Project Design Phase

Proposed Solution Template

Date	28 June 2025
Team ID	LTVIP2025TMID48068
Project Name	Visualization Tool For Electric Vehicle Charge And Range Analysis
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 (Problem to be solved)	Electric vehicle usersand manufacturers face challenges in accurately predicting driving range under real-world conditions. Current tools often lack visual clarity and integration of variables such as terrain, temperature, driving habits, and battery health. This project aims to create a tool that visualizes these factors to improve decision-making.
2.	Idea / Solution description	The solution is a web-based visualization and analysis tool that models and predicts EV range based on various user-defined inputs like route elevation, temperature, speed, load, and driving behavior. The tool will integrate mapping APIs, real-time sensor data (optional), and machine learning models to provide personalized range estimations and visual outputs (e.g., range heatmaps, route optimizations).
3.	Novelty / Uniqueness	Unlike standard range calculators, this tool incorporates dynamic visualization with multi-parameter analysis. It also allows users to simulate future trips, compare different EV models, and see the impact of battery degradation over time — features that are often missing in current applications.
4.	Social Impact / Customer Satisfaction	The tool will enhance user confidence in EVs by reducing range anxiety and improving trip planning. It promotes sustainable transport by making EVs more predictable and accessible, indirectly supporting environmental goals and the broader adoption of green mobility.

5.	Business Model (Revenue Model)	Freemium model: basic features for free, advanced simulations and reports (e.g., for fleet owners or dealerships) under a paid subscription. Additional revenue via API licensing for OEMs, automotive portals, and map service providers.
6.	Scalability of the Solution	The tool can scale to accommodate different EV brands and geographies. With cloud-based infrastructure and modular design, it can be expanded to include more datasets (e.g., traffic, real-time weather), support international routes, and integrate with fleet management software.