

VISUALIZATION TOOL FOR ELECTRIC VEHICLE CHARGE AND RANGE ANALYSIS



1 INTRODUCTION

1.1 Overview

An electric vehicle, also called EV, uses one or more electric motors or traction motors for propulsion. An electric vehicle may be powered through a collector system by electricity from off-vehicle sources, or may be self-contained with a battery, solar panels or an electric generator to convert fuel to electricity.

An electric vehicle charging station, also called EV charging station, electric recharging point, charging point, charge point and electronic charging station (ECS) is an element in an infrastructure that supplies electric energy for the recharging of plug-in electric vehicles-including electric cars, neighbourhood electric Vehicles and plug-in hybrids.

Nowadays, energy efficiency is a top priority, boosted by a major concern with climatic changes and by the soaring oil prices in countries that have a large dependency on imported fossil fuels, which leads to the demand of EV charging station in the country.

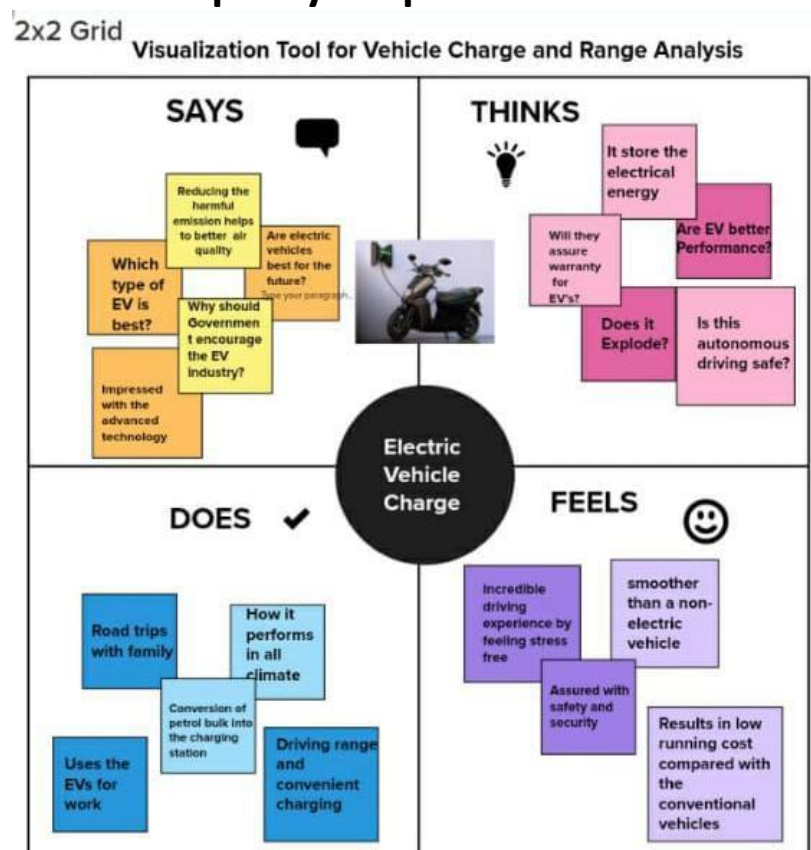
1.2. Purpose

To study the perceptions and expectations of potential, for alternative technologies in automobiles, such as Electric/Hybrid Vehicles. To know why electric vehicle couldn't get enough consumer attraction. To study the willingness of buyers of considering Electric/Hybrid Vehicles as a practical commuting option and at when. To study the

