

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

Date	27 June 2025
Team ID	LTVIP2025TMID49866
Project Name	Visualization Tool for Electric Vehicle Charge and Range Analysis.
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 (Name, EV Model from ElectricCarData_Clean.csv). Registration through Gmail (Auto-pull EV ownership history).
FR-2	User Confirmation	Confirmation via Email (With sample dashboard screenshot). Confirmation via OTP (For quick mobile access).
FR-3	EV Data Integration	Auto-detect vehicle specs from EVIndia.csv (e.g., Tata Nexon EV range). Manual entry for unsupported models (with OCR scan for charging receipts).
FR-4	Real-Time Range Analysis	Predict range using Efficiency_WhKm and weather data Alert when charge drops below 20%.
FR-5	Charging Station Navigation	Display nearest stations from electric_vehicle_charging_station_list.csv Filter by plug type (Type2CCS, CHAdeMO).
FR-6	Cost Optimization	Compare charging costs vs. petrol using PriceEuro data. Suggest off-peak charging schedules.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Dashboard customizable for different EV segments (SUV/Sedan from Segment column)
NFR-2	Security	GDPR-compliant data storage for EU users (handling PriceEuro/PriceinUK differences)
NFR-3	Reliability	99.9% uptime for fleet managers monitoring multiple vehicles
NFR-4	Performance	Load 10,000+ charging stations from electric_vehicle_charging_station_list.csv in <2 seconds
NFR-5	Availability	Multi-region support (India/EU based on EVIndia.csv and Cheapestelectriccars-EVDatabase.csv)
NFR-6	Scalability	Support 1M+ users as EV adoption grows (leverage RapidCharge demand trends)