1.INTRODUCTION

1.1 Overview

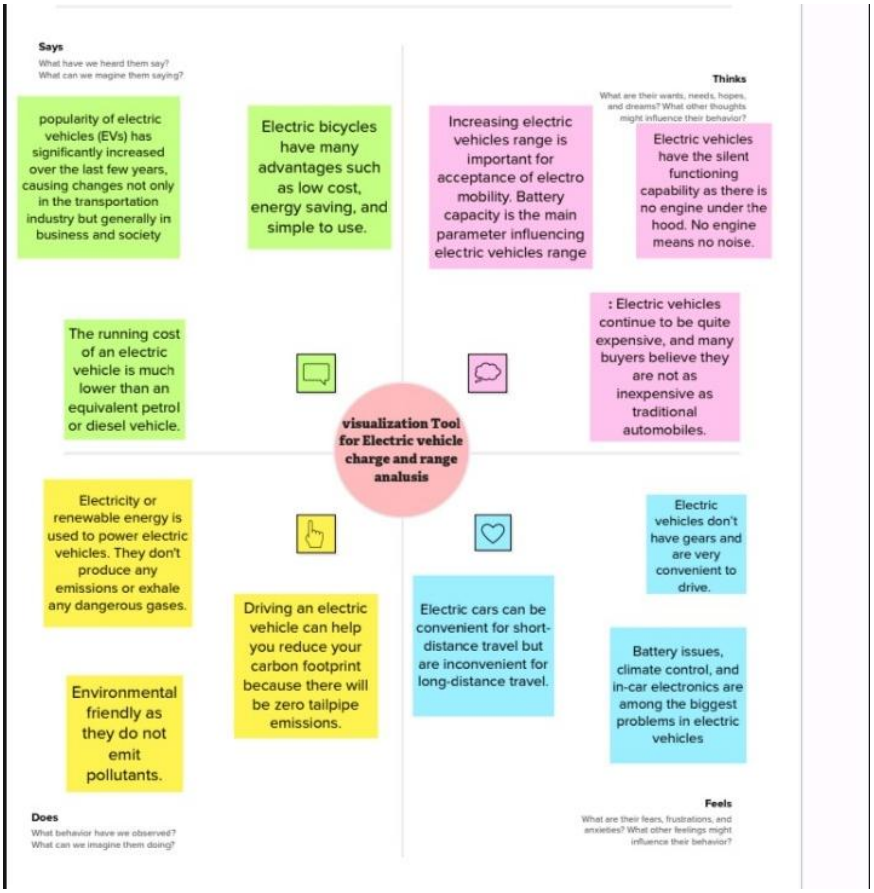
A vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source and has an electric motor instead of an internal combustion engine.

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.

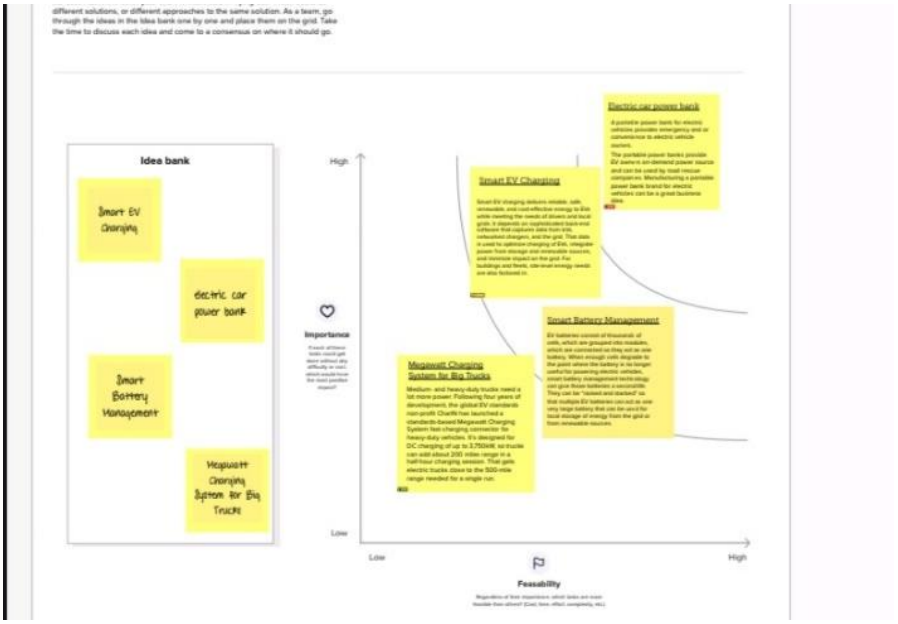
The new EV's are combined Electrical storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer to form a comprehensive transportation solution.

