

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

Date	28 june 2025
Team ID	LTVI2025MID44706
Project Name	Traffic Volume Estimation
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 and Authentication	<ul style="list-style-type: none">• Requirement: The system must allow users to register through multiple methods:• Registration through Form: Users can register by entering their email, password, and confirming their password.• Registration through Gmail: Users can register using their Gmail account.• Registration through LinkedIn: Users can register using their LinkedIn account.• Registration through Facebook: Users can register using their Facebook account.
FR-2	User Confirmation	<ul style="list-style-type: none">• Email Verification: Users receive a confirmation email after registration.• One-Time Password (OTP): Users can confirm their registration using an OTP.
FR-3	Dashboard Functionality	<ul style="list-style-type: none">• Requirement:<ul style="list-style-type: none">• The system must include a dashboard that provides users with an overview of relevant information or features after login.

		<ul style="list-style-type: none"> • Source: <ul style="list-style-type: none"> • Image 9 (Product Backlog and Sprint Schedule): Lists "Dashboard" as a functional requirement (Epic) under Sprint-1, though specific user stories are not detailed.
FR-4	Machine Learning Model Integration	<ul style="list-style-type: none"> • The system must integrate a machine learning model and support its evaluation by documenting: <ul style="list-style-type: none"> • Model Summary: Details such as architecture or parameters. • Accuracy Metrics: Training accuracy and validation accuracy. • Fine-Tuning Results: Validation accuracy after fine-tuning (if performed). • The system must allow attaching screenshots to support these metrics (e.g., graphs or logs).
FR-5	Input Validation and Error Handling	<ul style="list-style-type: none"> • Requirement: <ul style="list-style-type: none"> • The system must validate user inputs: <ul style="list-style-type: none"> • Text Input Validation: Accept valid text (e.g., job titles) and display errors for invalid text. • Number Input Validation: Accept numbers within a valid range (e.g., word count, size, rooms) and show errors for out-of-range values. • Clear error messages must guide users to correct invalid inputs.

FR-6	Content Generation and API Integration	<ul style="list-style-type: none"> • Requirement: <ul style="list-style-type: none"> • The system must generate accurate content (e.g., blogs, resumes, design ideas) based on complete user inputs when the "Generate" button is clicked. • The system must integrate with external APIs: <ul style="list-style-type: none"> • Verify the API key and ensure the model responds successfully. • Receive and process real-time API responses. •
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Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	<p>Usability is a key focus for TrafficTelligence, an advanced traffic volume estimation system powered by machine learning. It ensures the system is intuitive, efficient, and accessible for its main users: transportation authorities, urban planners, and commuters.</p> <ul style="list-style-type: none"> •
NFR-2	Security	<p>Security in the Traffic Volume Estimation project involves protecting the system and its data from unauthorized access, tampering, and cyber threats. It ensures that sensitive information like traffic data, user inputs, and real-time analytics is encrypted, securely stored, and transmitted safely. Implementing</p>

		strong authentication, data access controls, and regular security audits helps maintain trust, prevent misuse, and safeguard the integrity of the system.
NFR-3	Reliability	Reliability in the Traffic Volume Estimation project refers to the system's ability to consistently provide accurate and dependable traffic predictions under various conditions such as different times of day, weather changes, and special events. It ensures the model performs well even with incomplete or noisy data, maintains consistent uptime, and adapts to real-time inputs without failure. A reliable system builds trust among users by supporting better traffic management and planning with minimal errors or disruptions.
NFR-4	Performance	Response Time <ul style="list-style-type: none"> The system responds to user requests (e.g., generating predictions) within 5 seconds
NFR-5	Availability	Availability in the Traffic Volume Estimation project refers to the system's readiness and ability to be accessible and operational whenever needed, especially during peak traffic hours. It ensures that users—such as traffic managers and commuters—can rely on the system at all times for real-time traffic predictions without delays or downtime. High availability is crucial for making timely decisions that help reduce congestion and improve traffic flow.
NFR-6	Scalability	It handles large datasets and supports up to 100 concurrent users without performance degradation.