PROJECT REPORT

VISUALIZATION TOOL FOR ELECTRIC VEHICLE CHARGE AND RANGE ANALYSIS

1.INTRODUCTION:

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 increase automotive market share. However, this growth is not attributed to hardware alone. The new EV's are combined Electrical storage and propulsion system with electronic sensors, control, and actuators, integrated closely with software, secure data transfer to form a comprehensive transportation solution.

1.1 OVERVIEW

An electric vehicle (EV) is a vehicle that uses one or more electric motor for propulsion'

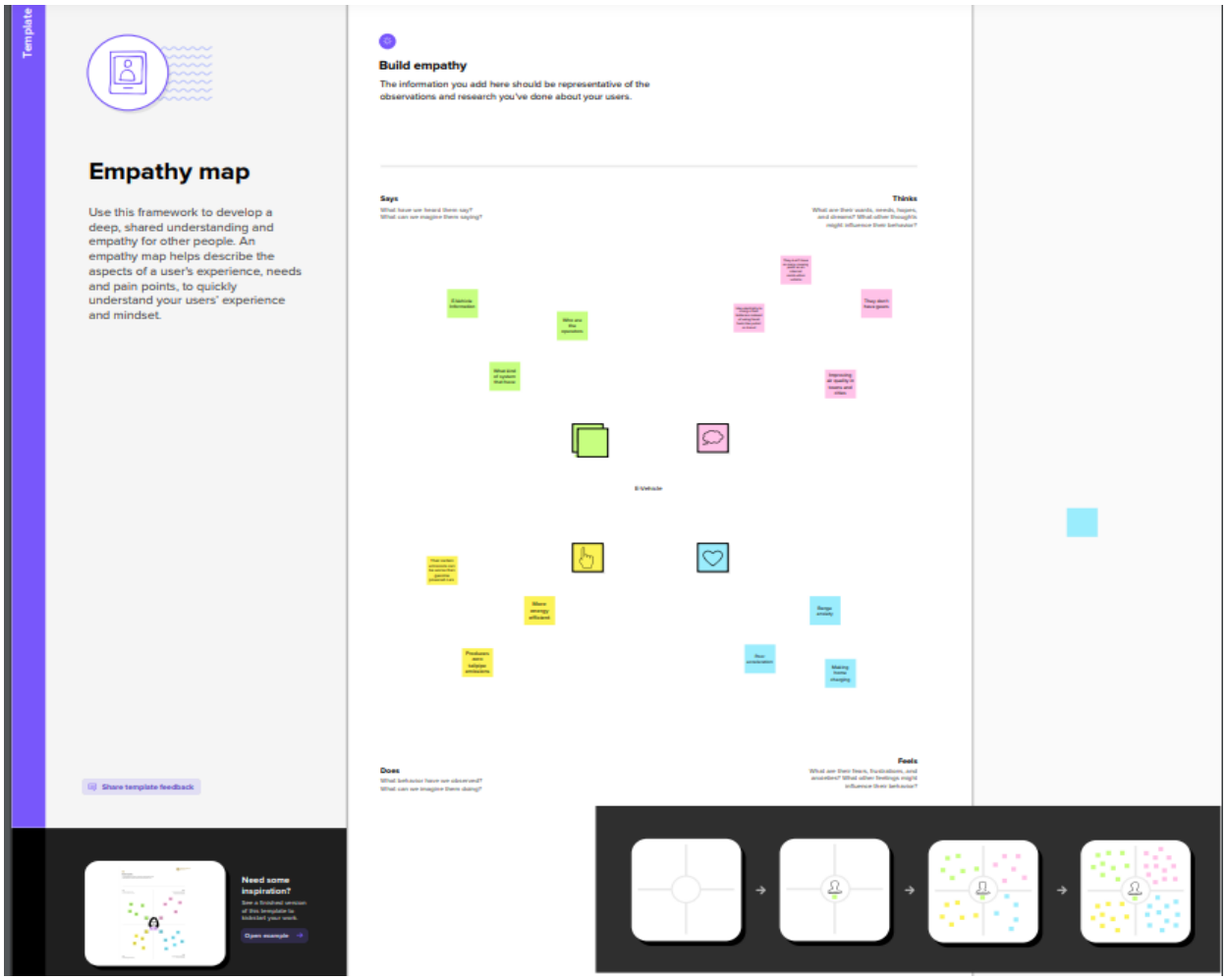
First came into existence in the late 19th century, when electricity was among the preferred methods for motor vehicle propulsion, providing a level of comfort and ease of operation that could not achieved by the gasoline cars of the time.

