**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

|  |  |
| --- | --- |
| Date | 16 June 2025 |
| Team ID | **LTVIP2025TMID38998** |
| 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 | Data Input | Upload CSV traffic data Real-time camera data stream |
| FR-2 | Data Preprocessing | Handle missing values Convert timestamps Feature engineering |
| FR-3 | Model Training | Train ML model with past traffic data Split into training and test datasets |
| FR-4 | Traffic Volume Prediction | Predict volume based on time/weather/location Show predictions on dashboard |
| FR-5 | Visualization & Reporting | Graphs for traffic patterns Volume trends Export reports as CSV/PDF |
| FR-6 | User Dashboard | Interactive dashboard with charts Filter by date/location |

**Non-functional Requirements:**

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

|  |  |  |
| --- | --- | --- |
| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | Interface must be simple and intuitive for both technical and non-technical users. |
| NFR-2 | **Security** | Ensure user authentication, secure data storage, and protection against SQL injection and XSS. |
| NFR-3 | **Reliability** | System should provide consistent predictions and handle input errors gracefully. |
| NFR-4 | **Performance** | ML model should return predictions within 2–3 seconds under normal load. |
| NFR-5 | **Availability** | Platform must be available 95% of the time during peak traffic hours. |
| NFR-6 | **Scalability** | Capable of handling increasing data volume and more user requests in the future. |