Project Design Phase-II

Technology Stack : (Architecture & Stack)

Date: 27 June 2025

Team ID: LTVIP2025TMID35728

Project Name : Traffictelligence:Advanced Traffic Volume Estimation With Machine

Maximum Marks :4 Marks

Technical Architecture: The *Traffictelligence* system is designed to estimate the number of vehicles on the road using machine learning and smart technologies. It starts by collecting data from different sources like CCTV traffic cameras, road sensors, mobile GPS data, and online services such as Google Maps or weather apps. This data is sent to the system in real-time using tools that help move data quickly and safely, like Kafka or MQTT.

Once the data is received, it is stored safely in special databases. Video and image data are kept in cloud storage (like Google Drive or Amazon S3), and sensor and number data are saved in time-based databases that can handle continuous updates.

The system uses computer vision to look at camera footage and detect vehicles using AI models like YOLO. All this information is used to train machine learning models that can learn patterns and predict how busy the roads will be in the future.

These predictions and live traffic counts are then shared through APIs (a way for different apps to talk to each other) and shown on easy-to-use dashboards. These dashboards can show maps, graphs, and live counts of vehicles to help traffic managers and city planners make better decisions.

This entire setup helps cities manage traffic better, reduce congestion, and improve road safety using the power of machine learning.

Technical Stack:

1.Data Collection Tools

2.Machine Learning& Processing

3.Cloud&Deployment

4.Data Transfer