VISUALIZATION TOOL FOR ELECTRIC VEHICLE CHARGE AND RANGE ANALYSIS.

1. INTRODUCTION

1.1 OVERVIEW

ELECTRIC VEHICLE

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.

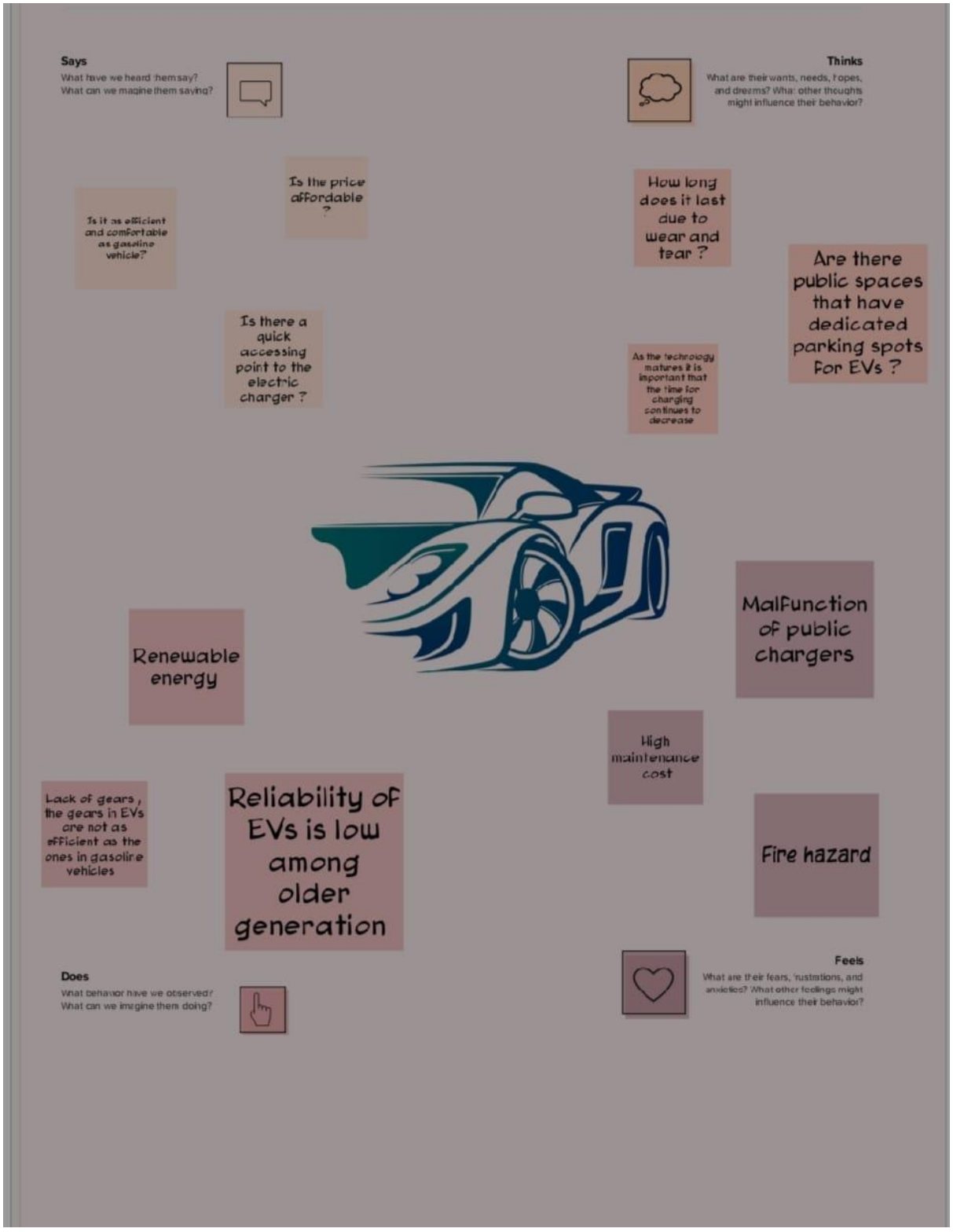
1.2 PURPOSE

Electric vehicles use electricity to charge their batteries instead of using fossil fuels like petrol or diesel .Electric vehicles are more efficient , that combined with the electricity cost means that charging an electric vehicle is cheaper than filling petrol or diesel for your travel requirements .

The main purpose is to know about the electric vehicle and how it works and uses , advantages and disadvantges.

