# AI-Powered Smart Traffic & Fleet Monitoring System

## Abstract

This project proposes a model that integrates Artificial Intelligence, IoT, and Geospatial Data to improve urban fleet and traffic management. The system enables real-time tracking, intelligent modeling, predictive maintenance, and route optimization. By simulating IoT data and applying basic predictive algorithms, the project demonstrates how AI-powered fleet intelligence can enhance traffic flow and reduce congestion.

## Objectives

- To integrate AI, IoT, and Geospatial data for traffic and fleet management.

- To enable real-time spatial tracking of vehicles.

- To provide predictive analysis for traffic congestion.

- To optimize fleet allocation and improve efficiency.

## Methodology

- Data Collection (IoT Simulation): Generate vehicle GPS coordinates, speed, and fuel data.

- Geospatial Mapping: Use Google Maps API or simulated maps to visualize fleet movement.

- AI Integration: Apply a simple ML algorithm (like regression/classification) to predict congestion or maintenance needs.

- Visualization Dashboard: Show live vehicle tracking, traffic prediction, and route optimization on a web/desktop app (Java Swing or Web-based).

## Features

- Real-time spatial tracking of vehicles.

- Intelligent traffic congestion prediction.

- Dynamic fleet allocation & route planning.

- Predictive maintenance alerts.

- Dashboard for visualization and analysis.

## Expected Outcomes

- Efficient monitoring of urban traffic and fleets.

- Reduced congestion through optimized routing.

- Improved safety and reduced downtime with predictive maintenance.

- A scalable model that can extend to smart cities.

## Tools & Technologies

- Programming: Java

- Database: MySQL

- Visualization: Java Swing / Web Dashboard

- APIs: Google Maps API (optional)

- AI Models: Regression, Classification, or Clustering