

PROJECT DOCUMENTATION

Visualization Tool for Electric Vehicle Charge and Range Analysis

Team ID : NM2023TMID26237

Team Size : 5

Team Leader : MAHENDIRAN K

Team member : LINGANATHAN R

Team member : MADHAVAN M

Team member : SANJITH V

Team member : SIVA S

1. INTRODUCTION:

1.1 OVERVIEW:

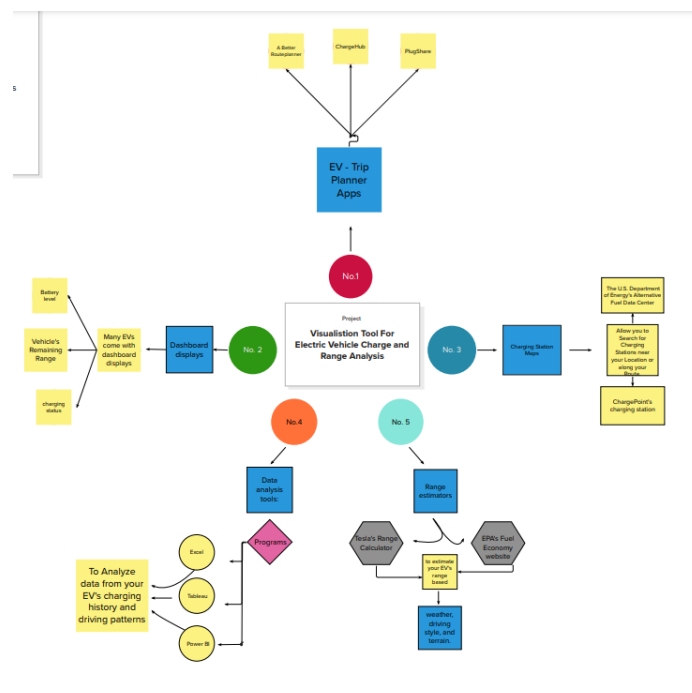
A vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source and have an electric motor instead of an internal combustion engine. The Electric Vehicle (EV) is not new, but it has been receiving significantly more attention 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.

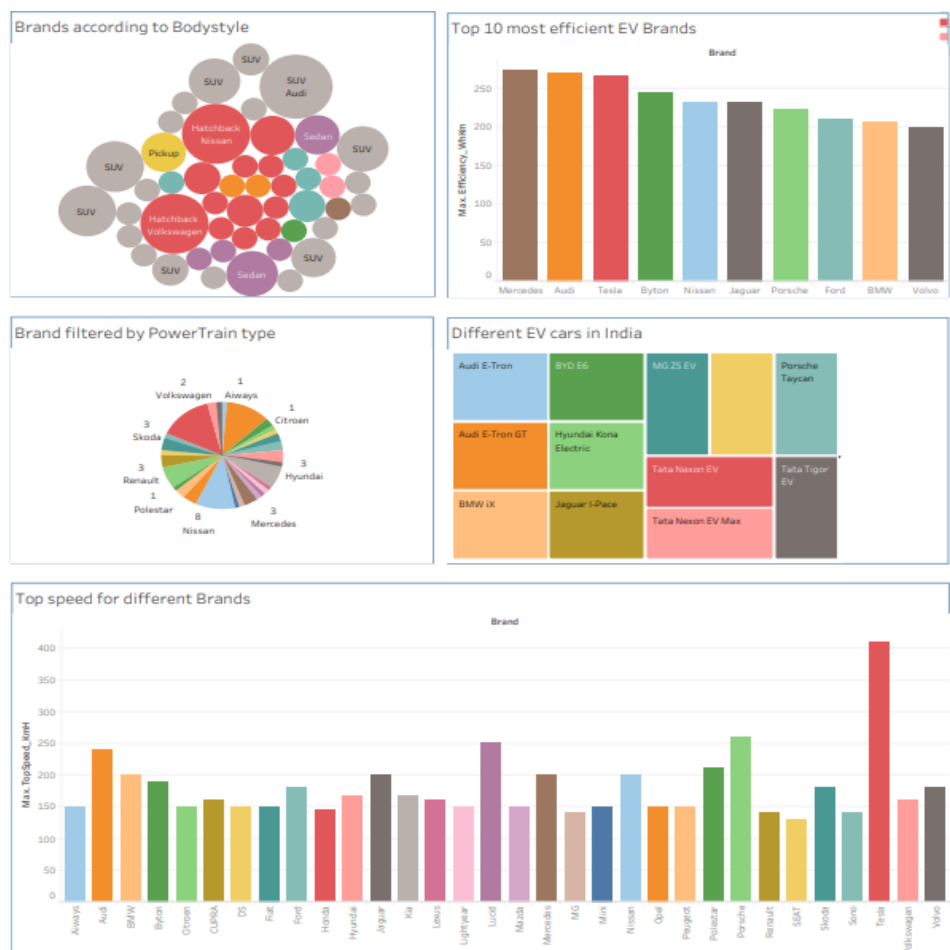
1.2 PURPOSE:

Data Visualization provides a quick and effective way to communicate information in a universal manner using visual information. Data visualization is the graphical representation of information and data in a pictorial or graphical format (Example: charts, graphs, and maps). Data visualization tools provide an accessible way to see and understand trends, patterns in data and outliers. Data visualization tools and technologies are essential to analyse massive amounts of information and make data driven decisions. The concept of using pictures to understand data has been used since centuries. General types of data visualization are Charts, Tables, Graphs, Maps, Dashboard. Visualization of Electric Vehicles easily helps us to find the full details on Electric Vehicles in India

2. Define Problem / Problem Understanding

2.1 Empathy Map





3.2 Story

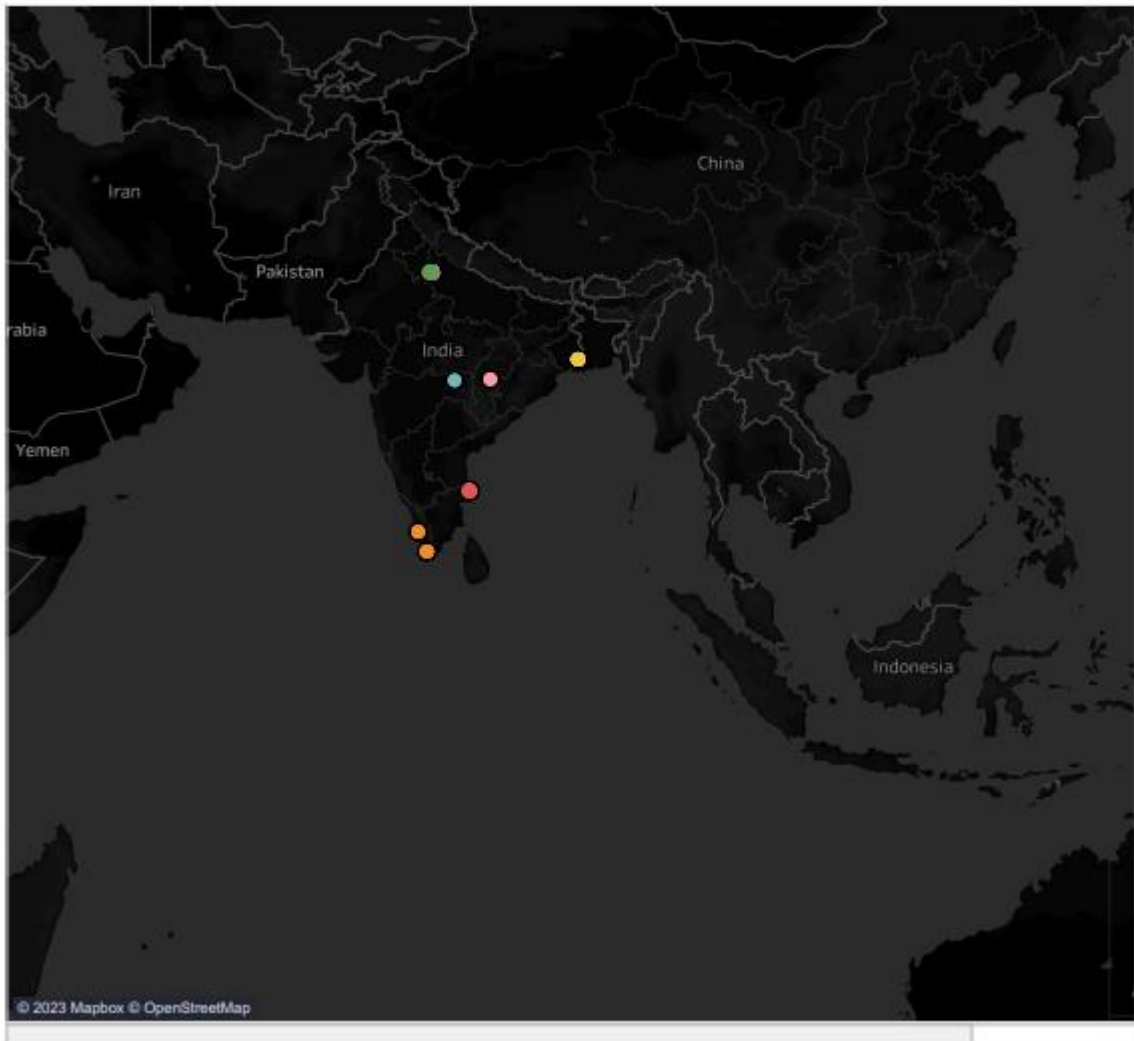
Story Of Electric Cars In India

EV Charging stations
In India

Charging Stations by
region and type in Ind..

Price Of Electric Cars
By Different Brands

Different Brands & No.
of Models



3.3 Web integration



4. Advantages & Disadvantages:

4.1 Advantages:

Eco-friendly: Because electric vehicles do not utilize fuel for combustion, there are no emissions or gas exhaust. Vehicles that run on fossil fuels contribute significantly to hazardous gas accumulation in the environment, thus driving an electric car can help contribute to a cleaner environment.

Less noise and smoother motion: Driving an electric car is significantly smoother. Because they lack fast-moving elements, they are quieter and produce less noise.

Cost-effective: Electricity is far less expensive than fuels such as gasoline and diesel, which are subject to regular price increases. When solar electricity is utilized at home, battery recharging is cost-effective.

Low maintenance: Because electric cars have fewer moving components, wear and tear is reduced when compared to traditional auto parts. Repairs are also simpler and less expensive than combustion engines.