1.2 PURPOSE

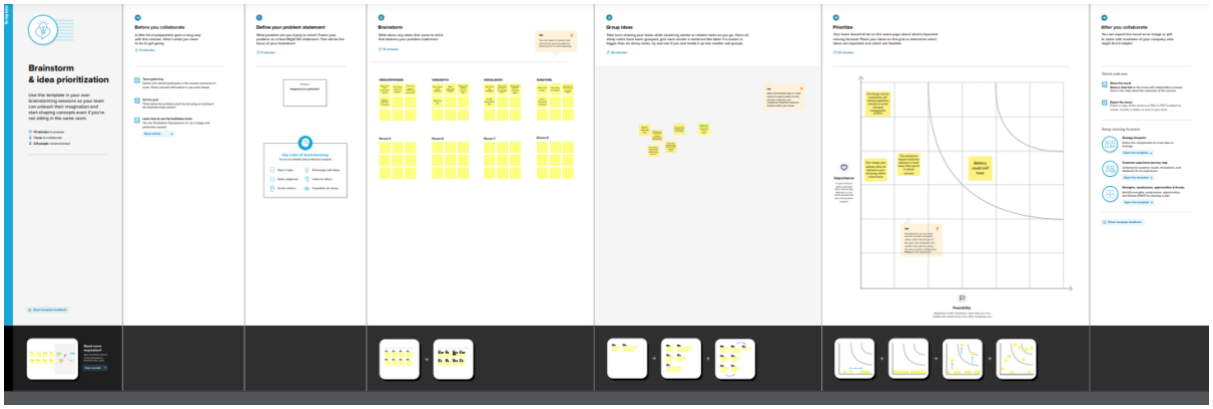
Vehicle power electronics primarily process and control the flow of electrical energy in hybrid and plug-in electric vehicle, including plug -in electric vehicles. They also control the speed of the motor, and the torque it produces. Finally, power electronics convert and distribute electrical power to other vehicle system such as heating and ventilation, lighting, and infotainment. Power electronics components include inverters, DC/DC converters, and charge (for plug-in electric vehicles).

2.PROBLEM DEFINITION &DESIGN THINKING

2.1 EMPATHY MAP:



2.2 IDEATION AND BRAINSTORMING MAP



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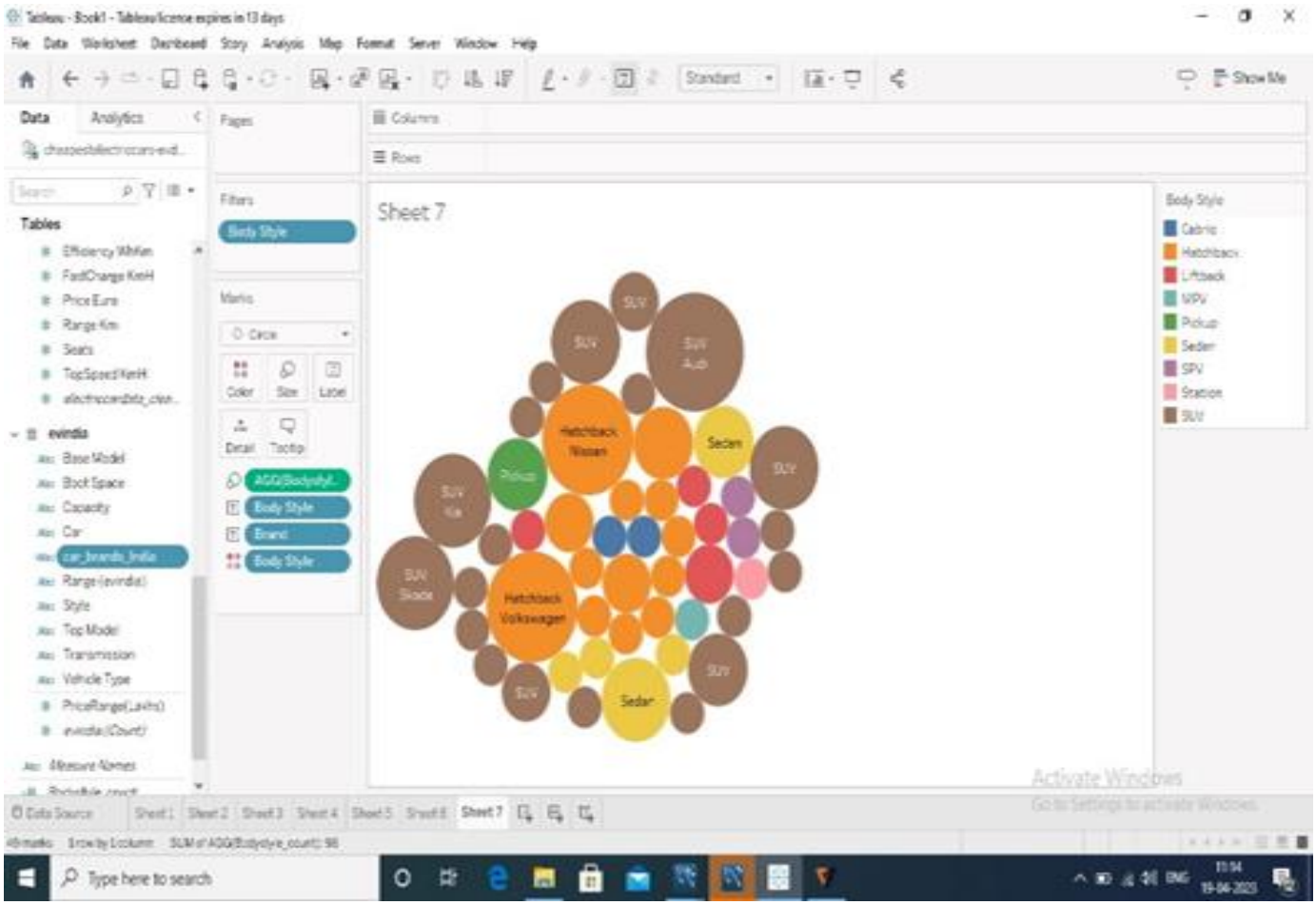

