

IDEATION PHASE:

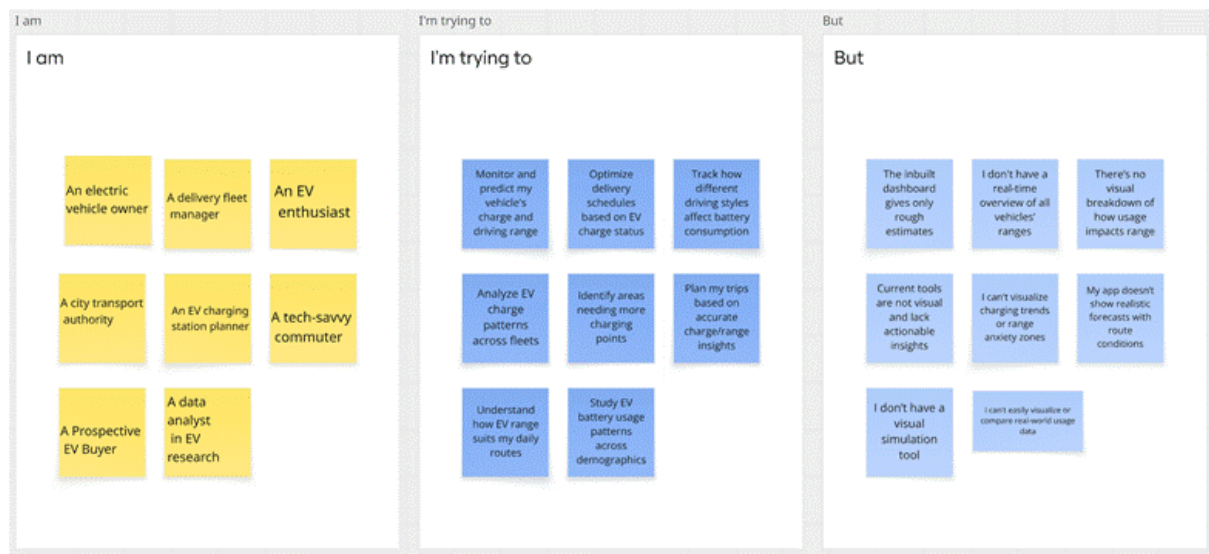
2.1 Problem statement:

Date	18 June 2025
Team ID	LTVIP2025TMID47771
Project Name	Visualization Tool For Electric Vehicle Charge And Range Analysis
Maximum Marks	2 Marks

Customer Problem Statement Template:

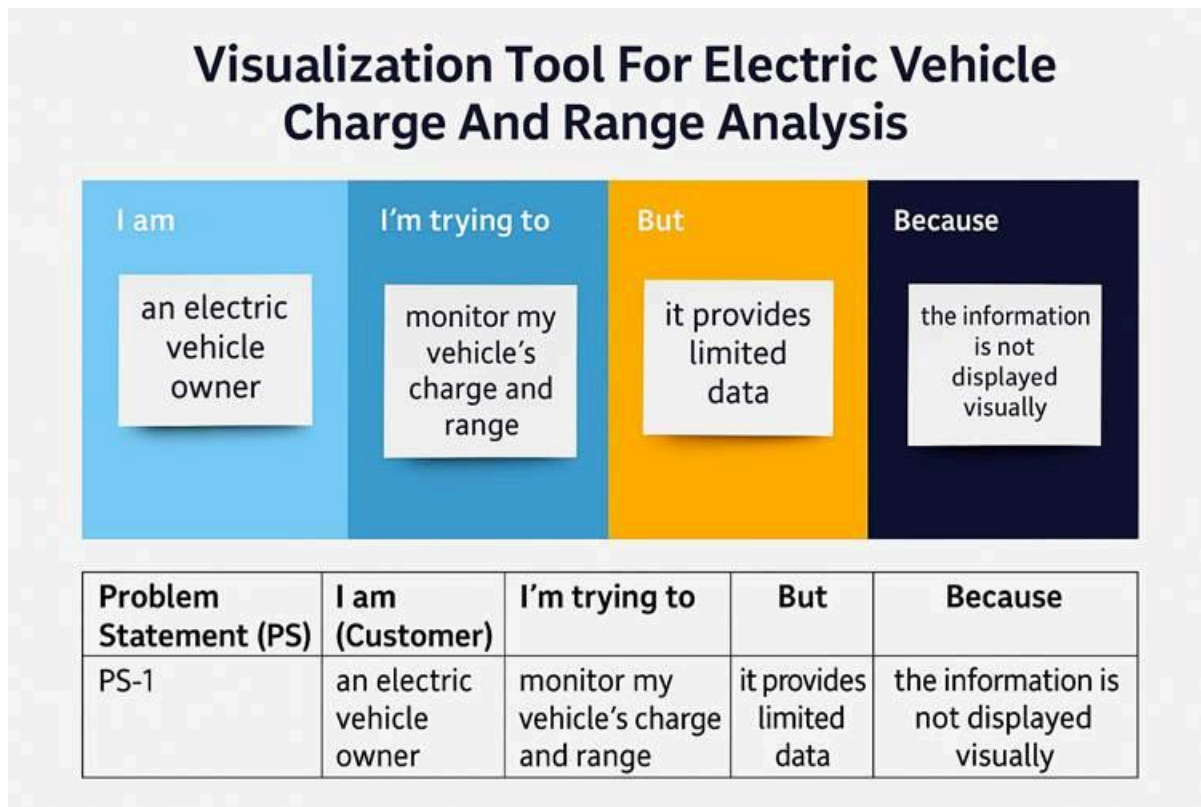
Electric vehicle (EV) users, fleet managers, and potential buyers often face uncertainty regarding battery charge levels, range estimation, and efficient route planning. Current EV dashboards and mobile applications typically offer only basic numeric data without visual clarity, lacking historical trends, predictive analytics, and personalized usage patterns.

