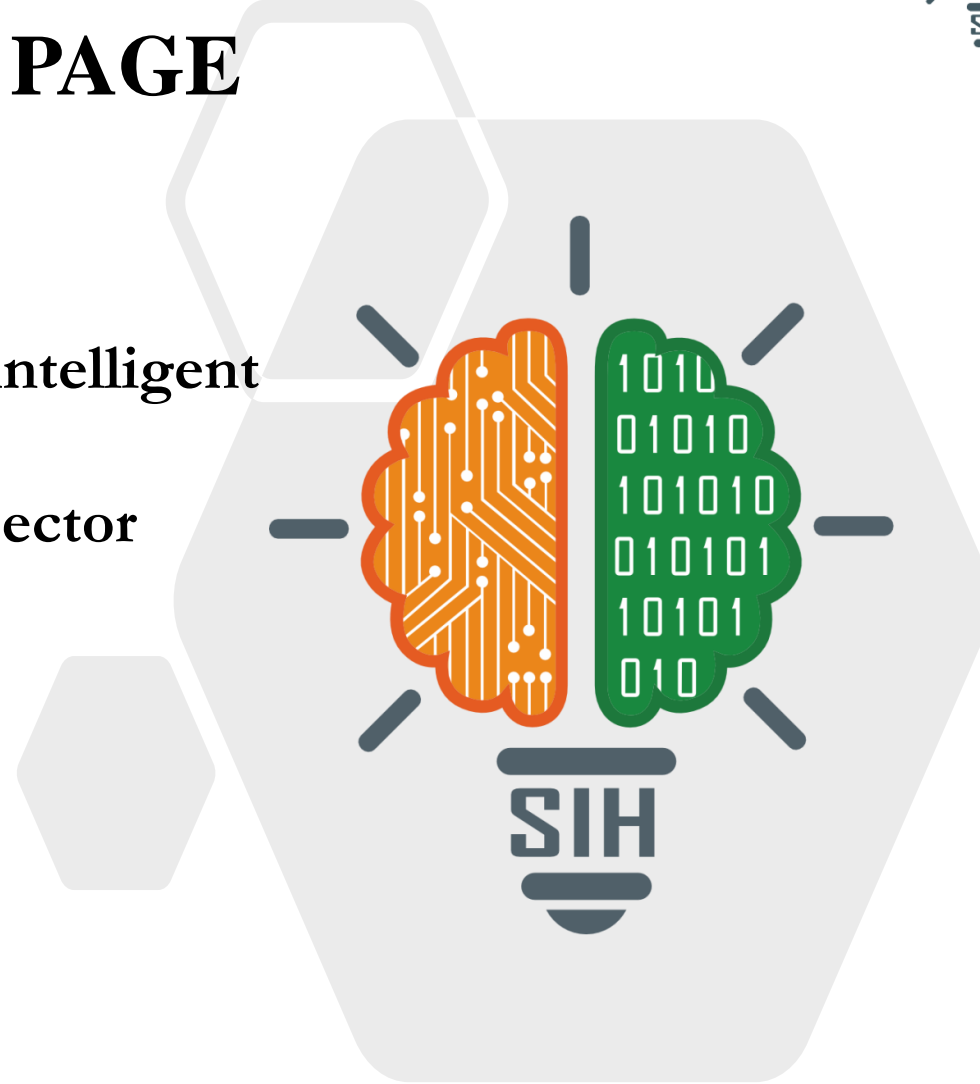
SMART INDIA HACKATHON 2024



SMART INDIA
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2024

TITLE PAGE

- Problem Statement ID – SIH 1595
- Problem Statement Title- Creating intelligent devices to improve the commutation sector
- Theme- Smart Vehicles
- PS Category- Software
- Team ID- 111
- Team Name - RAKSHAPATH