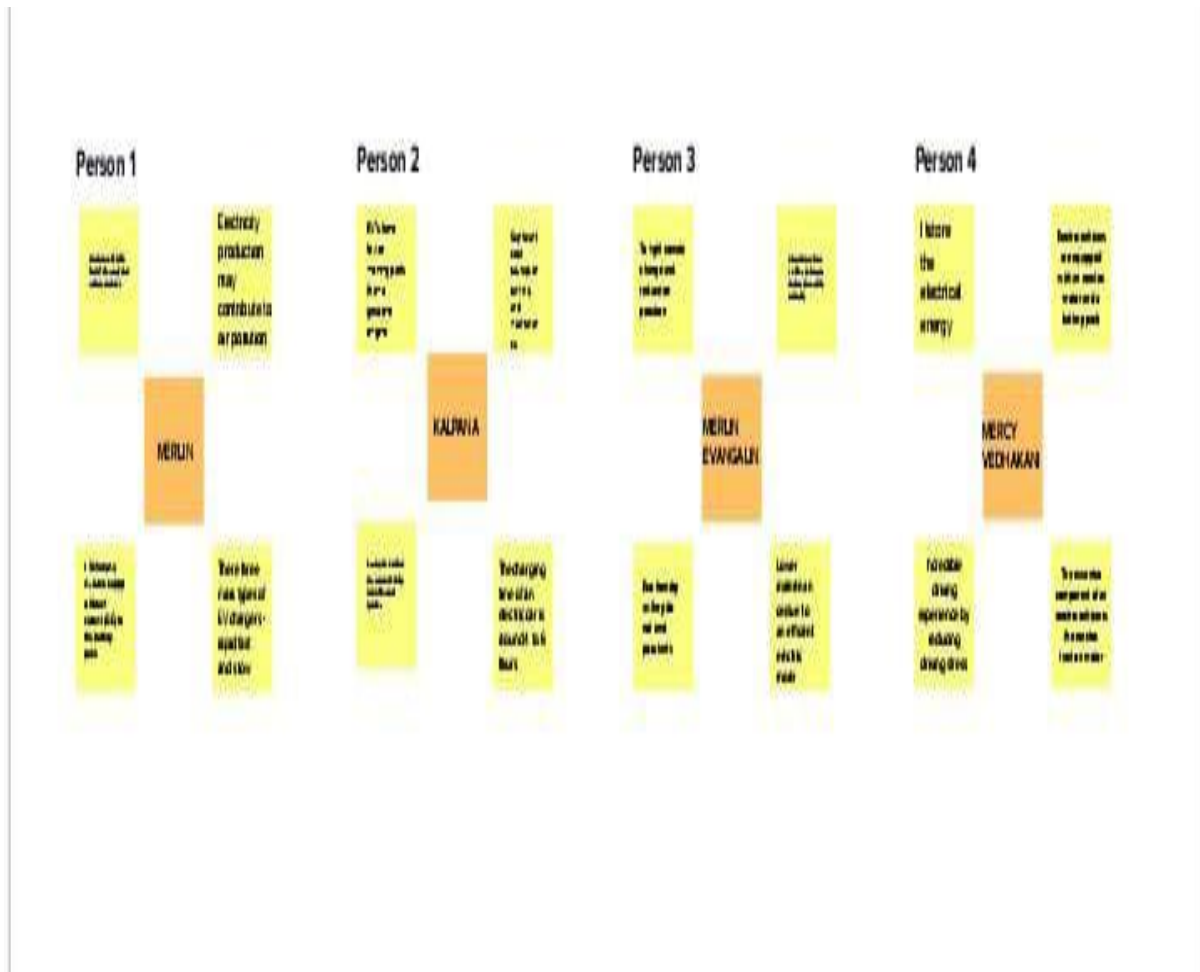
maximum price consumers can afford for buying an Electric/Hybrid Vehicles To study the other options available for Range Anxious Consumer with respect to existing batteries used in Electric/Hybrid Vehicles . To study the Government initiatives taken for promoting Electric/Hybrid Vehicles and subsidies provided on Electric Vehicle batteries.