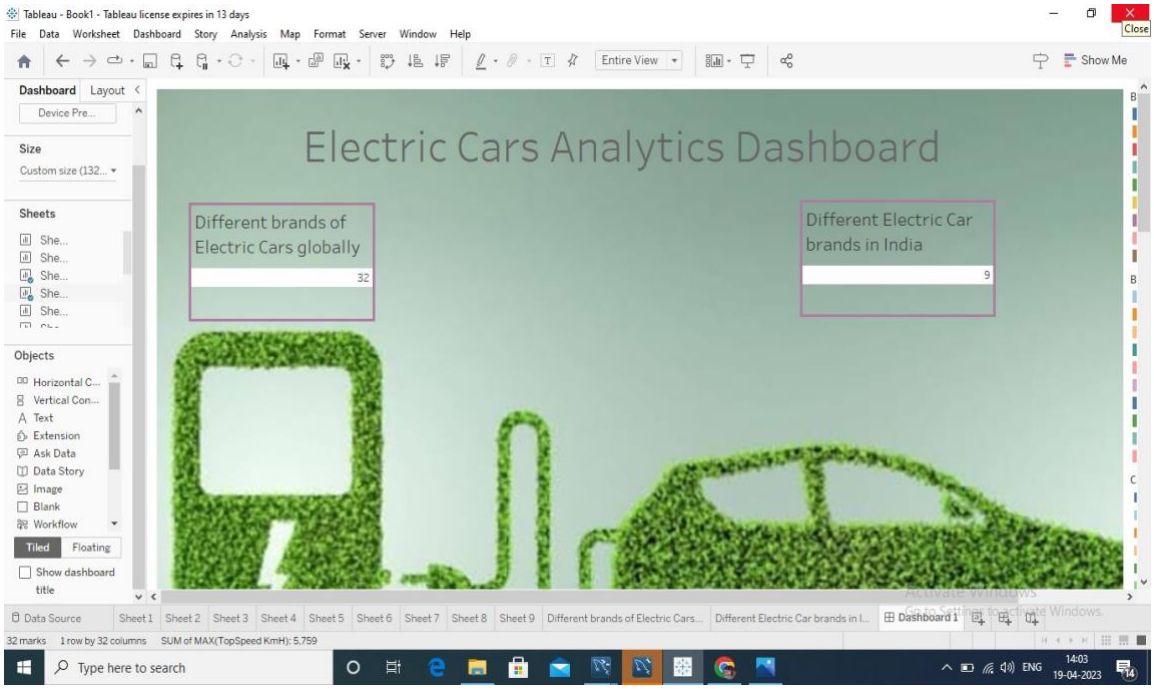
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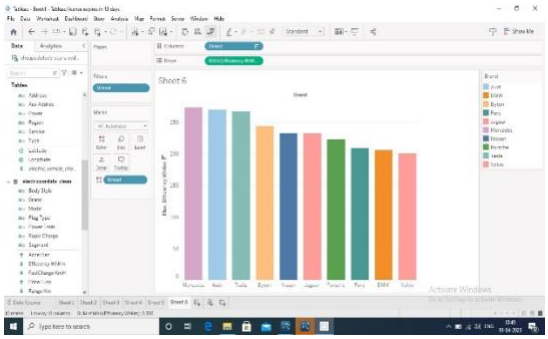