IDEA TITLE



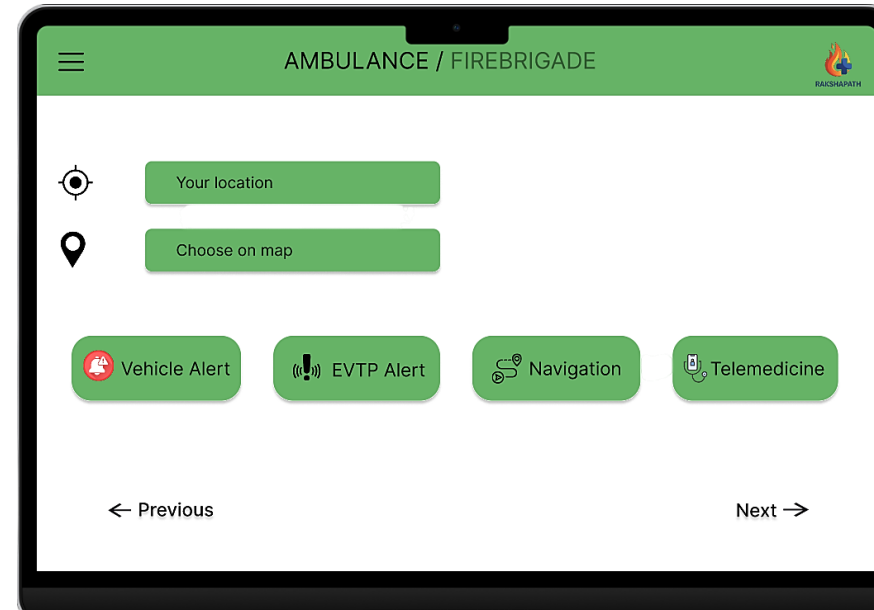
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❖ Proposed Solution (Describe your Idea/Solution/Prototype)

RAKSHAPATH

RAKSHAPATH is an advanced traffic management system designed to enhance the efficiency of emergency vehicle commutation using a combination of **V2X** communication technology and **GPS** navigation. By integrating both vehicle dashboards and mobile applications, **RAKSHAPATH** aims to streamline emergency response times and improve road safety.

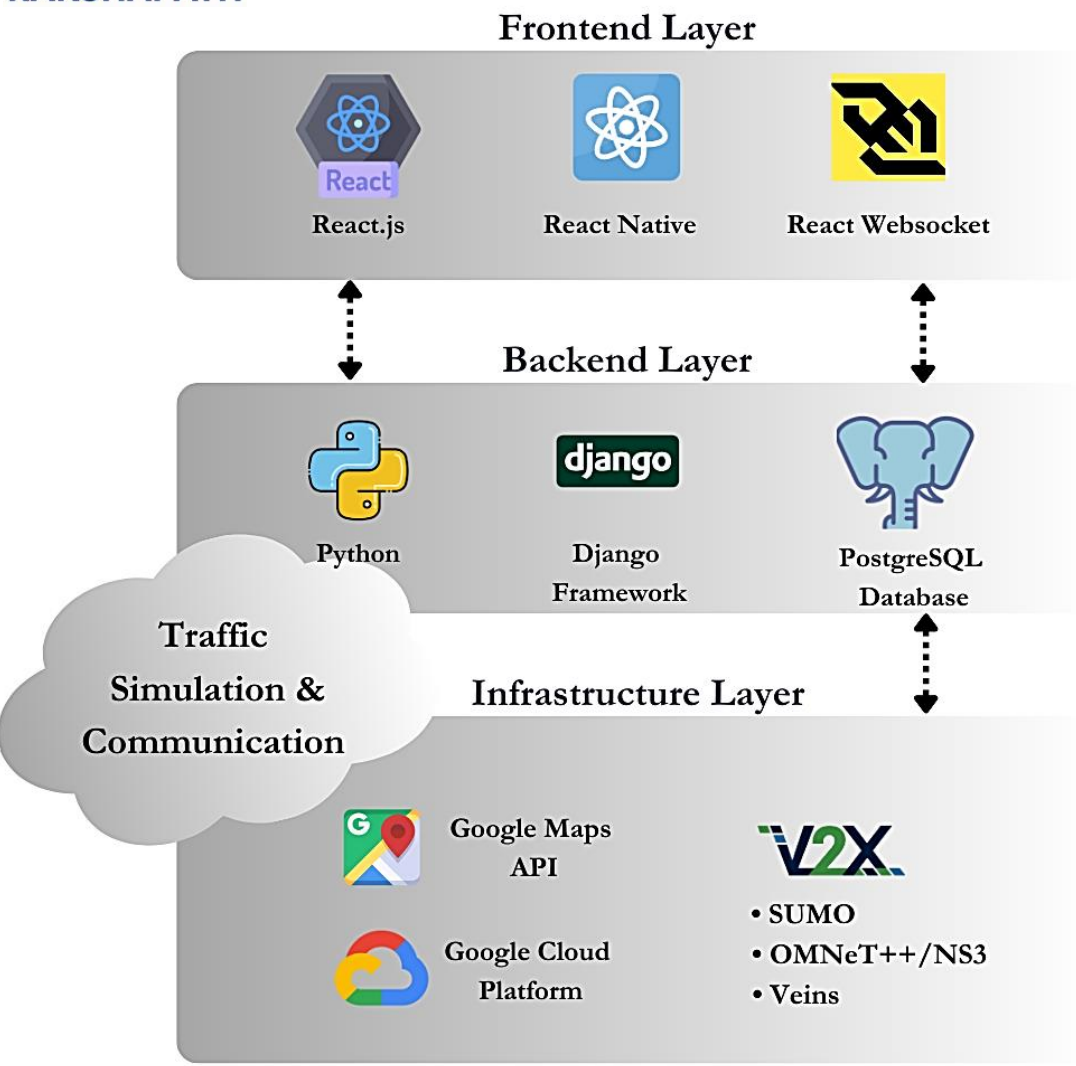
- **Real-Time Alerts:** Instant notifications via vehicle dashboards and mobile apps help clear routes for emergency vehicles.
- **Dynamic Routing:** GPS-based updates optimize emergency routes for quicker and safer commutation.
- **TTS-Based Audio Alerts:** Converts text alerts into audible messages using Text-to-Speech (TTS) technology, ensuring drivers receive real-time updates and routing instructions through in-car systems.
- **Public Safety:** Enhances driver awareness and responsiveness, improving overall road safety during emergencies.