2 PROBLEM DEFINITION & DESIGN THINKING

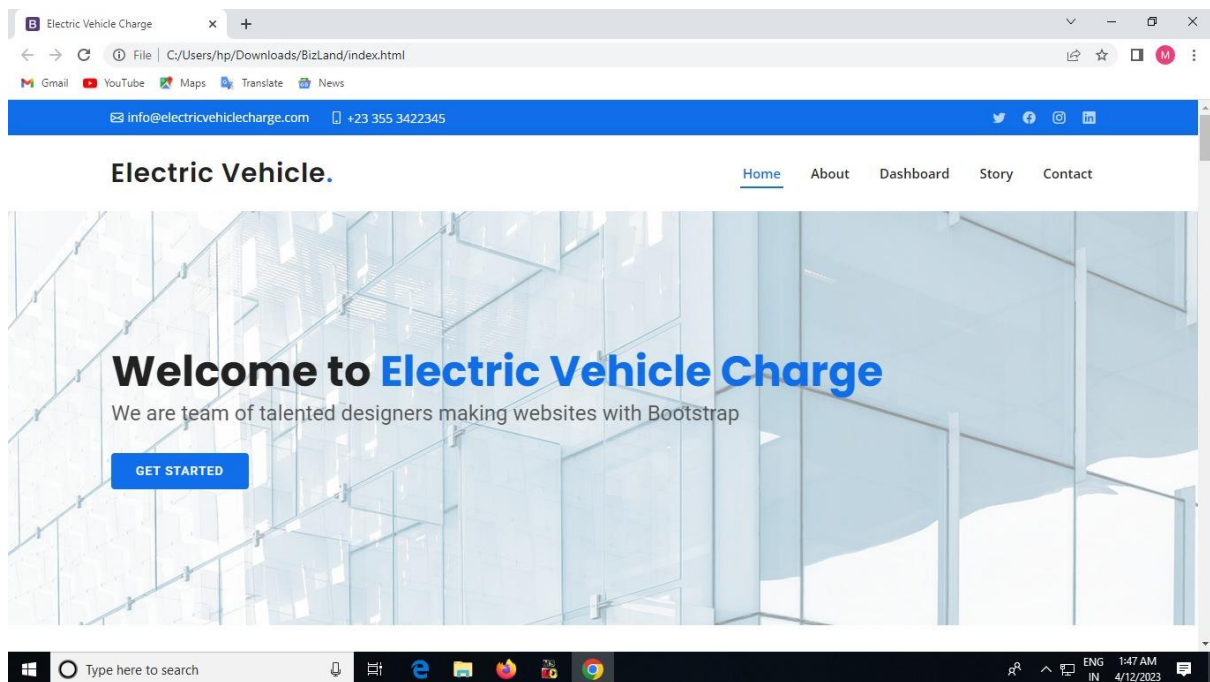
2.1 Empathy Map



2.2 Ideation & Brainstorming Map

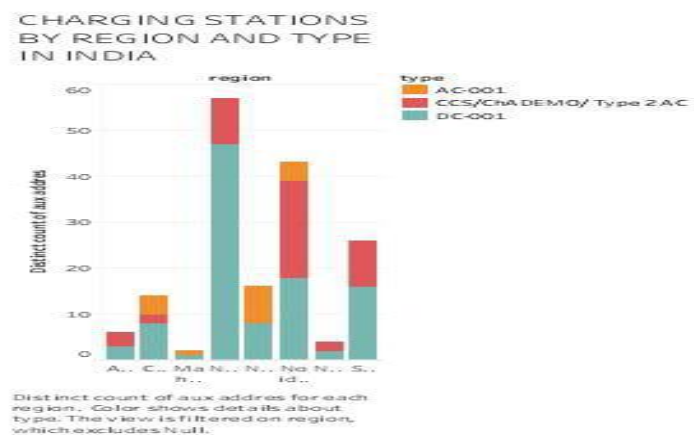


3 RESULT



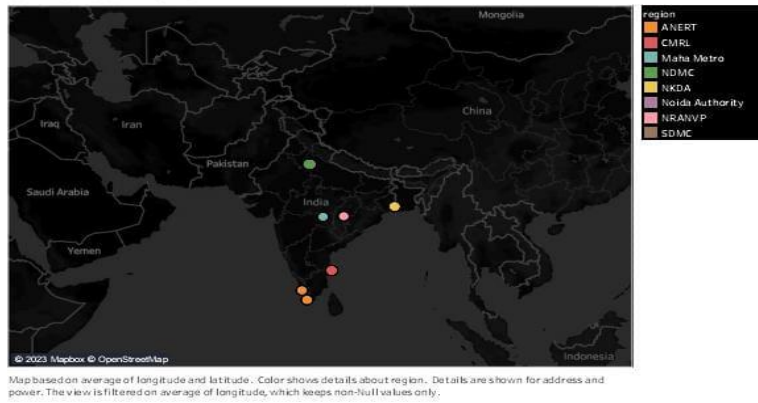
WORKSHEET:

This graph represents the various charging stations by region in India



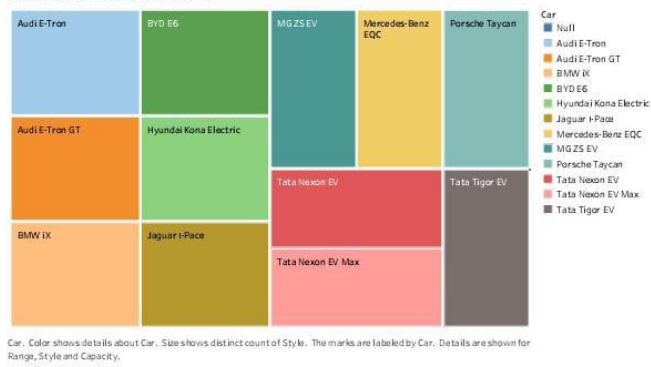
This graph describes charging station in India

