

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	14 March 2025
Team ID	PNT2025TMID00705
Project Name	TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Traffic Data Ingestion	Upload traffic sensor data (CSV/JSON) API integration for real-time data
FR-4	Data Preprocessing	Data cleaning & missing value handling Outlier detection & removal
FR-5	Machine Learning Model Training	Train traffic prediction model Compare ML models & optimize hyperparameters
FR-6	Traffic Volume Prediction	Predict traffic volume using AI Display real-time predictions on dashboard
FR-7	Reporting & Visualization	Generate traffic reports (PDF/CSV) Visualize traffic trends & peak hours
FR-8	User Management	Admin can add/edit/remove users Role-based access control

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The system should have an intuitive UI for easy navigation and usability.
NFR-2	Security	Data encryption, role-based access, and secure API endpoints should be implemented.
NFR-3	Reliability	The system should ensure accurate and consistent traffic predictions with minimal downtime.
NFR-4	Performance	The model should generate traffic predictions in under 5 seconds per request.

NFR-5	Availability	The system should be accessible 99.9% of the time with failover mechanisms in place.
NFR-6	Scalability	The solution should support increasing data loads and more concurrent users as the system scales.