VISUALIZATION TOOL FOR ELECTRIC VEHICLE CHARGE AND RANGE ANALYSIS

INTRODUCTION

Electric Vehicle Charge can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source and have an electric motor instead of an internal combustion engine.

The Electric Vehicle (EV) is not new, but it has been receiving significantly more attention in recent years. Advances in both EV analytics and battery technologies have led to increased automotive market share. However, this growth is not attributed to hardware alone. The modern mechatronic vehicle marries electrical storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer, and data analysis, to form a comprehensive transportation solution. Advances in all these areas have contributed to the overall rise of EV's, but the common thread that runs through all these elements is data analytics. The new EV's are combined Electrical storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer to form a comprehensive transportation solution.

PURPOSE OF THE PROJECT

Electric vehicles use electricity to charge their batteries instead of using fossil fuels like petrol or diesel. Electric vehicles are more efficient, and that combined with the electricity cost means that charging an electric vehicle is cheaper than filling petrol or diesel for your travel requirements.

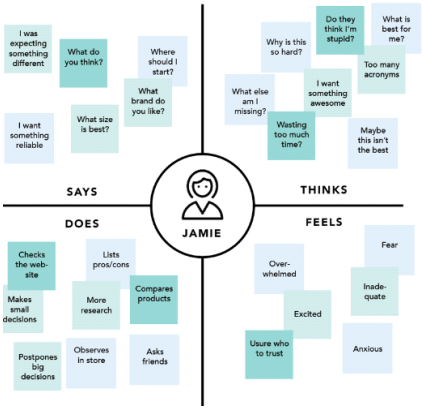
PROBLEM DEFINITION & DESIGN THINKING

Many drivers report reliability issues with their electric cars — but for the first time, the EV problem rate is lower than the non-EV problem rate. Battery issues, climate control, and in-car electronics are among the biggest problems in electric vehicles.

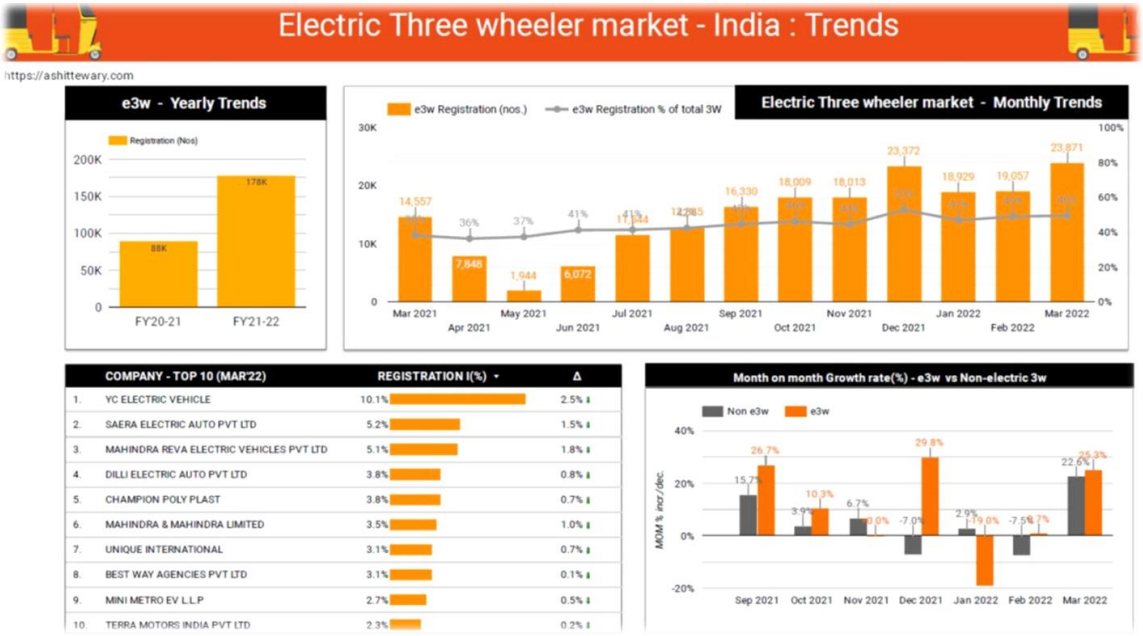
Emotion Energy, a very new start-up aimed at offering renewable energy for electric car users in India, enlisted my services in the research and product discovery phases. The mission was to speak with and understand current and potential electric car owners to develop a product that would help solve some of their needs.

EMPATHY MAP

An idea map is a visual representation of your thinking process. It's a tool for planning and organizing your ideas visually that doesn't rely on traditional notetaking.



