

# **Visualization Tool For Electric Vehicle Charge And Range Analysis**

## **Introduction**

### **Overview;**

**\*     *An Electric Vehicles are incredibly ecological all beneficial they don't utilize any fossil fuel. Utilize a rechargeable battery package to power the Electric motor rather than a combustion engine. The Electric Cars are 100% Eco-friendly as they run on the electrically powered engine, they don't emit the toxic gases or smoke in environment as they run on clean energy source. They are switching to an instantly eliminate all toxic tailpipe pollution such as nitrogen oxides, Carbon monoxide & Hydrocarbon etc.....***

### **Purpose;**

- *The study of Visualization tools for Electric Vehicles will help to know that it doesn't Emit pollution. It is also cheaper to charge our electric car than spent money on gas for a regular car. This is one of the ways to reduce pollution.***

## **Problem Definition & Design thinking ;**

### **Empothy Map;**



## Build empathy

The information you add here should be representative of the observations and research you've done about your users.

### Says

An electric vehicles is either partially or entirely powered by electricity.

Electric cars are utilize a rechargeable battery pack to power the electric motor rather than a combustion.

Electric vehicles are the keys technology to decarbonize road transport, a sector that accounts for 16% of global emissions.

Electric vehicles have low running costs as they have less moving parts for maintaining and also very environmentally friendly as they use little or no fossil fuels.

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Electric and hybrid vehicles lack gears. They power an electric motor, which rotates the wheels, by storing the electricity in a rechargeable battery.

Store energy from renewables - both on and off-grid such as solar or wind and use it at a later stage when no renewable energy sources are available.

Driving an electric vehicle can help you reduce your carbon footprint because there will be zero tailpipe emissions.

### Does

Lower running costs. Since you are not paying for petrol or diesel to keep your electric vehicle running, you save a lot of money on fuel.

### Thinks

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 electricity vehicles is cheaper than filling petrol or diesel for your travel requirements.

The battery pack is the most important component of an electric car. It stores electrical energy and powers the electric motors. The battery pack is also the most expensive component of electric vehicles.

Electric vehicles are a faster mode of transport. An electric automobiles are faster than gasoline-powered vehicles, which is one of its amazing facts.

Their carbon emissions can be worse than gasoline e-powered cars. would not be attractive to consumer.

Electric cars are 100 percent eco-friendly as they run on electrically powered engines. It does not emit toxic gases or smoke in the environment as it runs on a clean energy sources.

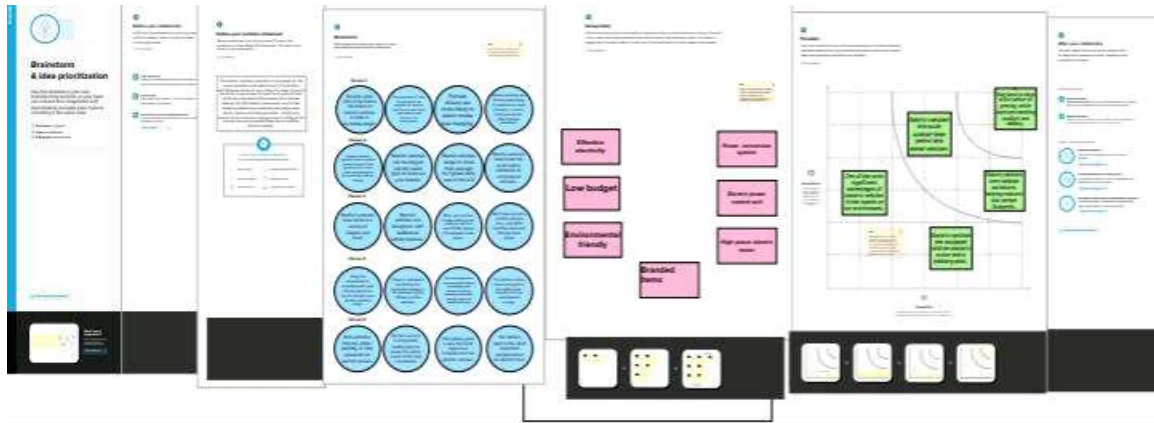
Thanks to the advent of path breaking EV technologies in India as well as the world and the willingness to share these technologies for the global good has led to low manufacturing and driving costs.

### Feels

Despite what many may believe, the future of electric vehicles in India is incredibly bright.



## **Ideation & Brainstroming Map;**



## **Result;**

# Electric cars Analytics Dashboard

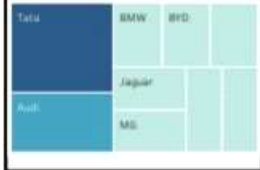
Different brands of electric car globally

