Brainstorming Document

Project Overview

Visualization Tool For Electric Vehicle Charge And Range Analysis: As electric vehicles (EVs) become an increasingly vital part of sustainable transportation, understanding battery usage, charge efficiency, and driving range is key to optimizing performance and adoption. This project proposes the development of a dynamic **Visualization Tool for EV Charge and Range Analysis**, aimed at assisting users, developers, and researchers in visualizing real-time and historical EV performance data.

Brainstorming Process

Step 1: Team Gathering and Collaboration -

Form a multidisciplinary team.

- Select a focused problem statement.

Step 2: Brainstorming Idea Listing and Grouping -

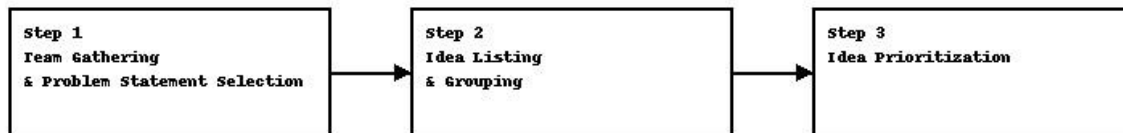Encourage idea generation from all team members.

- Cluster similar ideas into logical groups.

Step 3: Idea Prioritization

- Rank ideas based on impact and feasibility.

- Select top ideas to implement in the project.

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Step 1 Team Gathering & Problem Statement Selection	→	Step 2 Idea Listing & Grouping	→	Step 3 Idea Prioritization

Scenario 1: Fleet Manager Optimizing Delivery Routes

A logistics company operates a fleet of electric vans for urban deliveries. The fleet manager uses the visualization tool to monitor each vehicle's battery level, energy consumption patterns, and nearby charging stations. One morning, the tool shows that two vans returning from extended routes have less than 20% battery left, and one is at risk of not reaching the warehouse.

Scenario 2: EV Owner Planning a Long-Distance Trip

n EV owner is planning a weekend getaway across hilly terrain. They use the visualization tool to simulate the trip, inputting route details, estimated luggage weight, and expected weather conditions. The tool calculates how these factors might reduce range and recommends charging stops along the way.

Scenario 3: City Planner Analyzing Charging Infrastructure Needs

A city transportation department is planning to expand electric vehicle infrastructure to support a growing number of EVs. Using the visualization tool, planners analyze anonymized, aggregated data from public EVs— tracking common travel corridors, average trip distances, and charging frequency.