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

Date	31 January 2025
Team ID	LTVIP2026TMIDS87694
Project Name	EV Battery Performance and Range Monitoring System
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	User Authentication	Login through Form (Email/Password)
		Login through Gmail
		Login through LinkedIn
		Password Reset
FR-4	User Dashboard	Mobile Dashboard (Charging History)
		Battery & Range Display
		Data Visualization Charts
FR-5	Data Management	EV Dataset Upload
		Performance Comparison

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-6	Admin Functions	User Account Management
		System Monitoring & Analytics
FR-7	Support System	Issue/Ticket Management
		User Support Responses

Non-functional Requirements:

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

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Intuitive UI with <3 click navigation to dashboard; mobile-responsive design; consistent with your Tableau EV dashboard styling; supports English/Telugu; onboarding tour for first-time users
NFR-2	Security	JWT token authentication; HTTPS everywhere; password hashing (bcrypt); OAuth2 for Gmail/LinkedIn; role-based access (customer/admin); GDPR-compliant data handling for EV usage data
NFR-3	Reliability	99.5% uptime; automatic backup of user EV data daily; error logging; graceful degradation if charging station API fails; data validation prevents crashes from malformed CSV uploads
NFR-4	Performance	Dashboard loads in <2 seconds; charts render <1 second; supports 1,000 concurrent users; CSV upload processes 10MB files in <30 seconds; real-time battery updates every 10 seconds
NFR-5	Availability	24/7 access with <5 minutes scheduled maintenance monthly; regional CDN for India (Hyderabad/Delhi); failover to secondary server; mobile app works offline for cached charging history
NFR-6	Scalability	Horizontal scaling to handle 10K+ users; database auto-sharding; cloud-ready (AWS/GCP); containerized deployment (Docker); supports adding new EV models without code changes