2.PROBLEM DEFINITION & DESIGN THINIKING

2.1 EMPATHY MAP



2.2 IDEATION & BRAINSTORMING MAP

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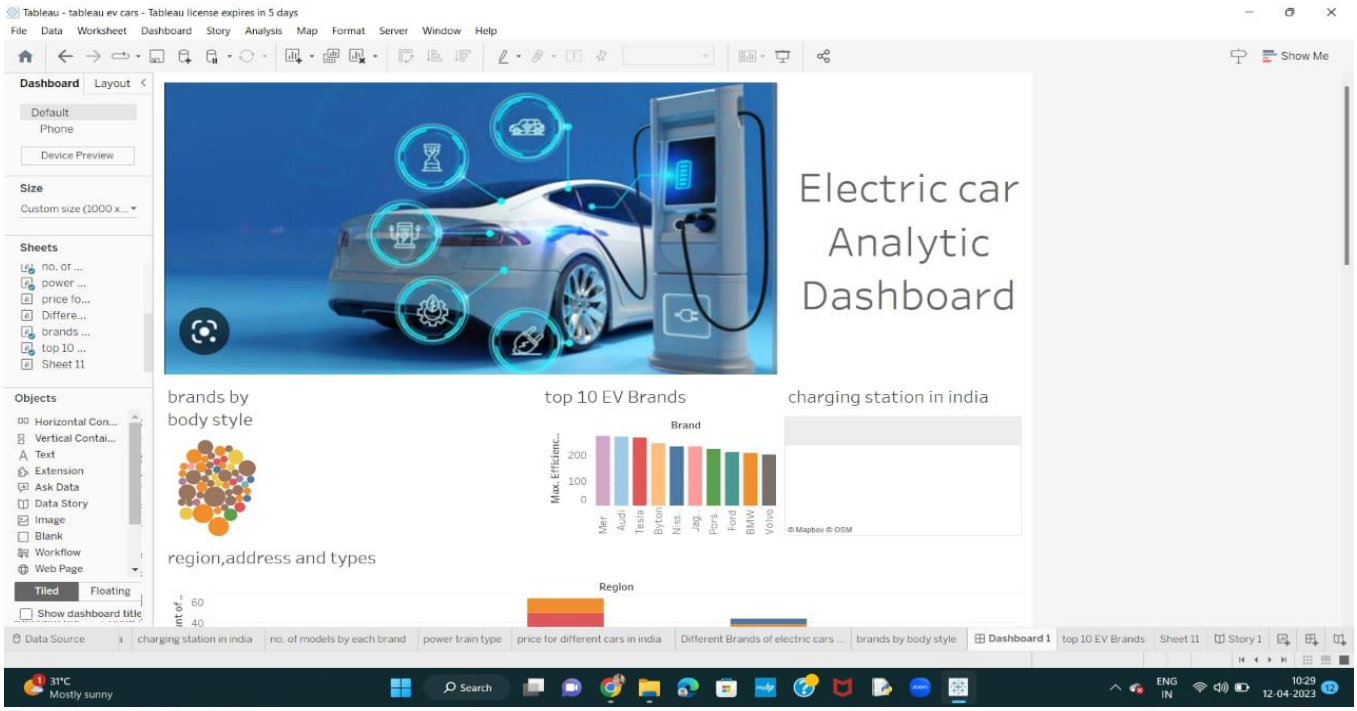
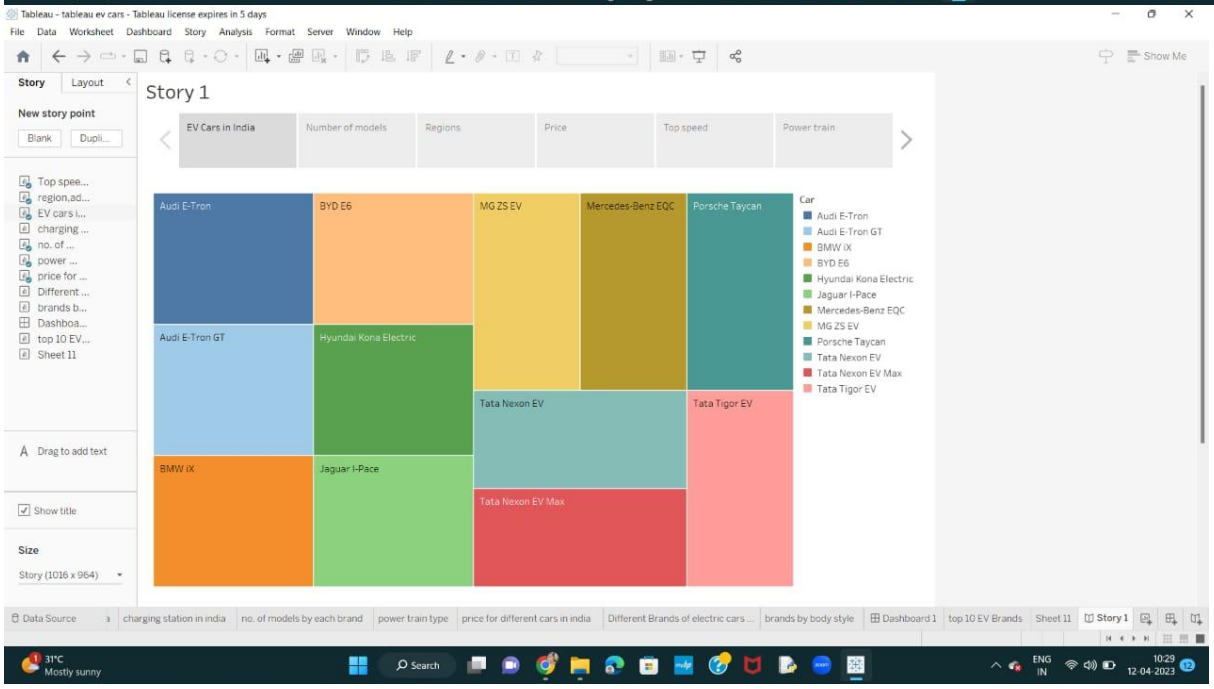
3.RESULT





