PROJECT REPORT

ST. JOHN'S COLLEGE

PALAYAMKOTTAI

Visualization Tool for Electric Vehicle Charge and Range Analysis

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Visualization Tool for Electric Vehicle Charge and Range Analysis

INTRODUCTION:

PROJECT DESCRIPTION:

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.

OVERVIEW:

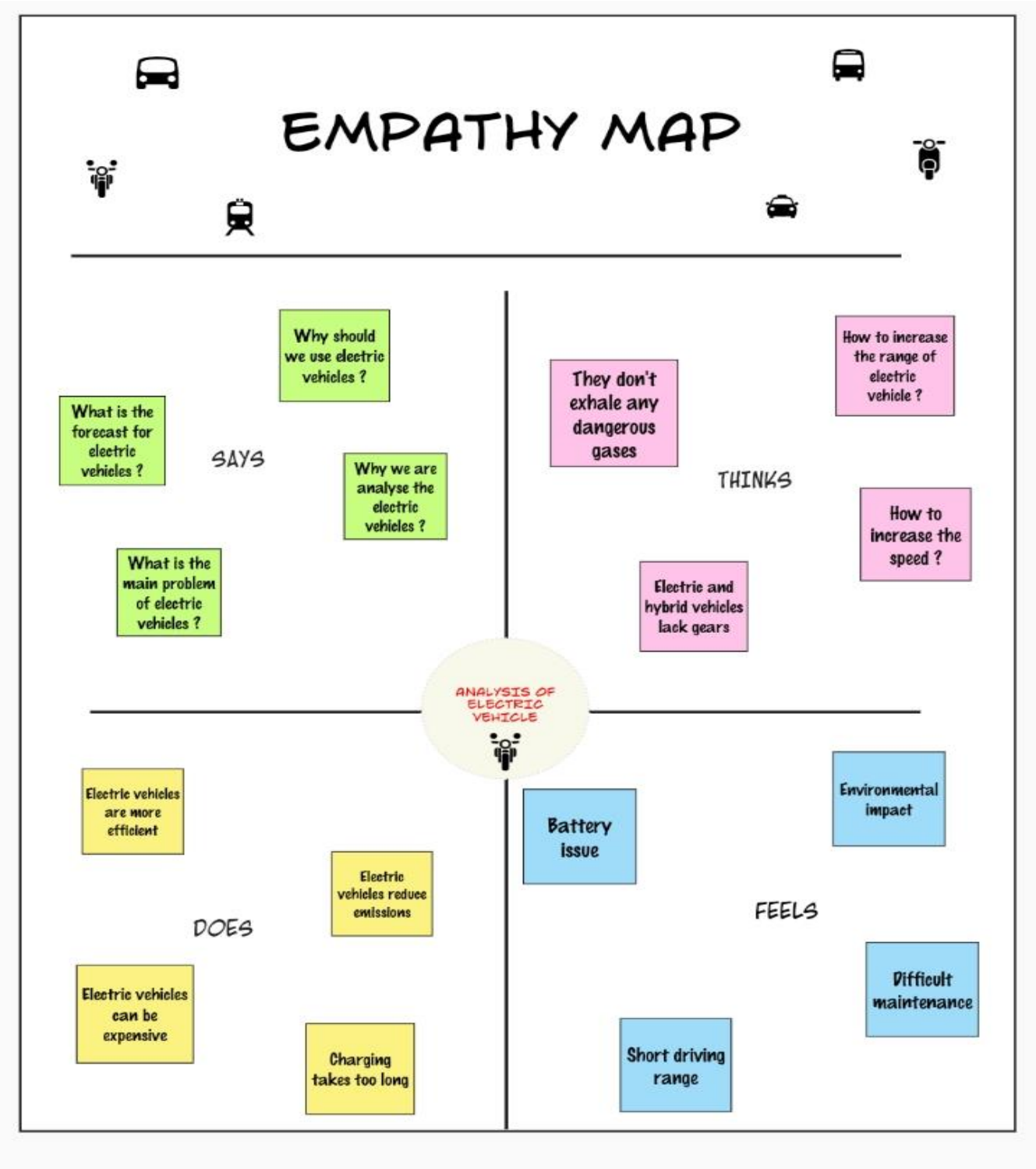
The data has been collected , it was analyzed through tableau, by analyzing the visualization of electric vehicle and plugging into the future energy. The new EV's are combined Electrical storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer to form a comprehensive transportation solution.

PURPOSE:

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.