Government support: Governments throughout the world have granted tax breaks to encourage people to drive electric vehicles as part of a green program.

4.2 Disadvantages:

High initial cost: Electric vehicles continue to be quite expensive, and many buyers believe they are not as inexpensive as traditional automobiles. Recharging takes time: Unlike conventional automobiles, which require only a few minutes to replenish their gas tanks, charging an electric vehicle takes many hours. Limited options: Currently, there aren't many electric car models to pick from in terms of appearance, style, or customized variations. Less driving range: When compared to conventional automobiles, electric vehicles have a shorter driving range. Electric cars can be convenient for short-distance travel but are inconvenient for long-distance travel.

5. Application

It can be used in industry to analyse the data on Electric Vehicles.

It helps the government to understand growth of EV in India.

It gives full idea for the EV companies to develop their flaws and increase the infrastructures and build more EV stations around India.

6. CONCLUSION:

As is demonstrated in our timeline, we hope that over the course of the next decade technological advancements and policy changes will help ease the transition from traditional fuel-powered vehicles. Additionally, the realization and success of this industry relies heavily on the global population, and it is our hope that through mass marketing and environmental education programs people will feel incentivized and empowered to drive an electric-powered vehicle.

7. FUTURE SCOPE:

Because of its Pollution free state and great features EV will place a major role in our Future and this data visualization will help us to reach that state. So this data has a great scope for the Future Of Electric Vehicle.