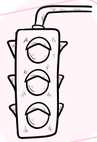
HACKATRON 2025

TITLE

Project Title :- RushResQ : Smart AI-IoT Traffic Management System



Theme-Transportation & Logistics

Team Name – Team INNOVIONS

Team INNOVIONS

RushResQ : Smart AI-IoT Traffic Management System

"Stuck in Traffic? Just Say, Raasta Please!"

- **Problem Statement:**

Urban traffic congestion causes daily delays of 2–4 hours for commuters, increases fuel consumption by 25–35%, and leads to 15–20% more air pollution , slower response times and higher accident risks.

- **Proposed Solution:**

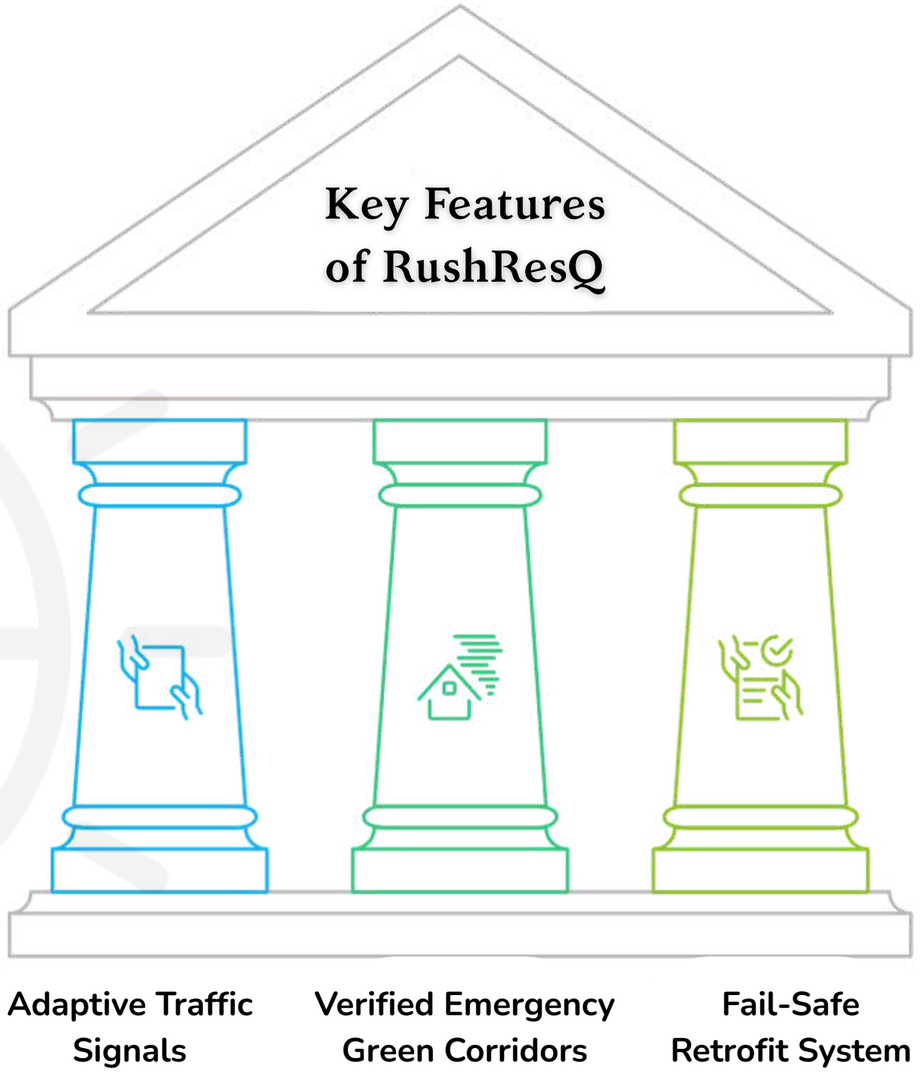
RushResQ is a smart traffic system that uses AI & IoT sensors to manage traffic in real time. It adapts signals based on live congestion, creates verified green corridors for emergencies, ensures safety with a fail-safe mode, and provides updates through a mobile app and dashboard.

- **How it addresses the problem:**

RushResQ dynamically adjusts traffic signals using AI and IoT sensors, cutting waiting times and congestion.