PROBLEM DEFINITION & DESIGN THINKING

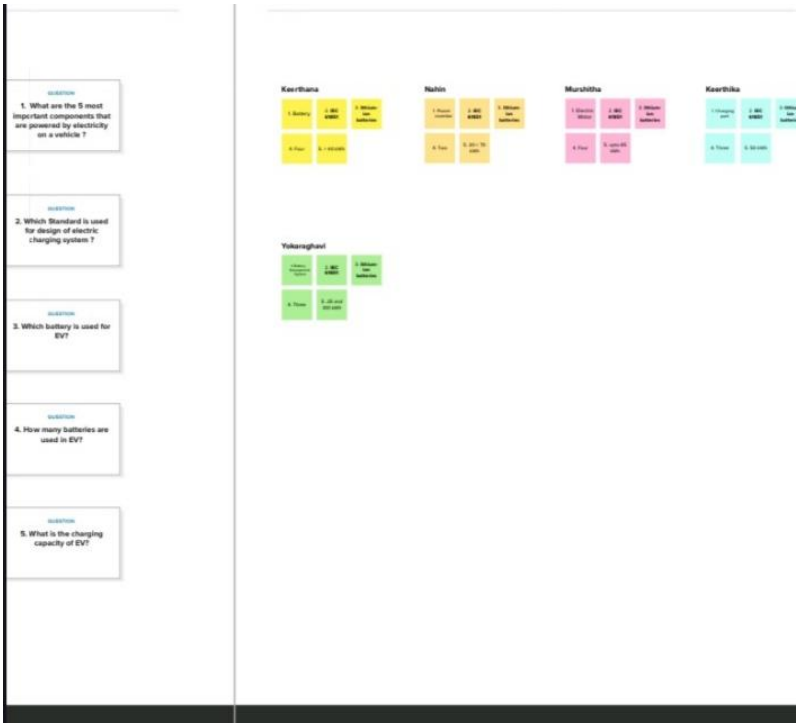
2.1 Empathy Map



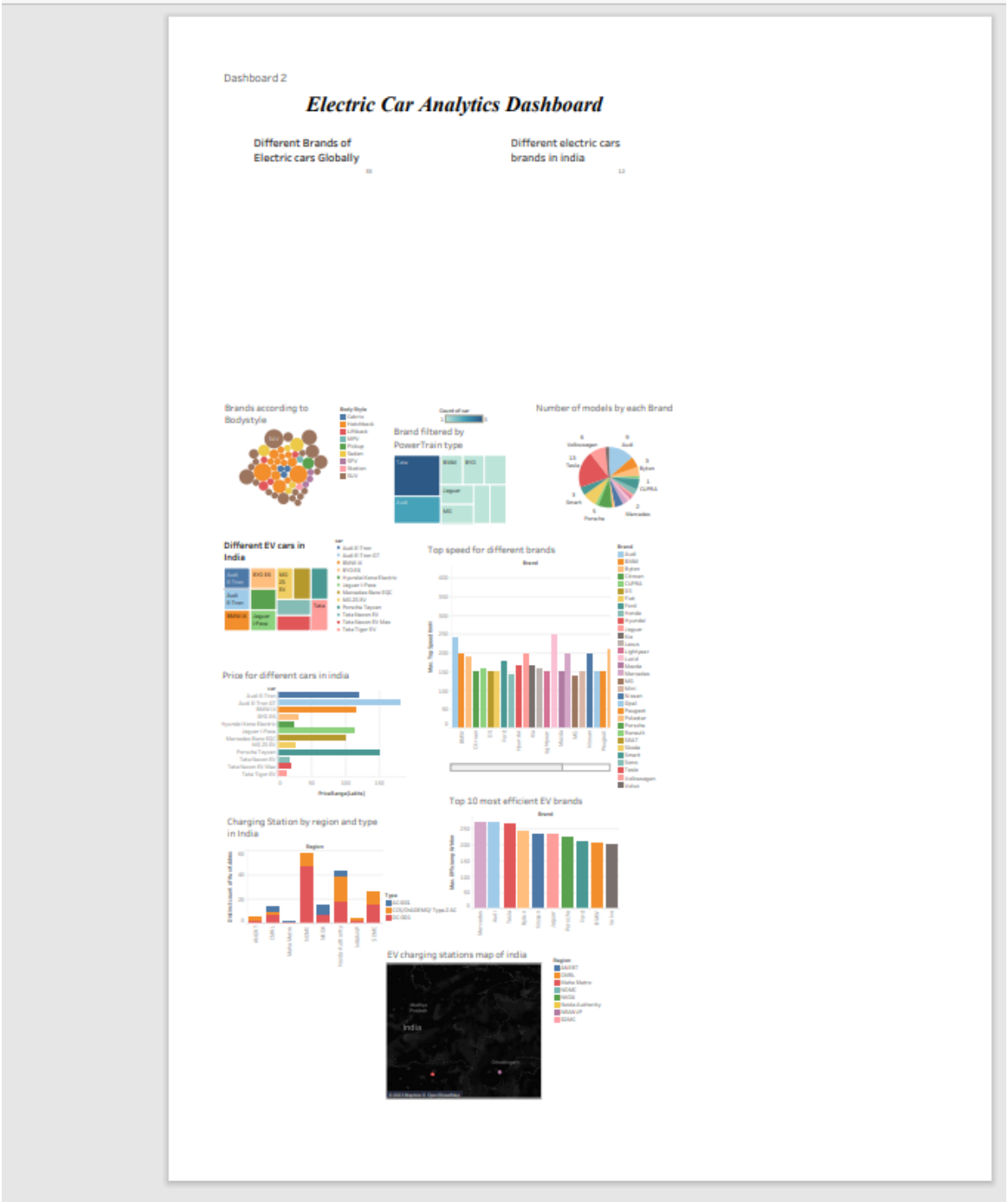
2.2 Ideation



Brainstorming Map


QUESTION
1. What are the 5 most important components that are powered by electricity on a vehicle ?
QUESTION
2. Which Standard is used for design of electric charging system ?
QUESTION
3. Which battery is used for EV?
QUESTION
4. How many batteries are used in EV?
QUESTION
5. What is the charging capacity of EV?
Keerthana
Nahin
Murshitha
Keerthika
Yokeraghavi

RESULT



ADVANTAGE AND DISADVANTAGE

Advantage:

Eco-friendly: Because electric vehicles do not utilise 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 utilised at home, battery recharging is cost-effective.

Disadvantage:

High initial cost: Electric vehicles continue to be quite expensive, and many buyers believe they are not as inexpensive as traditional automobiles.

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.

APPLICATION

- **Reduced Pollution**
  The transportation sector is now the largest source of carbon dioxide emissions in the U.S. The continued integration of EVs will help reduce this impact because they produce 54 percent less carbon dioxide emissions per mile than a conventional vehicle.
- **Cost Savings**
  EV batteries convert 59 to 62 percent of energy into vehicle movement while gas powered vehicles use 17 and 21 percent. EV drivers spend about $1.2 per gallon to charge, less than half the price of gasoline. The average operating cost of an EV is $485 annually compared to $1,117 for a conventional vehicle.
- **Economic Growth**
  According to the U.S. Department of Energy, in 2017, the U.S. imported 19 percent of the petroleum it used. Using Electric Vehicles can reduce our energy dependency abroad and support the U.S. economy through the generation of new jobs, particularly in skilled electrical trades.

CONCLUSION:

In this project, we analyse the charging station by regions and type in India, EV charging station maps of india, different EV cars in India, top speed of different brands, prices for different types of EV cars in India, top 10 most effective brands that produce EV cars, brands according to body styles, brand filtered by powertrain type, number of models by each brand, different brands of electric cars globally, different electric cars brand in India. From this we conclude that Electric Vehicles are very effective and have a great scope in future.

FUTURE SCOPE

With advancements in battery technology, a growing network of charging infrastructure, and increasing consumer demand, EVs have become a viable option for many drivers around the world. Changing the way we think about driving, these vehicles are powered by electricity stored in a battery, rather than gasoline, and use electric motors to turn the wheels.Prominent Indian automobile manufacturers like Tata Motors and Mahindra & Mahindra have begun producing EVs, and several international companies have also entered the market. Swedish luxury carmaker Volvo Cars is exploring possibilities to set up a new electric vehicle manufacturing facility outside China and India is a contender in the race.