4. ADVANTAGES AND DISADVANTAGES

ADVANTAGES :

(a) ECO-FRIENDLY :

Because electric vehicles do not utilize fuel or combustion , there are no emissions or gas exhaust .

(b) RENEWABLE ENERGY SOURCE :

Electric vehicle run on renewable power, whereas conventional automobiles function on the combustion of fossil fuels, which reduces the world's fossil-fuel stocks .

(c) LESS NOISE AND SMOOTHER MOTION :

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

(d) 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.

(e) 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.

(f) GOVERNMENT SUPPORT :

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

DISADVANTAGES :

(a) HIGH INITIAL COST :

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

(b)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 .

(c)RECHARGING TAKES TIME :

Unlike conventional automobiles , which require only a few minutes to replenish their gas tanks , charging an electric vehicle takes many hours.

(d)LIMITED OPTIONS :

Currently , there aren't many electric car model to pick from in terms of appearance ,style , or customized variations .

(e) 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

(a)PERSONAL TRANSPORTATION :

Electric vehicles are becoming increasingly popular as an alternative to gasoline-powered cars for personal transportation .

(b)FLEET TRANSPORTATION :

Many government agencies and companies are incorporating electric vehicles into their fleets for more sustainable and cost-effective transportation .

(c)DELIVERY AND COURIER ERVICES :

Electric vehicles are ideal for short-distance delivery services as they are quiet and emission-free.

(d)PUBLIC TRANSPORTATION :

Buses , trains and trams powered by electricity are becoming increasingly common in cities for low-emission public transportation.

(e)INDUSTRIAL AND COMMERCIAL APPLICATIONS :

Electric vehicle are used in a variety of industrial and commercial applications , such as material handling , equipment , airport ground support vehicles and maintenance vehicles .

(f)OFF-ROAD VEHICLES :

Electric ATVs , motorcycle , and dirt bikes are gaining popularity for off-road recreation and work applications.

(g)ENERGY STORAGE SYSTEM :

Electric vehicles can be used as mobile energy storage systems to help stabilize the grid and provide backup power during outages.

6.CONCLUSION

The basic conclusion is that when it comes to climate change and air quality , electric cars are clearly preferable to petrol or diesel cars. Contrary to some public doubts and uncertainties about the environmental benefits of electric cars , the science is increasingly clear .

7. FUTURE SCOPE:

As per a recent study , electric vehicles market is expected to be worthy around at least rupees475 billion by 2025. The penetration of electric two wheelers is projected to reach up to 15% by 2025 from 1% currently .

The economic survey 2023 predicts that india’s domestic electric vehicle market will see a 49% compound annual growth rate (CAGR) between 2022 and 2023 , with 10 million annual sales by 2023 . Additionally , the electric vehicle industry is projected to create around 50 million direct and indirect jobs by 2023.