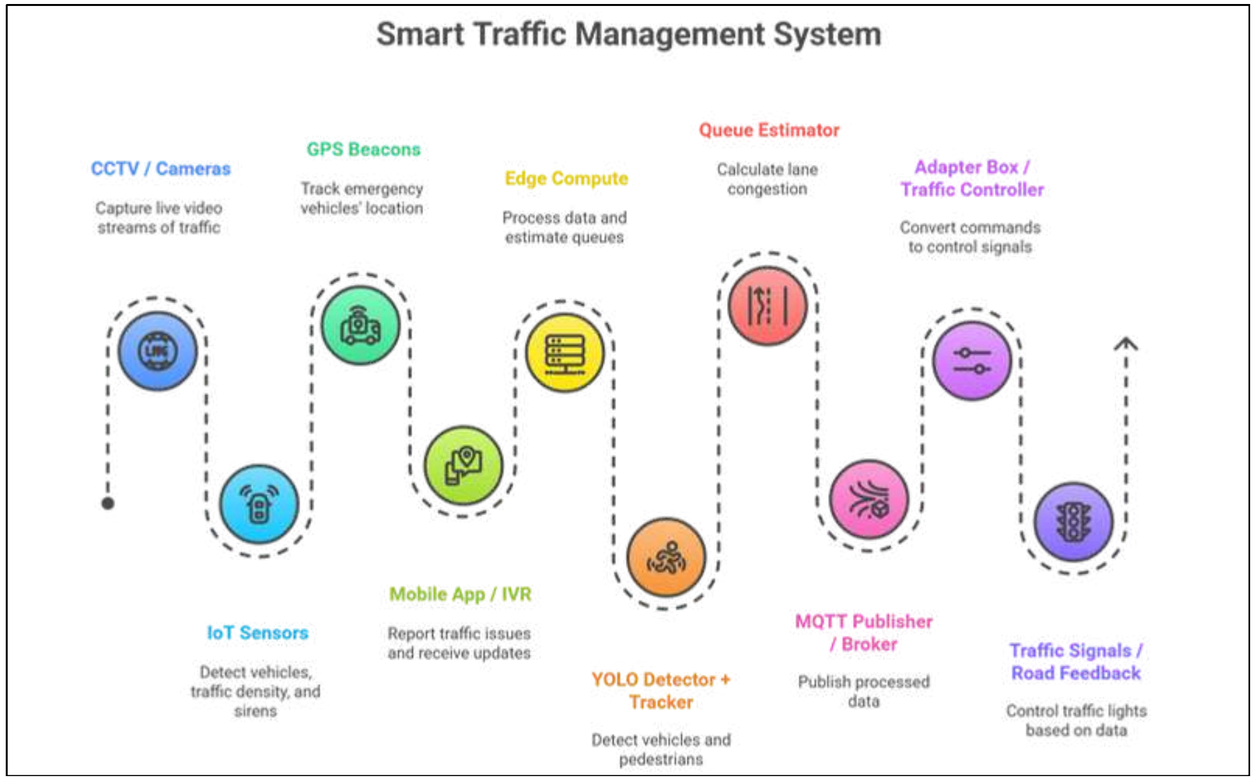
It creates verified emergency green corridors through mobile app or toll-free requests, ensuring fairness and preventing misuse.

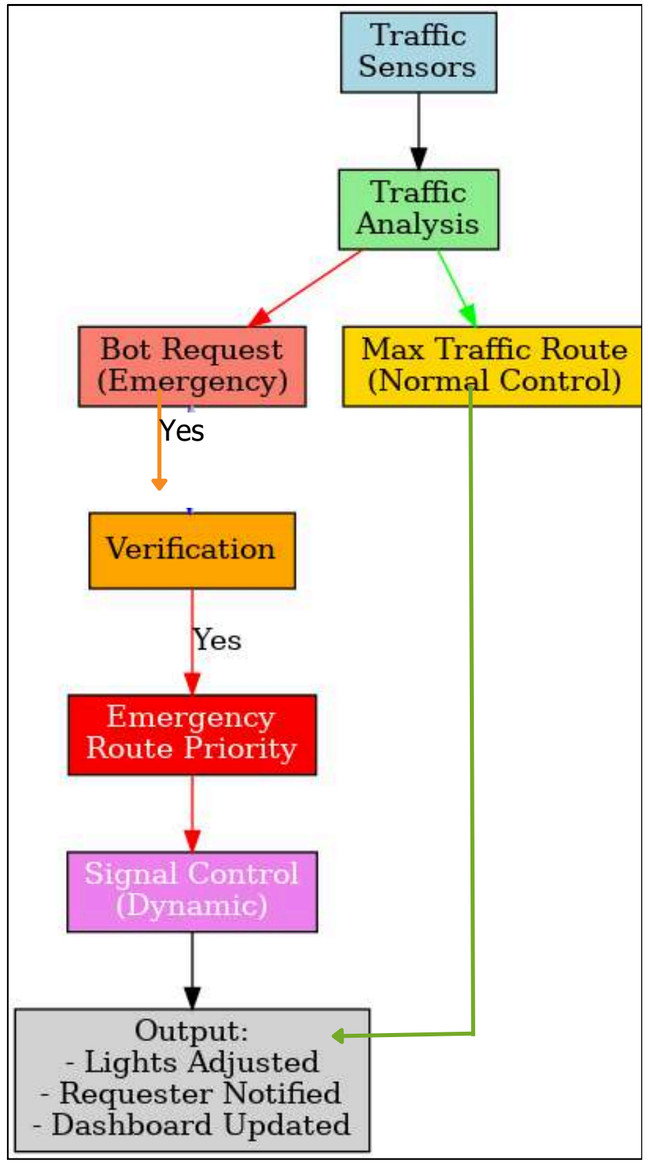
The system integrates with existing traffic lights via adapter boxes and falls back to default timers, guaranteeing reliability.



