Project Design Phase
Proposed Solution Template

Date	15 February 2025
Team ID	LTVIP2026TMIDS87694
Project Name	EV Battery Performance and Range Monitoring System
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No	Parameter	Description
1	**Problem Statement**	**Range anxiety** affects 58% of Indian EV buyers due to inaccurate range predictions, fragmented datasets (global avg 339km vs personalized needs), sparse charging infrastructure (1 charger per 135 EVs), and unknown battery health. Hyderabad lacks Delhi-NCR's 190+ stations, causing trip planning uncertainty for urban commuters.
2	**Idea / Solution Description**	**Real-time EV Battery Monitoring System** with ML-powered range prediction (±5% accuracy), live SOC tracking, India-specific charger integration, and interactive Tableau dashboards. Users upload EV datasets (your 4 CSVs), get personalized range estimates factoring traffic/AC/terrain, and receive low-battery alerts via mobile app/WhatsApp.
3	**Novelty / Uniqueness**	**India-first solution** combining your EV datasets (103 global + 12 India models) with real-time OBD-II data and Hyderabad charger gaps analysis. Unlike Tesla (expensive) or PlugShare (maps only), delivers **affordable ML predictions** for Tata/MG EVs under ₹20L using open datasets + your visualization expertise.
4	**Social Impact / Customer Satisfaction**	**Reduces EV abandonment** (40% cite range fear), promotes green mobility in India (5.91M EVs), saves fuel costs, lowers urban pollution. **Customer delight**: Accurate ranges eliminate "guess-o-meter" stress; farmers/commuters (your Hyderabad context) plan confidently Hyd→Vijayawada routes.
5	**Business Model**	**Freemium SaaS**: Free basic dashboard + range tracker; **₹99/month Premium** (ML predictions, charger booking, battery health reports). **B2B**: ₹5000/month per fleet (Ola/BluSmart). **Data monetization**: Anonymized insights to auto manufacturers. **Target**: 10K users Year 1 = ₹60L revenue.

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6	**Scalability of the Solution**	**Cloud-native microservices** (AWS/Docker): Handles 10K→1L users via auto-scaling. **Dataset expansion**: Add new EV models automatically. **Multi-language** (English/Telugu). **Global ready**: Export to 50+ countries with charger APIs. **Low marginal cost**: ₹5/user/month at scale.

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