As a result, users experience range anxiety, inefficient trip planning, and difficulties in understanding how various factors like terrain, speed, and weather influence battery consumption. Furthermore, infrastructure planners and analysts struggle to identify charging station demand due to insufficient visualization tools.





Example:

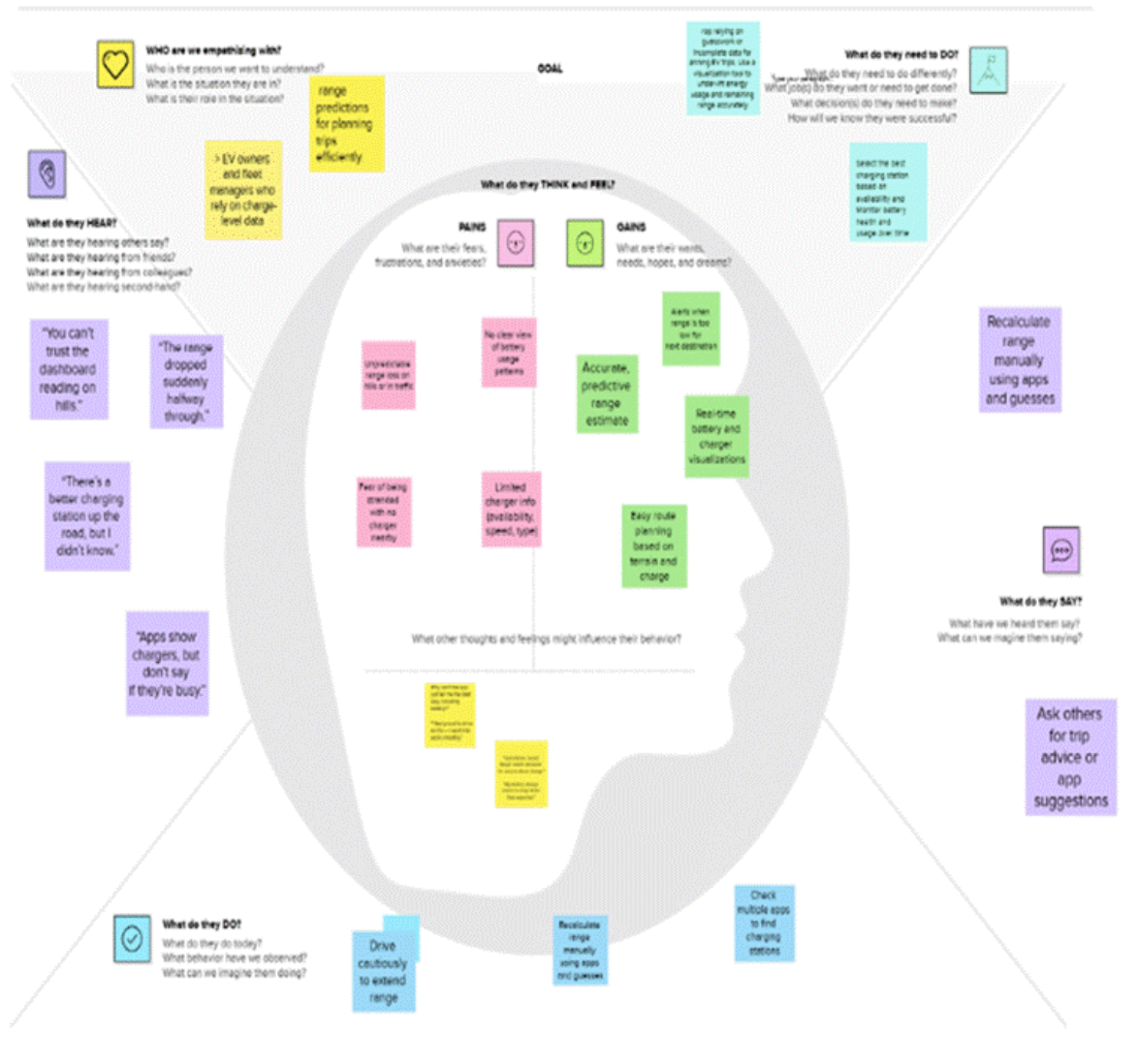


2.2 Empathy Map Canvas:

Empathize & Discover

Date	18 June 2025
Team ID	LTVIP2025TMID47771
Project Name	Visualization Tool For Electric Vehicle Charge And Range Analysis
Maximum Marks	4 Marks

Empathy Map Canvas: "We empathize with electric vehicle users who struggle with limited and unclear data about their vehicle's battery charge and range. They feel anxious and uncertain during travel because they lack visual, real-time insights to plan trips effectively. By understanding their frustration, we aim to build a tool that simplifies EV charge and range data into intuitive visual dashboards for confident and informed decision-making."



2.3 Brainstorming:

Brainstorm & Idea Prioritization Template


Date	18 JUNE 2025
Team ID	LTVIP2025TMID47771
Project Name	Visualization Tool for Electric Vehicle Charge and Range Analysis
Maximum Marks	4 Marks

Brainstorm & Idea Prioritization Template:

"How might we design an intuitive and interactive visualization tool that helps electric vehicle users, fleet operators, and planners easily understand and analyze real-time charge levels, battery consumption, and range estimates, so they can make smarter, stress-free driving and planning decisions?"

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Template



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

⌚ 10 minutes to prepare
 ⌚ 1 hour to collaborate
 👤 2-8 people recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

⌚ 10 minutes

- 1 **Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- 2 **Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.
- 3 **Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

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1 Define your problem statement

Analysing different data from Multiple sources for Electric cars in India and Globally. We have 4 Different datasets we need to analyse the data and create Dashboard and story that can represent the data and show the Visuals for the data.

⌚ 5 minutes

PROBLEM

How might we [Analyse different data from Multiple sources for Electric cars in India and Globally. We have 4 Different datasets we need to analyse the data and create Dashboard and story that can represent the data and show the Visuals for the data?]