RESULT OF THE DASHBOARD



Advantages of the EV Bike

By solving or helping to solve the biggest issue in EV market. More people will understand and but the EV instead of ICE's. Business Model/Impact: This project can provide the insights for the Car/Battery Manufacturers and it can also provide the insights for the people who are using the EV or Thinking to enter in EV Market.

Understand the data Data contains all the meta information regarding the columns described in the CSV files. we have provided 4 CSV files:

1. EVIndia
2. Electric_vehicle_charging_station_list

3. ElectricCarData_Clean
4. Cheapestelectriccars-EVDatabase

Table Style

Vechile Name	Description
1. Car	Car Brand name and model
2. Style Range	Style range of car
3. Transmission	Transmission type
4. VehicleType	Type of vehicle
5. PriceRange(Lakhs)	Price Range in Lakhs
6. Capacity	Capacity of car
7. BootSpace	Bootspace of the car
8. BaseModel	Base model name
9. TopModel	Top model name

Column Description for EVIndia:
1. Car - Car Brand name and model
2. Style Range - Style range of car
3. Transmission- Transmission type
4. VehicleType – Type of vehicle
5. PriceRange(Lakhs) - Price Range in Lakhs
6. Capacity - Capacity of car
7. BootSpace – Bootspace of the car
8. BaseModel – Base model name
9. TopModel – Top model name

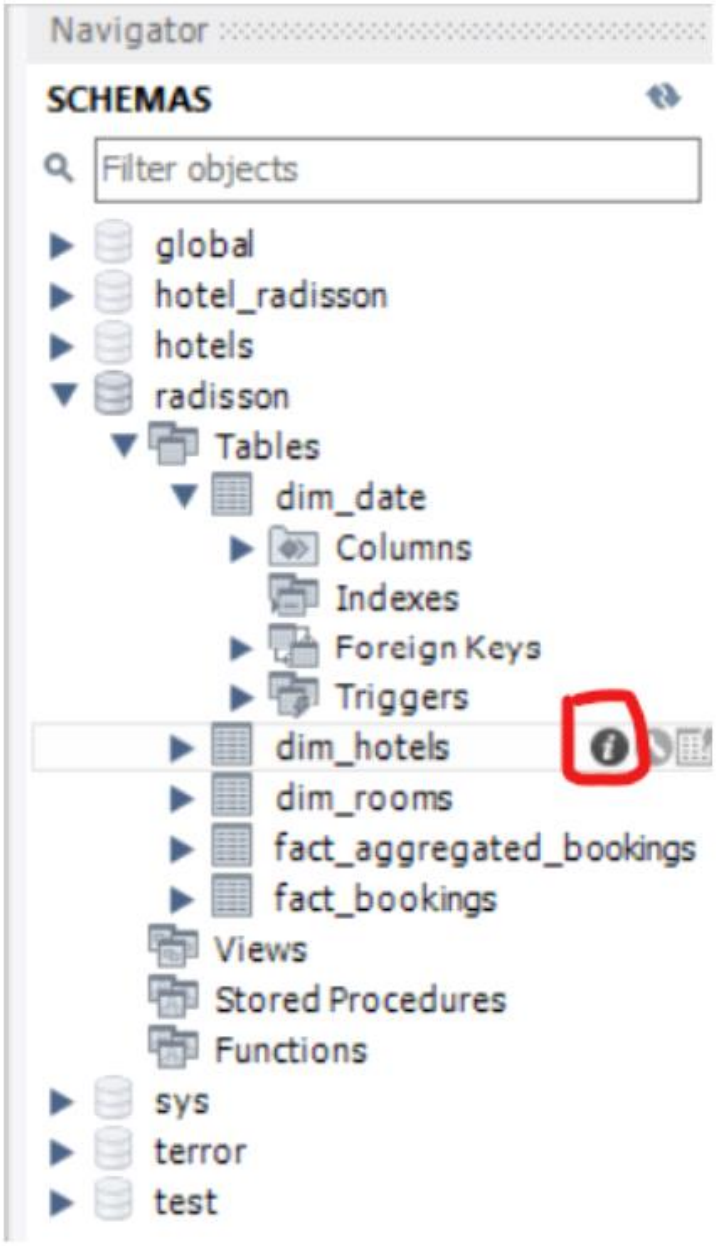
Column Description for Electric_vehicle_charging_station_list:
1. region: This column represents the region of the charging station.
2. address: This column represents the address of the charging station.
3. aux address: This column represents the auxiliary address of the charging station.
4. latitude: This column represents the latitude of the charging station.
5. longitude: This column represents the longitude of the charging station
6. type: This column represents the type of the charging station.
7. power: This column represents the power of the charging station.
8. service: This column represents the type of service at the charging station.