CHARGING STATIONS IN INDIA



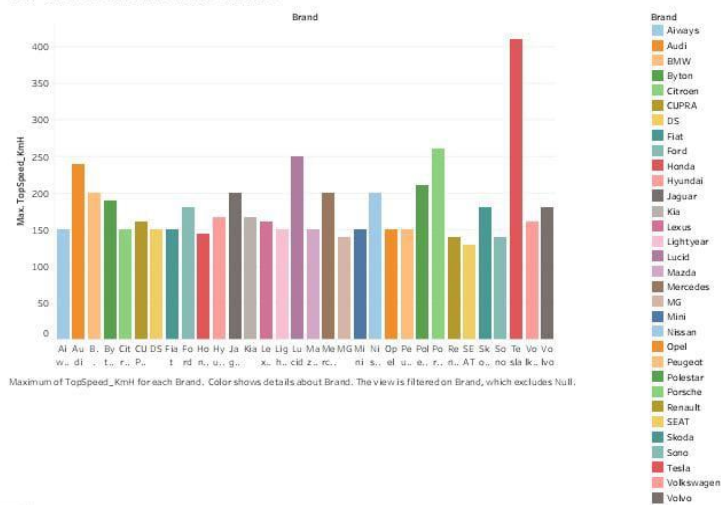
DIFFERENT EV CARS IN INDIA

DIFFERENT EV CARS IN INDIA



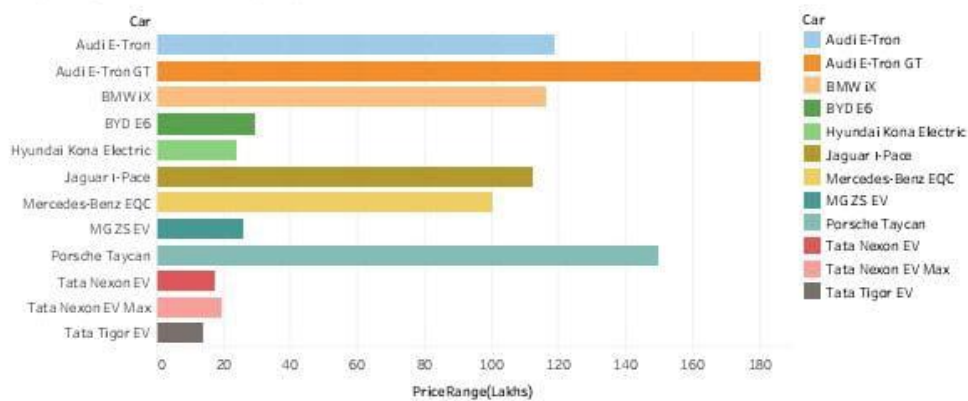
TOP SPEED FOR DIFFERENT BRANDS

TOP SPEED FOR DIFFERENT BRANDS



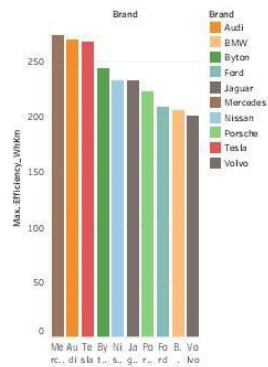
PRICE FOR DIFFERENT CARS IN INDIA

PRICE FOR DIFFERENT CARS IN INDIA



TOP 10 MOST EFFICIENT EV BRANDS

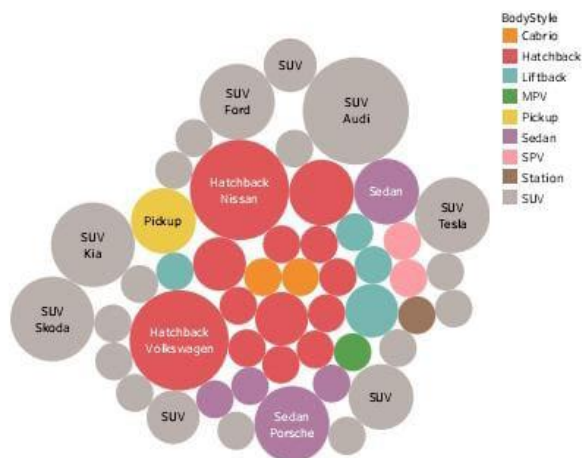
TOP 10 MOST EFFICIENT
EV BRANDS



Maximum of Efficiency_Whkm for each Brand. Color shows details about Brand. The view is filtered on Brand, which keeps 10 of 33 members.