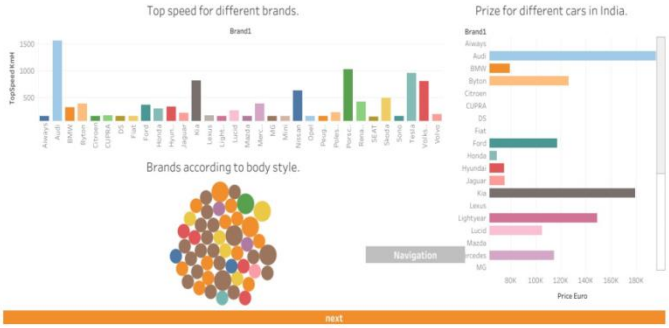
PROBLEM DEFINITION & DESIGN THINKING:

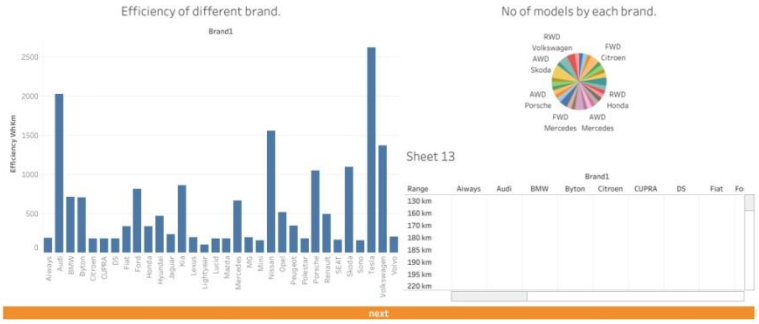
EMPATHY MAP:


EMPATHY MAP
SAYS
Why should we use electric vehicles ?
What is the forecast for electric vehicles ?
Why we are analyse the electric vehicles ?
What is the main problem of electric vehicles ?
THINKS
They don't exhale any dangerous gases
How to increase the range of electric vehicle ?
How to increase the speed ?
Electric and hybrid vehicles lack gears
ANALYSIS OF ELECTRIC VEHICLE
DOES
Electric vehicles are more efficient
Electric vehicles reduce emissions
Electric vehicles can be expensive
Charging takes too long
FEELS
Battery issue
Environmental impact
Difficult maintenance
Short driving range

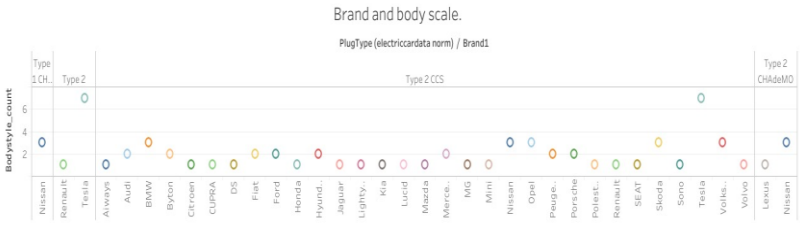
BRAINSTORMING & IDEATION MAP:

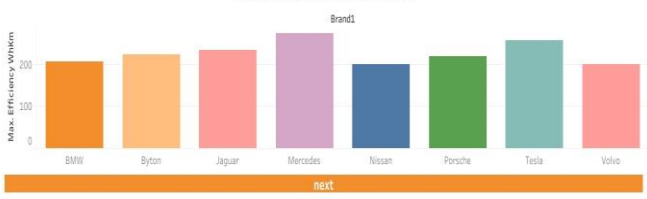
RESULT:

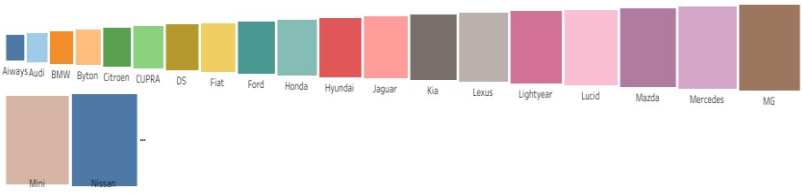

Top speed for different brands.
Brand1
TopSpeedKmH
Prize for different cars in India.
Brand1
Price Euro
Brands according to body style.
Navigation
next


Efficiency of different brand.
Brand1
Efficiency WhKm
No of models by each brand.
RWD
Volkswagen
FWD
Citroen
AWD
Skoda
AWD
Porsche
RWD
Honda
FWD
Mercedes
AWD
Mercedes
Sheet 13
Brand1
Range
Aiways
Audi
BMW
Byton
Citroen
CUPRA
DS
Fiat
130 km
160 km
170 km
180 km
185 km
190 km
195 km
220 km
next


Number of EVcars with brand.
Brand (electriccardata norm)
Count of electriccardata_...
Aiways
Audi
BMW
Byton
Citroen
CUPRA
DS
Fiat
Ford
Honda
Hyundai
Jaguar
Kia
Lexus
Lightyear
Lucid
Mazda
Mercedes
MG
Mini
Opel
Nissan
Peugeot
Polestar
Volvo
Porsche
Renault
SEAT
Skoda
Smart
Sono
Tesla
Volkswa...


Brand and body scale.
PlugType (electriccardata norm) / Brand1
Type 1 CH...
Type 2
Type 2 CCS
Type 2 CHAdeMO
Bodystyle_count
Nissan
Renault
Tesla
Aiways
Audi
BMW
Byton
Citroen
CUPRA
DS
Fiat
Ford
Honda
Hyund..
Jaguar
Lighty..
Kia
Lucid
Mazda
Merce..
MG
Mini
Nissan
Opel
Peuge..
Porsche
Polest..
Renault
SEAT
Skoda
Sono
Tesla
Volks..
Volvo
Lexus
Nissan


Top 10 most efficient EV brands.
Brand1
Max. Efficiency WhKm
BMW
Byton
Jaguar
Mercedes
Nissan
Porsche
Tesla
Volvo
next


Different EV cars in India.
Aiways
Audi
BMW
Byton
Citroen
CUPRA
DS
Fiat
Ford
Honda
Hyundai
Jaguar
Kia
Lexus
Lightyear
Lucid
Mazda
Mercedes
MG
Mini
Nissan

Story 1

This is the bargraph. this shows that the number of EV cars according to their brands.