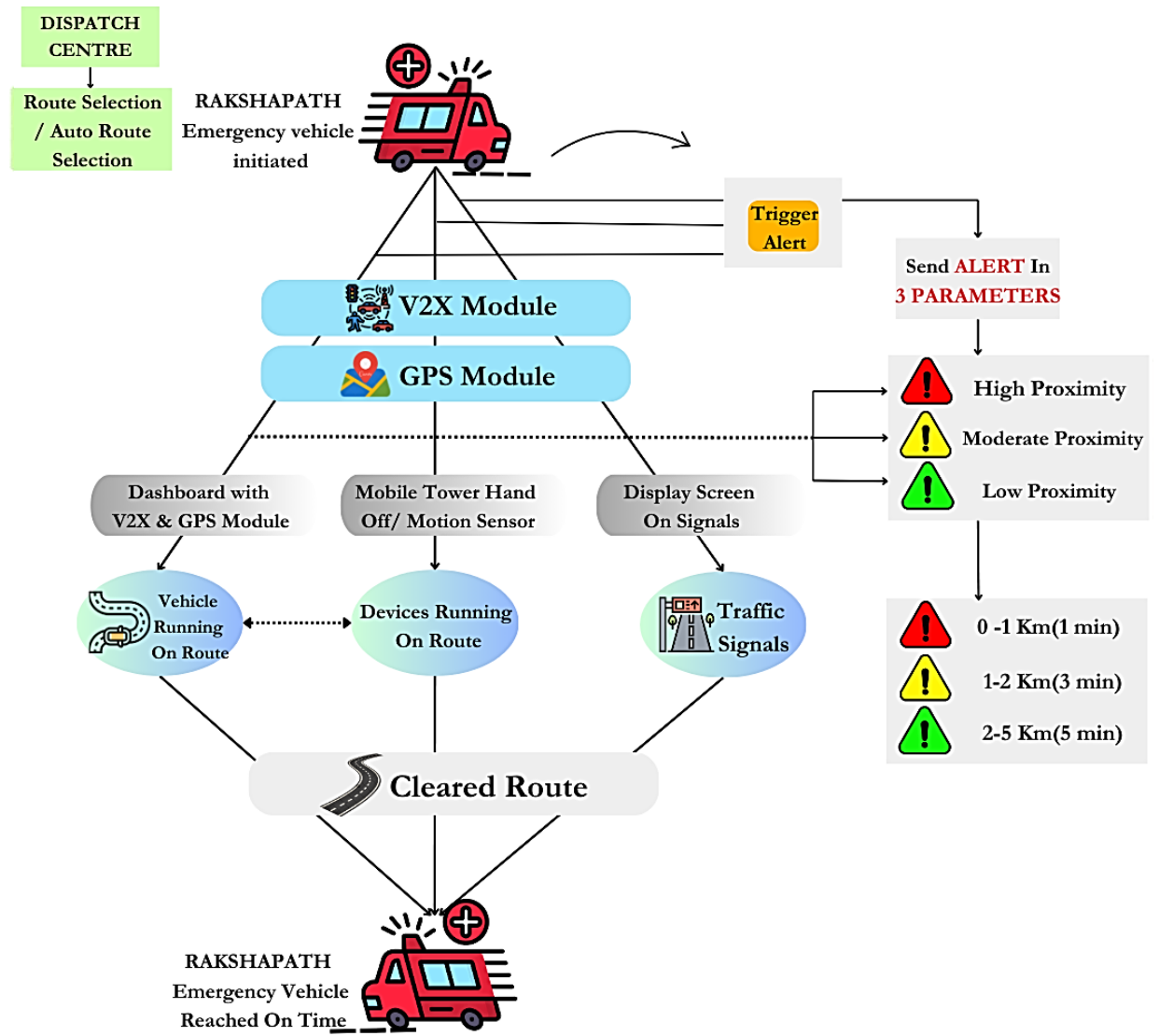
Interface Of Ambulance



Technologies to be Used :



FLOW-CHART:



Feasibility

V2X Communication: **Reduces traffic congestion by 25%**, minimizing emergency vehicle delays.

Dashboard Integration: Preferred by **7 out of 10 responders** for critical operations.

Mobile Supplement: **Extends system coverage to 1 in 4 vehicles** not equipped with dashboards.

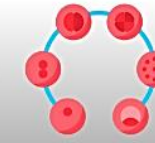
Infrastructure Upgrades: Requires **minimal modifications** to existing traffic systems.

Scalability: Incremental rollout **reduces upfront expenses** compared to full deployment.

Viability



Cost
Effectiveness



Phased
Deployment



Vehicle
Integration



System
Longevity



Government
Backing



RAKSHAPATH

IMPACT AND BENEFITS



Potential impact on the target audience:

- **Faster Response Time:** Around 1.6 lakh people die in road accidents annually in India, with 40% of these deaths linked to delayed ambulances. Additionally, over 50% of heart attack deaths are due to slow ambulance response. Our system, RAKSHAPATH, ensures faster ambulance response by providing pre-alerts to vehicles enroute.
- **Better Driver Awareness:** Around 70% of drivers act on real-time alerts, clearing paths for emergency vehicles and speeding up medical aid.
- **Advanced Vehicle Features:** Connected vehicle technology enhances driving experience and safety for automobile owners.
