

Proposed Solution Template

Date: 15 February 2025

Team ID: LTVIP2025TMID36124

Project Name: **TrafficTelligence: Advanced Traffic Volume Estimation With Machine Learning**

Maximum Marks: 2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter Description
1. Problem Statement (Problem to be solved)	Manual counting or outdated sensor-based traffic estimation methods are inefficient, prone to errors, and often expensive to maintain. There's a growing need for an accurate, scalable, and affordable AI-based system to estimate traffic volume using video or sensor data, which can assist urban planners and smart city solutions.
2. Idea / Solution description	We propose TrafficTelligence , a machine learning-based system that predicts traffic volume using real-time or historical traffic data. The model uses regression and time-series analysis techniques to learn traffic patterns and estimate the number of vehicles over a given time period. It is integrated into a user-friendly web dashboard where users can input conditions and receive live or predicted traffic volumes instantly.
3. Novelty / Uniqueness	The uniqueness lies in combining open-access traffic datasets with powerful, yet lightweight regression models for fast and accurate volume predictions. Unlike expensive sensor-based infrastructure, this approach works with low-cost data inputs and is deployable on local systems or cloud platforms.
4.Social Impact / Customer Satisfaction	The solution contributes to smarter city planning, reduced congestion, and improved public safety. It can assist traffic departments in dynamically adjusting signal timings and planning infrastructure development. Citizens benefit through

	reduced travel times and better traffic management.
5. Business Model (Revenue Model)	The system can adopt a freemium model — basic predictions available for public use (such as travelers and students), while advanced features (e.g., API access, analytics reports, forecast trends) are provided to city authorities and transport agencies via paid subscriptions.
6. Scalability of the Solution	TrafficTelligence is highly scalable. It can incorporate additional features like weather, event data, and real-time CCTV feeds to enhance prediction accuracy. It supports multi-city deployments, IoT integration, and can evolve into a mobile or embedded solution in smart traffic systems.