BRANDS ACCORDING TO BODY STYLE

BRANDS ACCORDING TO BODY STYLE



BodyStyle and Brand. Color shows details about BodyStyle. Size shows BodyStyle_count. The marks are labeled by BodyStyle and Brand. The view is filtered on BodyStyle, which excludes Null.

BRAND FILTERED BY POWER TRAIN TYPE

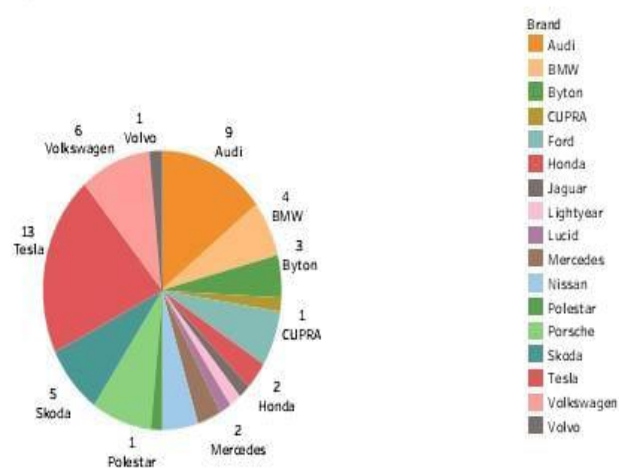
BRAND FILTERED BY POWER TRAIN TYPE



Car_brands_india. Color shows count of Car. Size shows count of Car. The marks are labeled by car_brands_india.

NO OF MODELS BY EACH BRAND

NO OF MODELS BY EACH BRAND



Summary card for different brands EV cars globally

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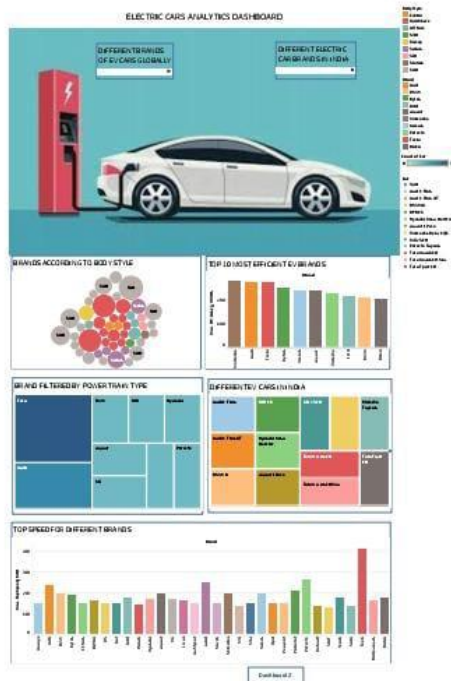
Distinct
count of
Brand.

Summary card for different brands of EV cars in India

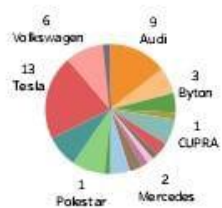
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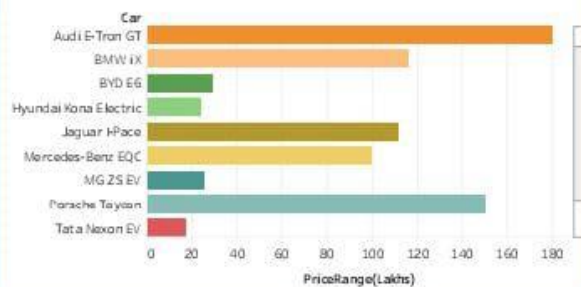
DASHBOARD