- **Increased Public Trust:** About 60% of people feel safer in cities using smart systems like RAKSHAPATH for emergency management.

Benefits of the RAKSHAPATH:

- **Smart Traffic Management:** Reduces traffic congestion by 25%, speeding up emergency routes and improving overall traffic flow.
- **Broad Adoption:** Expected to cover 60% of vehicles within 18-24 months, increasing effectiveness in urban areas.
- **Quicker Help:** Faster route clearing and alerts help emergency services reach victims more quickly
- **Manufacturer Benefits:** Provides automobile manufacturers with opportunities to integrate advanced technologies and enhance vehicle safety features.
- **Connected vehicle:** This up-and-coming technology enables vehicles to communicate directly with intersections.

Reference and Research Work:

- 🔗 V2X Communication Technologies and Service Requirements for Connected and Autonomous Driving ([LINK](#))
- 🔗 Suzuki, Maruti Suzuki, and IIT Hyderabad jointly showcase India's 1st Demonstration of V2X (Vehicle-to-Everything) Communication ([LINK](#))
- 🔗 Tata Elxsi has accelerated Telematics & V2X adoption by Developing Intelligent ([LINK](#))
- 🔗 Development of Vehicle tracking System using GPS and GSM modem ([LINK](#))
- 🔗 An Intelligent Emergency Dispatch System for Firefighters: A System Architecture and Case Study ([LINK](#))
- 🔗 An Efficient Emergency Dispatch System using IoT for Smart Cities ([LINK](#))
- 🔗 Electronic Media Release:
 - 1- V2X Concept Video: ([LINK](#))
 - 2- Use Case Demonstration Video: ([LINK](#))