33

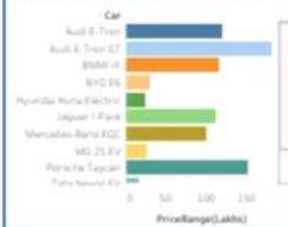
Different Electric Cars brands in India

9

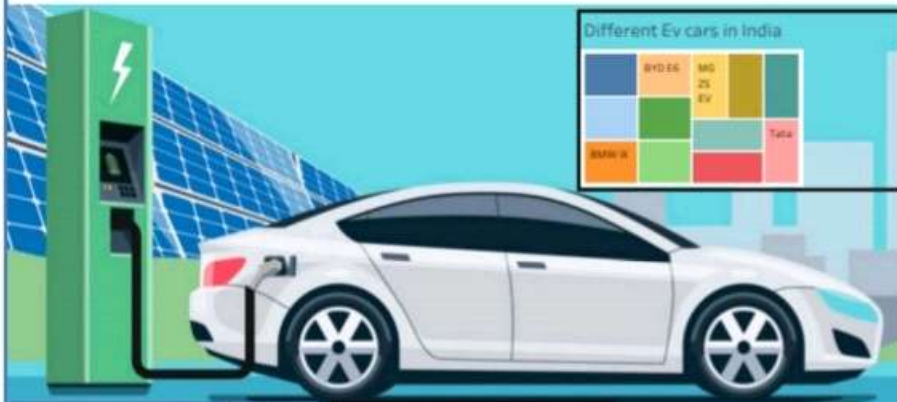
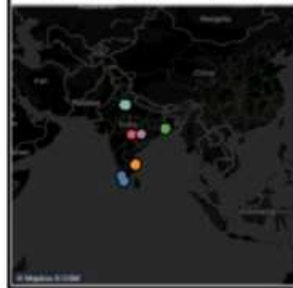
Brand filtered by PowerTrain type



Price for Different cars in india



EV Charging stations map of India



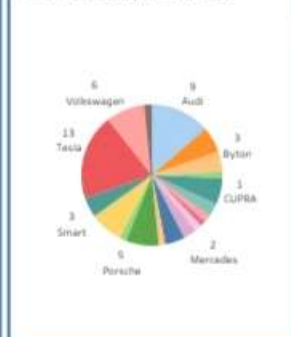
Brands according to Bodystyle



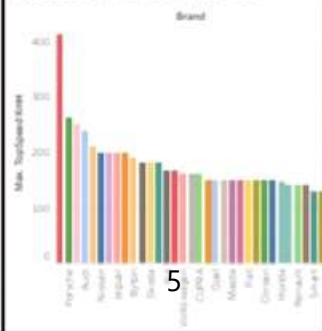
Top 10 most efficient Ev Brands



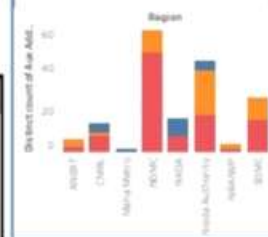
No of models by each brand



Top speed for different Brand



Charging Station by region and type in India



- Body Style
  - Sedan
  - SUV
  - Hatchback
  - MPV
  - Van
  - Truck
  - Other
- Brand
  - Audi
  - BMW
  - BYD
  - Hyundai
  - Jaguar
  - Mercedes
  - Nissan
  - Porsche
  - Tesla
  - Volkswagen
- Car
  - Audi E-Tron
  - Audi E-Tron GT
  - BMW iX
  - BYD E6
  - Hyundai Kona Electric
  - Jaguar I-Pace
  - Mercedes-Benz EQC
  - MG ZS EV
  - Porsche Taycan
  - Tata Nano EV
  - Tata Nano EV M
  - Tata Nano EV
- Power Train
  - BEV
  - PHEV
  - FCEV
- Type
  - AC-001
  - DC-001
  - DC-002
  - DC-003

## **Advantage&Disadvantage of Electric vehicles;**

### **Advantages;**

***An electric car can be a greates way for you, as a consumers , to save a lot of money on gas. However, there are so many different reason why you should invest in an electric car in the Modern\_Day of technology.***

***. Eco\_friendly: Because electric vehicles don't utilize fuel for combustion, they are no emission or gas exhaust.***

***. Renewable energy source: Electric vehicle run on renewable power, Which reduce the world's fossil fuel stocks.***

***. Less noice and smoother motions: Driving an electric car is significantly smoother because they lack fast moving elements, they are quieter and produce less noice.***

### **Disadvantages;**

***Although the evidence of the positives has the become very clear, they are also some down side that each individual needs to consider before they decide to make an electric car their next big invesment.***

***. Recharging take time: unlike conventional automobiles, Which require only a few minutes to replenish their gas tanks, Charging an electric vehicles take minutes hour.***

***. Limited Options\_ Currently, there are not many electric car model to pick from interm of appearance, style, or customized variation .***

***. Less driving Range\_ when compared to conventional automobiles, electric vehicles have a shorter driving range.***

### **Application;**

***Nitrous oxide (NO<sub>x</sub>) arises from the high-Temperature combus tion of fossil fuels and further contributes to ozone generation. Indian cities like New Delhi, Bangalore, Mumbai, and Kolkata have some of the highest sources of NO<sub>x</sub> in the country- linked exclusively to vehiclar pollution. An excess amount of NO<sub>x</sub> gives riese to ground-Level ozone. Although not directly emitted from transport, this deadly secondary gas a highly correlated with respiratory diseases and asthma upon creation. If we use electric vehicles in such cities it helps to reduced pollution.***

### **Conclusion;**

***Electric vehicles are eco\_friendly. Use of electric vehicles its good for environment as well as human life. Electric vehicles are new technology. This sector will grow day by day which will generate lot of employment in this field. Electric vehicles will reduce the dependency of a nation on petroleum export countries. It will helps to reduce the pollution.***

### **Future Scope;**

***\* One approach to reduce the Green house gas emissions in the transport sector to change transportation modes to become more electric.***

***\* Battery electric vehicle are the most desirable form of passenger cars, because of their zero tailpipe emission and their potential of 100% reduction of CO2 emissions.***

***\* Steps taken with data from the project will help in protecting our environment from pollution and maintain our budget.***