NO OF MODELS BY EACH BRAND



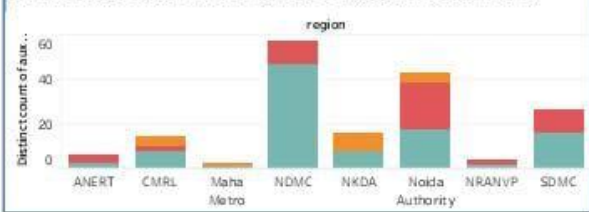
PRICE FOR DIFFERENT CARS IN INDIA



CHARGING STATIONS IN INDIA

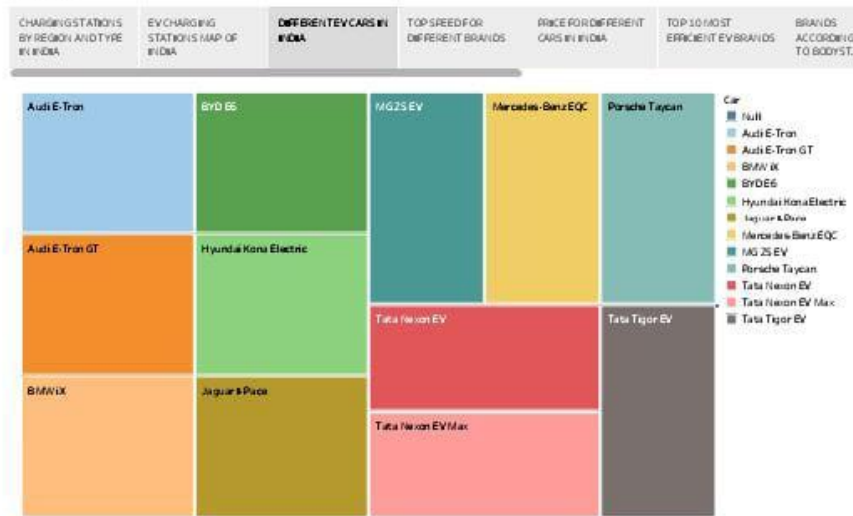


CHARGING STATIONS BY REGION AND TYPE IN INDIA

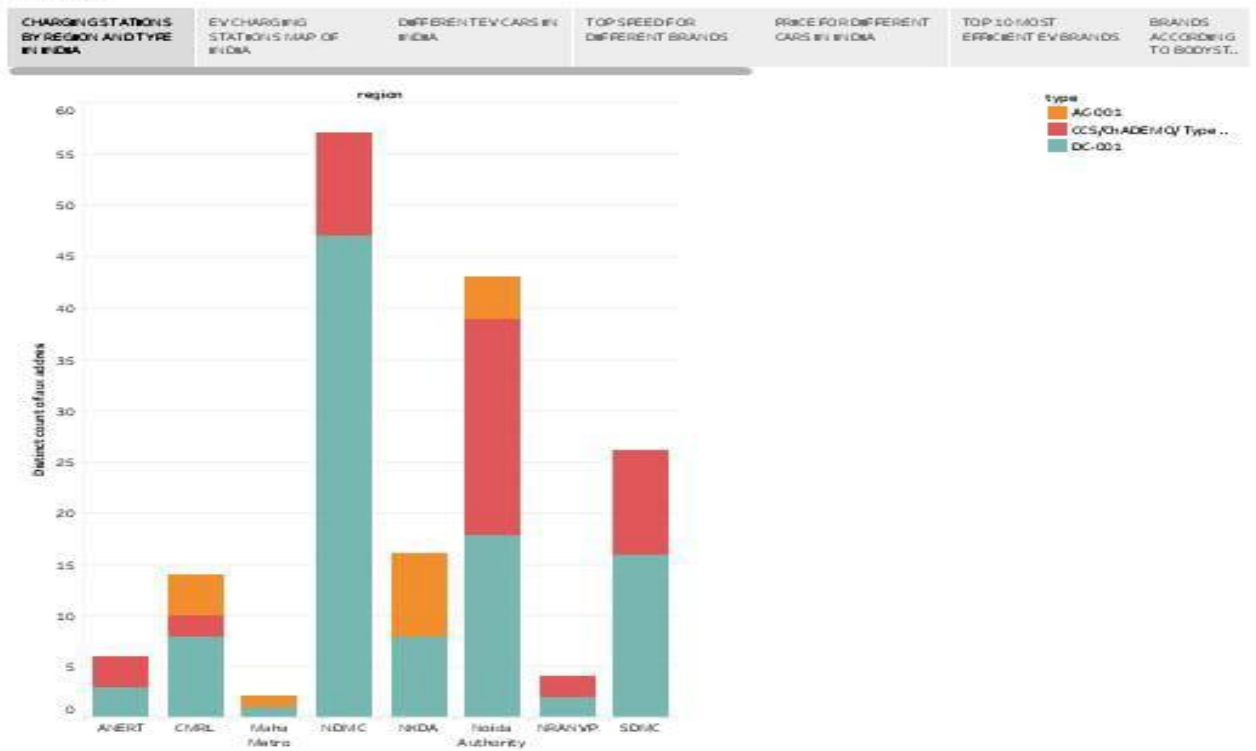


STORY

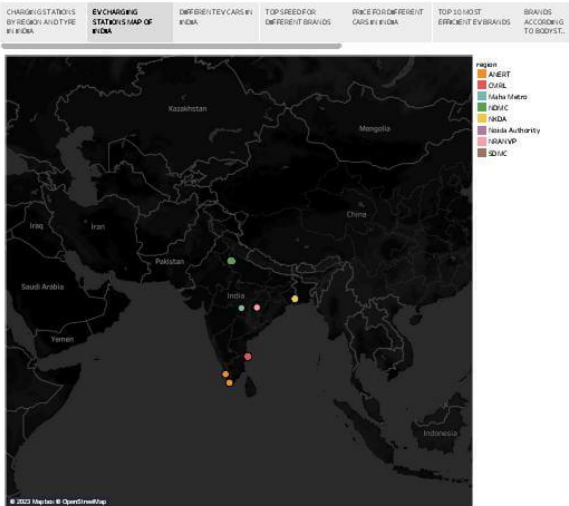
Story 1



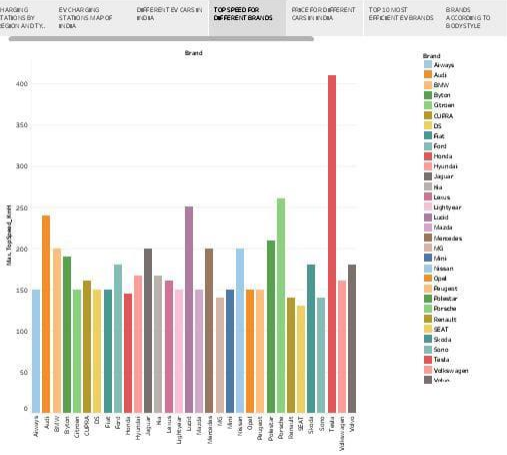
Story 1



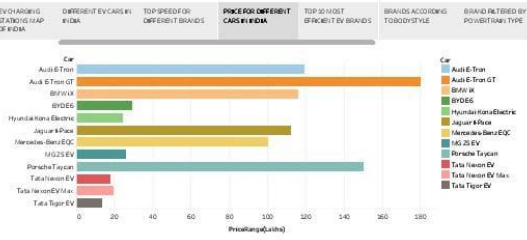
Story 1



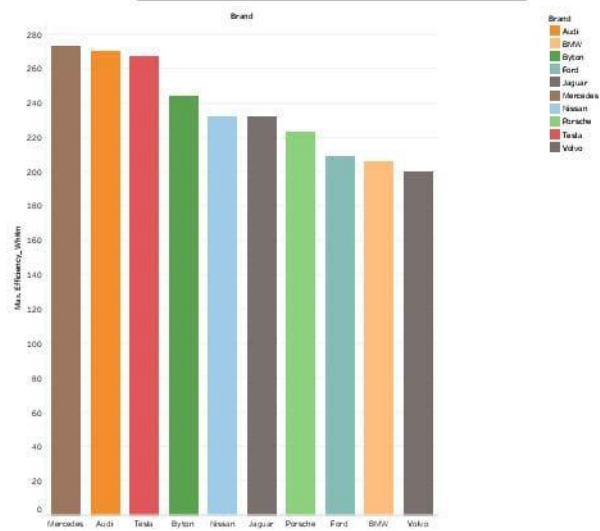
Story 1



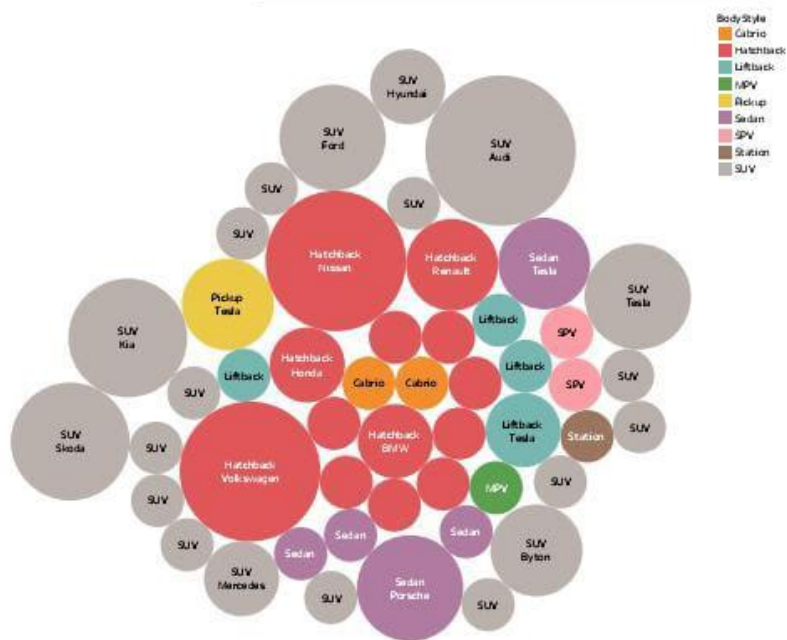
Story 1



DIFFERENT BY CAR IN INDIA TOP SPEED FOR DIFFERENT BRANDS PRICE FOR DIFFERENT CARS IN INDIA TOP 10 MOST EFFICIENT EV BRANDS BRANDS ACCORDING TO BODY STYLE BRAND FILTERED BY POWERTRAIN TYPE NO OF MODELS BY EACH BRAND



TOP SPEED FOR DIFFERENT BRANDS	PRICE FOR DIFFERENT CARS IN INDIA	TOP 10 MOST EFFICIENT EV BRANDS	BRANDS ACCORDING TO BODY STYLE	BRAND FILTERED BY POWERTRAIN TYPE	NO OF MODELS BY EACH BRAND	DIFFERENT BRANDS OF EV CARS GLOBALLY
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Story 1

PRICE FOR DIFFERENT CARS IN IND.	TOP 10 MOST EFFICIENT EV BRANDS	BRANDS ACCORDING TO BODY STYLE	BRAND FILTERED BY POWERTRAIN TYPE	N.O OF MODELS BY EACH BRAND	DIFFERENT BRANDS OF EV CARS GLOBALLY	DIFFERENT BRANDS OF EV CARS IN INDIA
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Story 1

PRICE FOR DIFFERENT CARS IN IND.	TOP 10 MOST EFFICIENT EV BRANDS	BRANDS ACCORDING TO BODY STYLE	BRAND FILTERED BY POWERTRAIN TYPE	N.O OF MODELS BY EACH BRAND	DIFFERENT BRANDS OF EV CARS GLOBALLY	DIFFERENT BRANDS OF EV CARS IN INDIA