Key rules of brainstorming

To run a smooth and productive session

➕ Stay in topic.

➖ Defer judgment.

🗣️ Go for volume.

💡 Encourage wild ideas.

👂 Listen to others.

👁️ If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping

2 Brainstorm

⌚ 10 minutes

Person 1 - Data & Inputs

- Real-time battery %
- GPS location
- Terrain data
- Altitude info
- Traffic API
- Weather API

Person 2 - Visualization Features

- EV range heatmap
- Battery usage dashboard
- Graphs: predicted vs actual range
- Interactive map overlays
- Color-coded route visualization

Person 3 - Predictive Analytics

- AI for range prediction
- Driver behavior learning
- Weather impact model
- Charging station heat prediction

Person 4 - User Interface Design

- Individual trip planning
- Fleet management
- EV rentals
- Rural route support
- Education tools

Person 5 - Smart Features

- AI-powered features to predict EV range based on dynamic factors

Person 6 - Integration & Compatibility

- Integration with existing navigation apps
- Compatibility with various EV models

Person 7 - User Cases & Target Users

- Urban commuters
- Rural delivery services
- Emergency services
- Public transport

Person 8 - Research & Future Scope

- Research on battery technology advancements
- Future scope: integration with smart city infrastructure

3 Group ideas

⌚ 20 minutes

Data Inputs for EV Analysis

Raw data sources required for accurate EV charge and range calculations

- Real-time battery %
- GPS location
- Terrain data
- Altitude info
- Traffic API
- Weather API

Visualization & Dashboard Design

Visual components to visualize EV range

- EV range heatmap
- Battery usage dashboard
- Graphs: predicted vs actual range
- Interactive map overlays
- Color-coded route visualization

Predictive Intelligence

AI-powered features to predict EV range based on dynamic factors

- AI for range prediction
- Driver behavior learning
- Weather impact model
- Charging station heat prediction

Use Cases and Applications

Potential user groups and practical applications for visualization tool

- Individual trip planning
- Fleet management
- EV rentals
- Rural route support
- Education tools

Step-3: Idea Prioritization

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

Tip

Participants can use their markers to place at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer hitting the **W** key on the keyboard.