Column Description for ElectricCarData_Clean:
1. Brand
2. Model
3. AccelSec
4. TopSpeed_KmH
5. Range_Km
6. Efficiency_WhKm
7. FastCharge_KmH

8. RapidCharge
9. PowerTrain
10. PlugType
11. BodyStyle
12. Segment
13. Seats
14. PriceEuro

Column Description for Cheapestelectriccars-EVDatabase:
1. Name
2. Subtitle
3. Acceleration
4. TopSpeed
5. Range
6. Efficiency
7. FastChargeSpeed
8. Drive
9. NumberofSeats
10. PriceinGermany
11. PriceinUK

Activity 2: Storing Data in DB & Perform SQL Operations
Database creation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SCHEMAS
Filter objects
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Tables
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Columns
Indexes
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Triggers
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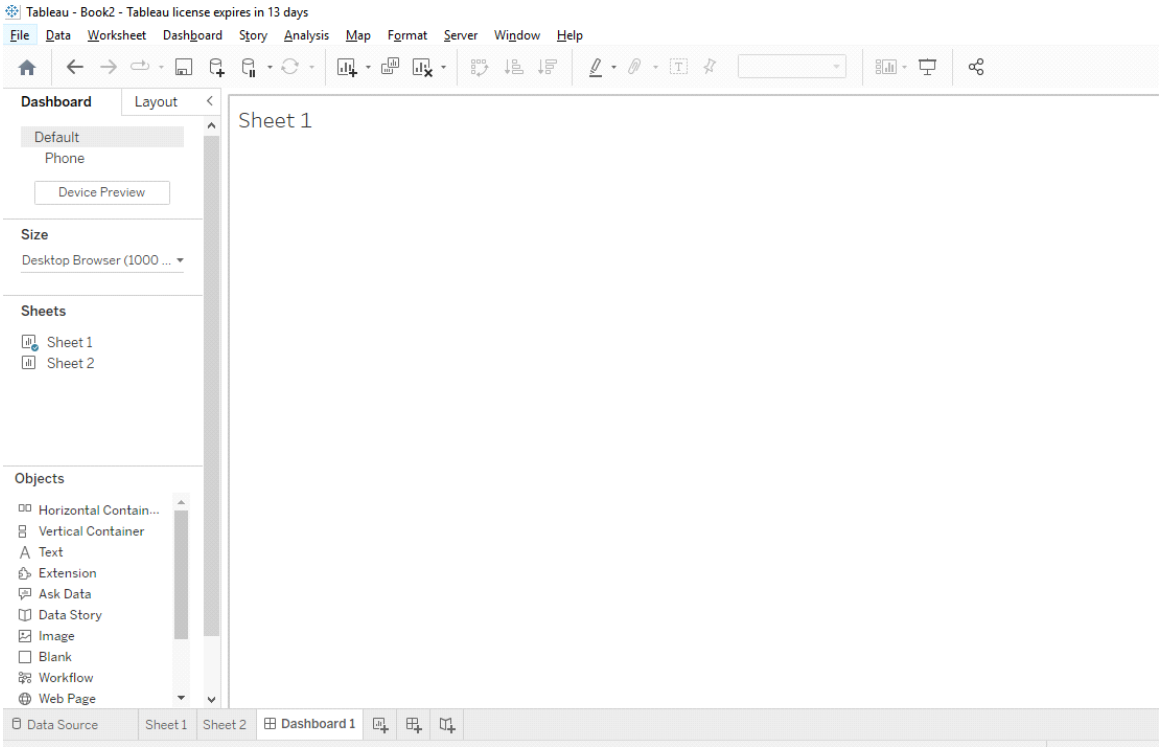
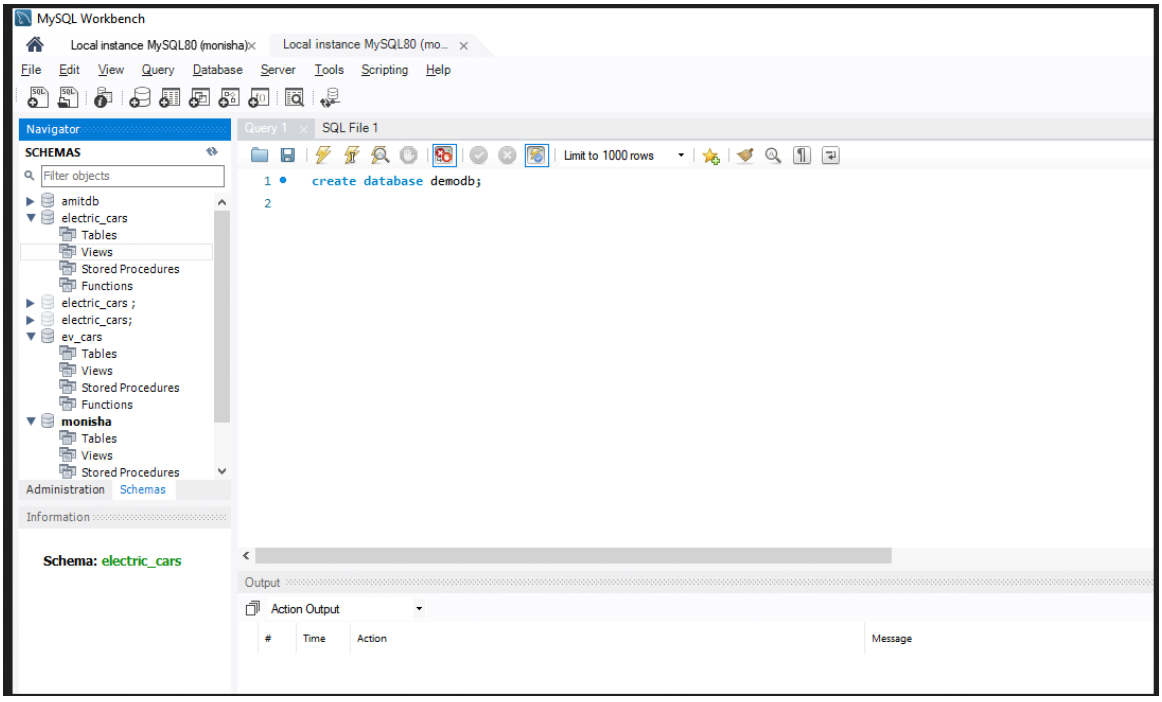
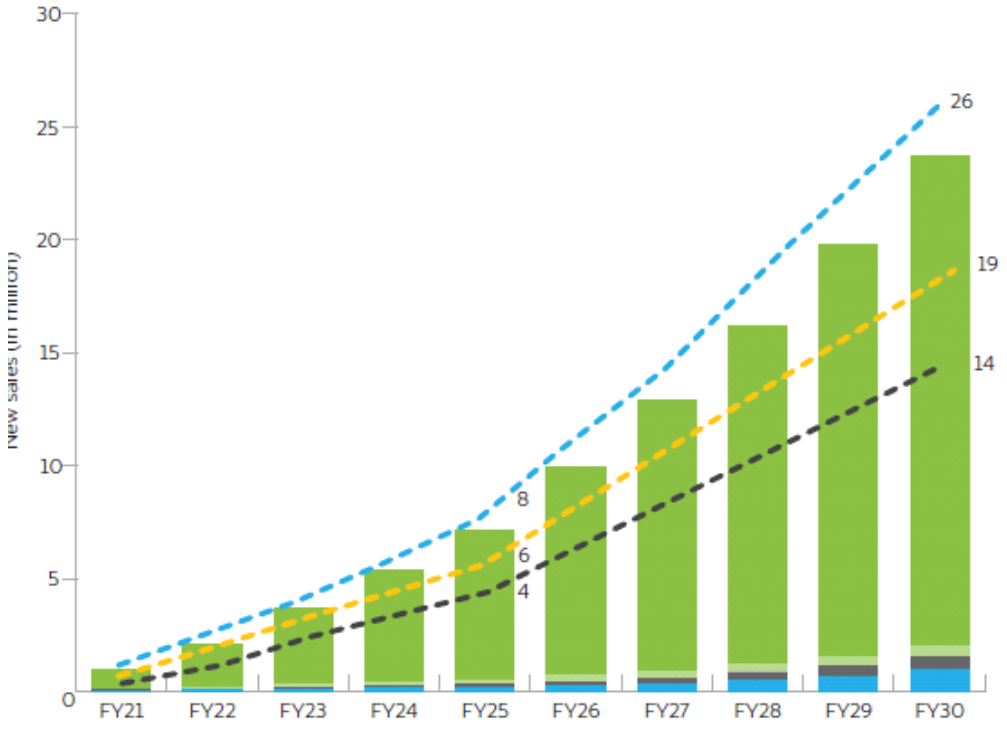




No of Visualizations/ Graphs

1. Charging Stations by region and type in India
2. EV Charging stations map of India
3. Different EV cars in India

4. Top speed for different Brands
5. Price for different cars in India
6. Top 10 most efficient EV Brands
7. Brands according to Bodystyle
8. Brand filtered by PowerTrain type
9. No of models by each brand
10. Summary card for Different brands of EV Cars globally
11. Summary card for Different brands of EV Cars in India



The basic conclusion is that when it comes to climate change and air quality, electric cars are clearly preferable to petrol or diesel cars. Contrary to some public doubts and uncertainties about the environmental benefits of electric cars, the science is increasingly clear. Over-standard electric bike provides an low-cost and convenient form of private mobility and is thus an attractive alternative to public transit or regular bicycling. 70% users had switched from public transport and bicycle.