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4 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.
- **Renewable energy source:** Electric vehicles run on renewable power, whereas conventional automobiles function on the combustion of fossil fuels, which reduces the world's fossil-fuel stocks.
- **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.

- **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.

DISADVANTAGES

- **Charging station limitations:** People who need to travel long distances are concerned about finding adequate charging stations in the middle of their journey, which are not always accessible.
- **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 APPLICATIONS

- **Personal transportation:** Many people use EVs as their primary mode of transportation for commuting, running errands, and other daily activities. EVs can be particularly well-suited for urban and suburban driving, where they can take advantage of their quick acceleration and relatively short driving range.
- **Public transportation:** Some cities and transit agencies have started to adopt EVs for use in their public transportation systems. This can include buses, shuttles, and other types of shared-ride vehicles. EVs can provide a more sustainable and cost-effective alternative to traditional fuel-powered buses and other vehicles.
- **Commercial transportation:** EVs are also used in a variety of commercial applications, including delivery vehicles, utility vehicles, and fleet vehicles. Companies are increasingly adopting EVs as a way to reduce their environmental impact and operating costs.

- **Industrial uses:** EVs are also used in industrial settings for tasks such as material handling, ground support equipment, and other specialized applications. They can offer a cleaner and more efficient alternative to gasoline- or diesel-powered vehicles in these types of environments.

Overall, the use of EVs is increasing as a way to reduce reliance on fossil fuels and improve sustainability in transportation.

6 CONCLUSION

Electric vehicles are the future! The manufacturing companies are putting more effort into moving from traditional vehicles to electric cars. There are plenty of benefits to owning an electric vehicle with the right amount of functionality and infrastructure. With so many positives, this could be the year to own a battery-powered vehicle. Think and go electric!

7 FUTURE SCOPE

Most Indian buyers believe that an electric vehicle will be ready by 2023, but the majority also believe that it would no longer be available until 2025. Consumers in India are looking for a lower price for EVs than those in other countries, with

the global average tipping price for EVS being \$36,000. (around Rs27 lakh). Currently, lithium-ion batteries account for half of the cost of an electric vehicle, making them more expensive than conventional vehicles. Electric Vehicles are a boon to India in the sense of Economy development and Environment Concerns. Moreover, in the upcoming generations, India will be moving forward to overpower the Electric Vehicles. In this blog, we will be understanding the 'Future of Electric Vehicles in India'.

8 APPENDIX

Source code

<file:///C:/Users/hp/Desktop/BizLand/index.html>