This is the square graph. This shows that the different types of EV cars according to their brnds.

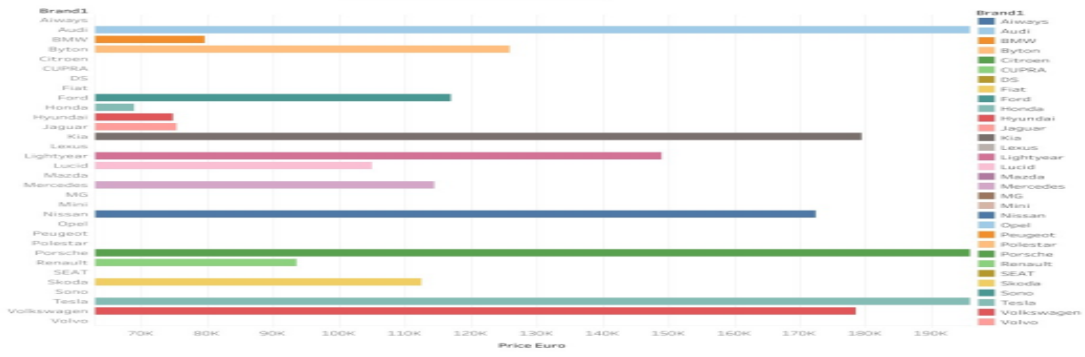
This is the bar graph. this show that different type of brnds according to their speed .

Story 1

This is the bar graph. this show that different type of brnds according to their speed .

This is the horizontal bar graph. this shows that different types of cars in india according to their price.

This is the bar graph. this shows that the top ten EV cars according to their efficiency.

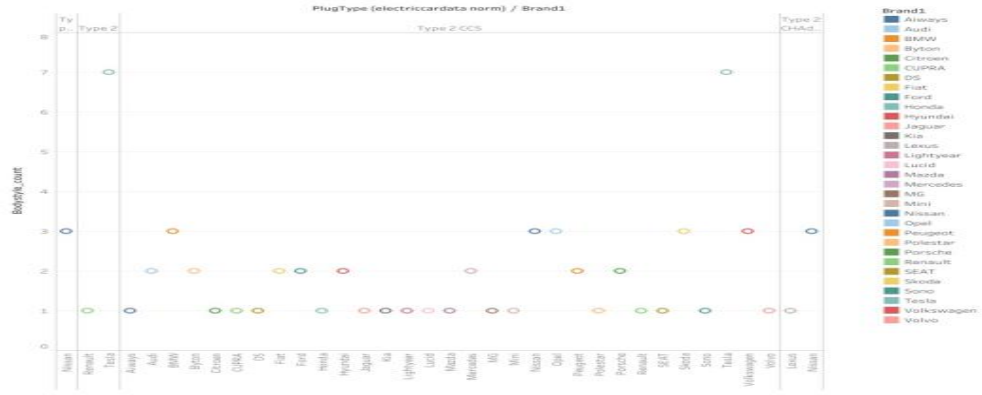


Story 1

This is the cirle view graph. Ev car brands and categorisation of vehicle based on its body shape.

This is the bargraph. this shows that the number of Ev cars according to their brands.

This is the square graph. This shows that the different types of ...



Story 1

This is the bar graph, this shows that the top ten EV cars according to their efficiency.

This is the Bubble chart, this shows that all EV cars brands with respect to their body style (size, design and shape).

This is the tree map, this shows that all brands filtered by according to power train type.

Story 1

This is the Bubble chart, this shows that all EV cars brands with respect to their body style (size...

This is the tree map, this shows that all brands filtered by according to power train type.

This is the pie chart, this shows that number of models available in different brands

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.

- **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.

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.

APPLICATIONS:

- Vehicle-to-grid (V2G) is a system that lets electric vehicles (EVs) communicate with the public power grid and even provide electricity back to the grid to meet energy demand. EVs spend much of their time plugged in, either at the owner's home or in a parking lot.
- Application of electric vehicle includes monitoring and charger availability, managing user access, and providing real-time updates on charger status. Second, the electric vehicle can be used to provide data that can be used to improve the efficiency of charging station operations.

CONCLUSION:

The conclusion of this project is to give to accelerate the advent of sustainable transport and electric technology.

FUTURE SCOPE:

The Economic Survey 2023 predicts that India's domestic electric vehicle market will see a 49 percent compound annual growth rate (CAGR) between 2022 and 2030, with 10 million annual sales by 2030. Additionally, the electric vehicle industry is projected to create around 50 million direct and indirect jobs by 2030.

APPENDIX:

SOURCE CODE:

C:>Users>Administrator>Desktop>Ram kumar><>Electric Cars Analytics.html>