TRAFFIC MANAGEMENT SYSTEM

Optimizing traffic flow and safety

INTRODUCTION

- An Internet of Things(IoT) enabled intelligent traffic management system can solve pertinent issues by leveraging technologies like wireless connectivity and intelligent sensors.
- Considered a cornerstone of a smart city ,they help improve the comfort and safety of drivers , passengers and pedestrians.

PROBLEM STATEMENT

- Tailgating ,aggressive driving , speeding and sudden lane changes can also cause accidents and slow down traffic flow.
- IoT powered traffic lights have the ability to adjust to traffic conditions in teal time , helping to alleviate congestion and prevent accidents.
- IoT sensors can also monitor variations in traffic patterns and provide real-time data to drivers enabling them to choose routes that avoid traffic congestion.

OBJECTIVES

- IoT based street lighting and traffic management system.
- Dynamic road traffic management for smart cities.
- IoT based solutions for road safety and traffic management in intelligent transportation systems.
- A survey on IoT based traffic control and prediction mechanism.

Components of traffic management system

- Data collection
- Data transmission
- Data analysis
- Data conversion into intelligent information
- Data transmission to end-users

Traffic data collection

- Manual traffic counts are conducted by an individual positioned roadside , recording passing vehicles on a form.

Data analysis

- Data collection
- Data aggregation
- Data preprocessing
- Traffic pattern identification
- Anomaly detection
- Data visualization
- Machine learning and predictive
- Decision support
- Feedback loop

Traffic control

- For smart traffic control, IoT sensors are installed in vehicles.
- These sensors are integrated with traffic signals , street lights etc.
- Sensors facilitate continuous monitoring and help reduce accidents.

Intelligent transportation systems (ITS)

- IoT-based ITS (IoT-ITS) makes easy transport services using interconnected mobile devices to ensure real-time data communication and remote access.
- It enables real-time data management regarding driver activity, optimized routes, fuel consumption analysis, and other reasons.

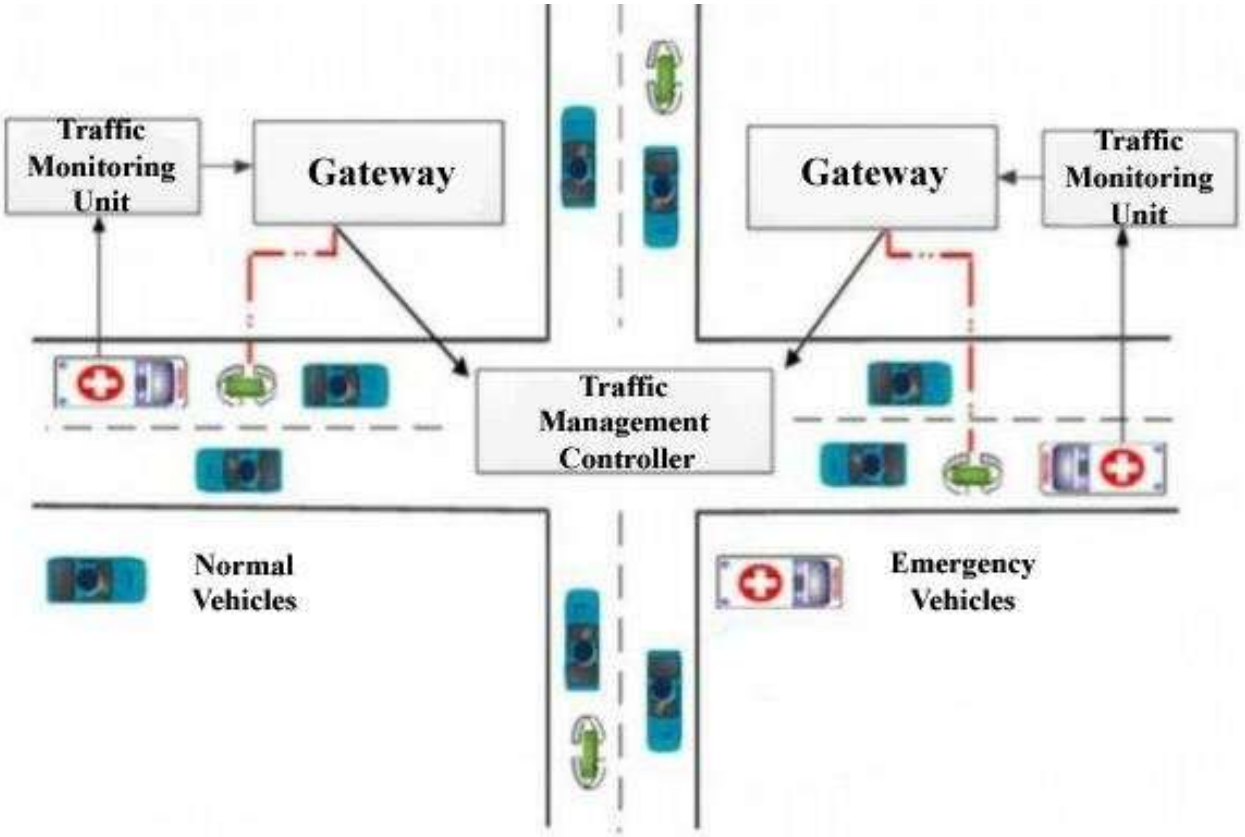
BENEFITS

- The objectives of STMS are to reduce traffic congestion, improve air quality, enhance road safety, improve data analytics, and enhance emergency response
- The benefits of implementing a technology-based traffic management system include improved public transit, cost-effectiveness, real-time data analysis, and others

CHALLENGES

- Inability to utilize vehicles' capacity
- Inefficient route management
- Inability to track consignments
- Increased transportation cost
- Inability to deliver orders on time

Architecture of traffic management system



THANK YOU!