Team INNOVIONS

TECHNICAL APPROACH





- Technologies/Stack

Team INNOVIONS

FEASIBILITY AND VIABILITY

Feasibility

Technology Readiness:
Leverages existing technologies IVR, Twilio APIs, GPS, cloud servers, AI call handling.

Infrastructure Compatibility:
Works with normal phone calls no smartphones or internet needed.

Scalability:
Cloud backend can handle thousands of simultaneous calls across regions.

Cost-Effectiveness:
Moderate setup costs vs. long-term benefits (faster response, fewer accidents, saved lives)

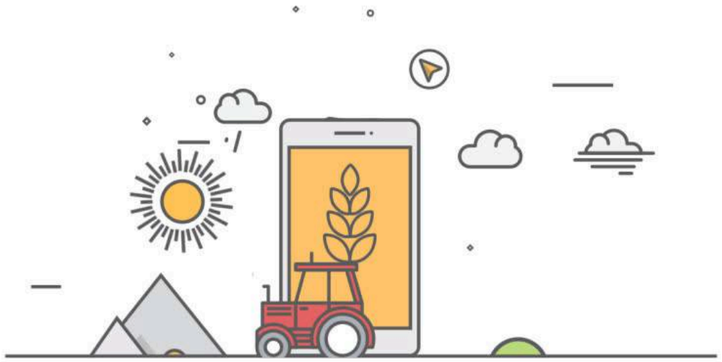
Government & Public Acceptance
Aligns with smart city, disaster management, & emergency response initiatives.

Challenges	Strategy to solve Challenges
High Call Volumes: System overload during peak hours or large-scale emergencies.	**High Call Volumes:** Cloud auto-scaling; AI-based call prioritization.
Data Accuracy: Incorrect vehicle numbers, routes, or incomplete details.	**Data Accuracy:** Speech-to-text + AI verification; confirmation prompts ("Did you say MH12 AB1234?")..
System Maintenance: regular updates and servicing needed.	**Scheduled Maintenance:** Remote software updates + scheduled maintenance checks.
Funding & Partnerships: Requires government collaboration and telecom partnerships.	**Funding & Partnerships:** Collaborate with smart city programs,insurance companies, disaster funds

Team INNOVIONS

IMPACT AND BENEFITS

Potential impact on the target audience



Benefits of the solution

Saves Time & Lives – reduced congestion and faster emergency response.

Smart & Reliable Governance – real-time monitoring makes city traffic management efficient.

Saves Fuel & Environment – less idling lowers costs and pollution.

Relief From situations like this

Team INNOVIONS

RESEARCH AND REFERENCES

- **Research Papers on Smart Traffic / Intelligent Transport Systems :**

1. **IoT-Based Smart Traffic Management for Smart Cities**
   Publisher: IEEE || DOI: 10.1109/ICCE-Asia49877.2020.9276823
   https://ieeexplore.ieee.org/document/9276823

2. **Deep Learning-Based Intelligent Traffic Signal Control Using Computer Vision**
   Publisher: IEEE || DOI: 10.1109/ICPICS55264.2022.9873742
   https://ieeexplore.ieee.org/document/9873742

3. **AI-Powered Traffic Congestion Prediction and Optimization Models**
   Publisher: IEEE || DOI: 10.1109/PICET60765.2024.10716172
   https://ieeexplore.ieee.org/document/10716172

Scan for RushResQ!

By 2030, RushResQ aims to make 100+ cities smart, safe, and congestion-free

Govt. Report – MoRTH on ATMS (2024)

1. Plans & implementation for ATMS across major highways/expressways (e.g. Bangalore-Mysore, Delhi-Agra)
2. Aims: reduce accidents, violations, faster incident response
3. Early result: mortality dropped after ATMS on Bangalore-Mysore Expressway

Case Studies on Similar Applications :

Delhi ATCS (India): AI-based adaptive traffic lights reduced waiting time at intersections by 15–20% and cut vehicle emissions by ~10–12%, improving urban mobility and air quality. Link

Los Angeles ATSAC (USA): Automated traffic surveillance and control system achieved 12% reduction in travel time and 30% less intersection delays, boosting fuel efficiency and reducing congestion citywide. Link