

Project Design Phase
Proposed Solution Template

Date	11 June 2025
Team ID	LTVIP2025TMID33800
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)	Urban areas suffer from severe traffic congestion due to the lack of intelligent traffic management systems. Current methods for traffic volume analysis are outdated, rely heavily on manual data collection, and cannot handle dynamic changes like weather, holidays, or peak hours. There is a need for a predictive and scalable traffic volume estimation system to assist city planners and daily commuters.
2.	Idea / Solution description	TrafficTelligence is a machine learning-based solution that estimates traffic volume using real-time and historical data. The model analyzes features such as time, weather, holiday status, and road characteristics to predict traffic flow. The solution is deployed as a web application with a user-friendly interface, allowing both government officials and the public to access live traffic predictions and make informed decisions.
3.	Novelty / Uniqueness	<ul style="list-style-type: none">> Uses a combination of real-time and historical data for more accurate predictions> Incorporates external factors like weather and holidays, unlike most traditional traffic systems> Deployed as a responsive web app using Flask and HTML/CSS> Trained on multiple regression algorithms to ensure performance and flexibility
4.	Social Impact / Customer Satisfaction	<ul style="list-style-type: none">> Helps reduce daily commuter frustration by predicting peak congestion times> Assists urban planners in designing better infrastructure based on data-driven insights> Saves time, fuel, and reduces carbon emissions through smarter traffic flow planning

		> Accessible and user-friendly interface for both experts and the public
5.	Business Model (Revenue Model)	<p>>Freemium model: Free access for the public, premium analytics tools for municipalities and businesses</p> <p>>Government Contracts: Partner with smart city initiatives and urban planning departments</p> <p>>Data Services: Provide anonymized traffic datasets and APIs to logistics companies, cab services, and app developers</p>
6.	Scalability of the Solution	<p>>Can be scaled across cities by training models on local data</p> <p>>Modular design allows easy integration with IoT devices, traffic cameras, and city sensors</p> <p>>Can expand to mobile platforms, public transportation planning, and real-time alert systems</p>