**Project Design Phase**

**Problem – Solution Fit Template**

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| Date | 27 June 2025 |
| Team ID | LTVIP2025TMID59638 |
| Project Name | TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning |
| Maximum Marks | 2 Marks |

**Problem–Solution Fit:**

**Project Title**: *TrafficTelligence – Advanced Traffic Volume Estimation with Machine Learning*

**Problem**

* Urban commuters and traffic planners face daily unpredictability in traffic conditions.
* Current traffic monitoring tools are either reactive, lack real-time prediction, or do not integrate dynamic variables such as weather, time-of-day, holidays, or historical patterns.
* These issues lead to delays, miscommunication, inefficient logistics, and poor public infrastructure decisions.

**Solution**

A machine learning-based traffic volume prediction system that:

* + Leverages historical data, weather information, and time-specific patterns.
  + Uses Random Forest Regressor or similar models for accurate forecasting.
  + Is deployed via a Flask-based web application for real-time access.
  + Offers a simple and accessible UI to input environmental factors and get instant predictions.

**Customer Segment / Behavior**

* Urban Commuters: Want to optimize daily travel and avoid traffic jams.
* Traffic Planners & Smart City Developers: Need reliable data to make evidence-based decisions.
* Delivery & Logistics Companies: Require accurate traffic forecasts to ensure timely deliveries.
* Behavior: These users often check weather or Google Maps, plan routes in advance, or rely on experience—but these methods are not always accurate or sufficient.

**Why This Solution Fits**

* It automates prediction, reducing the need for manual interpretation or guesswork.
* The system works with real behavioural patterns—users already rely on time, weather, and known traffic hotspots.
* It provides a trustworthy and fast alternative to inaccurate or outdated public data systems.
* By addressing both individual and organizational needs, it creates multiple touch-points for adoption.

**Strategic Advantages**

* Can be scaled for municipal use or consumer traffic apps.
* Integration possibilities with navigation apps, logistics systems, or smart city dashboards.
* Opportunity for open data collaborations with governments and research bodies.

A screenshot of a computer

AI-generated content may be incorrect.