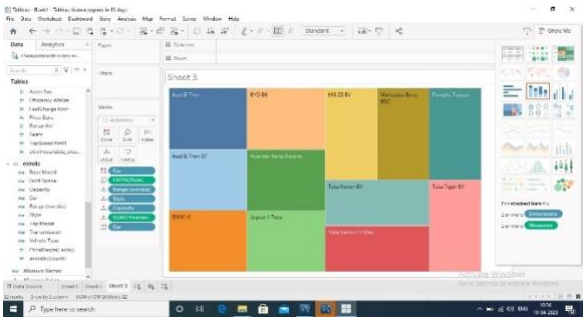

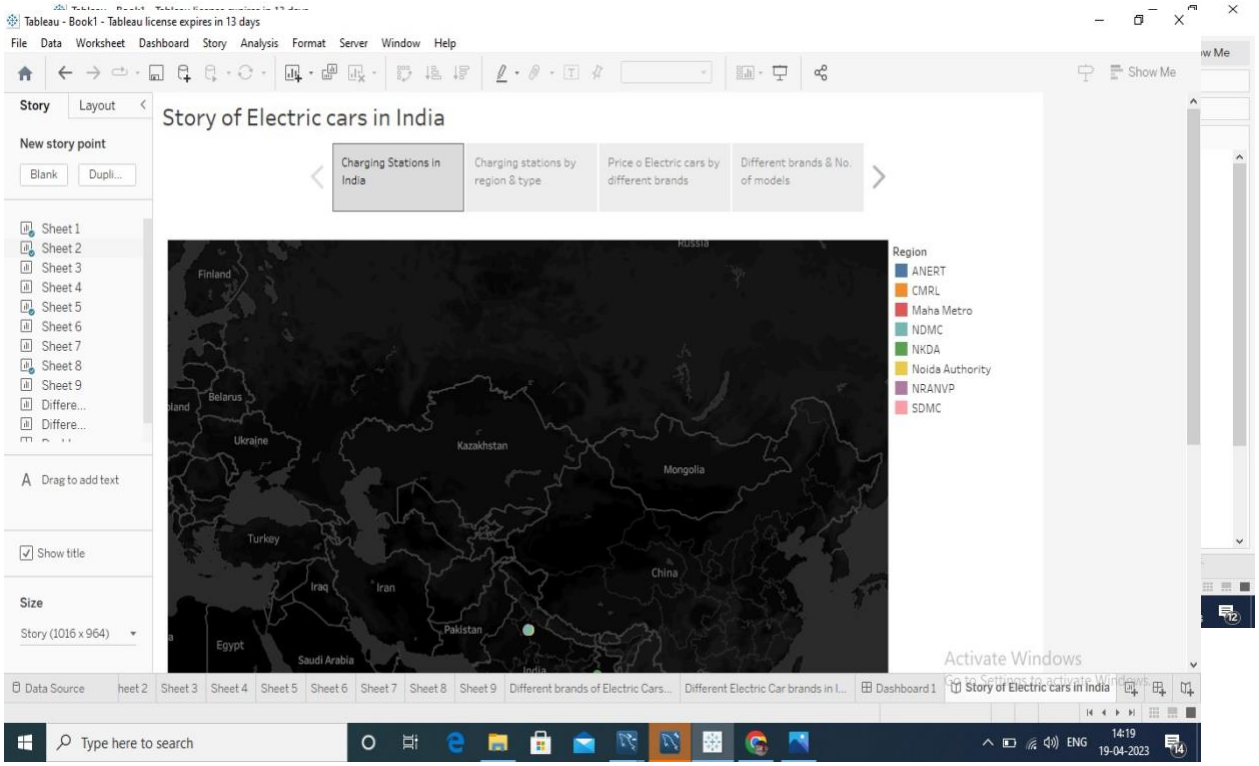
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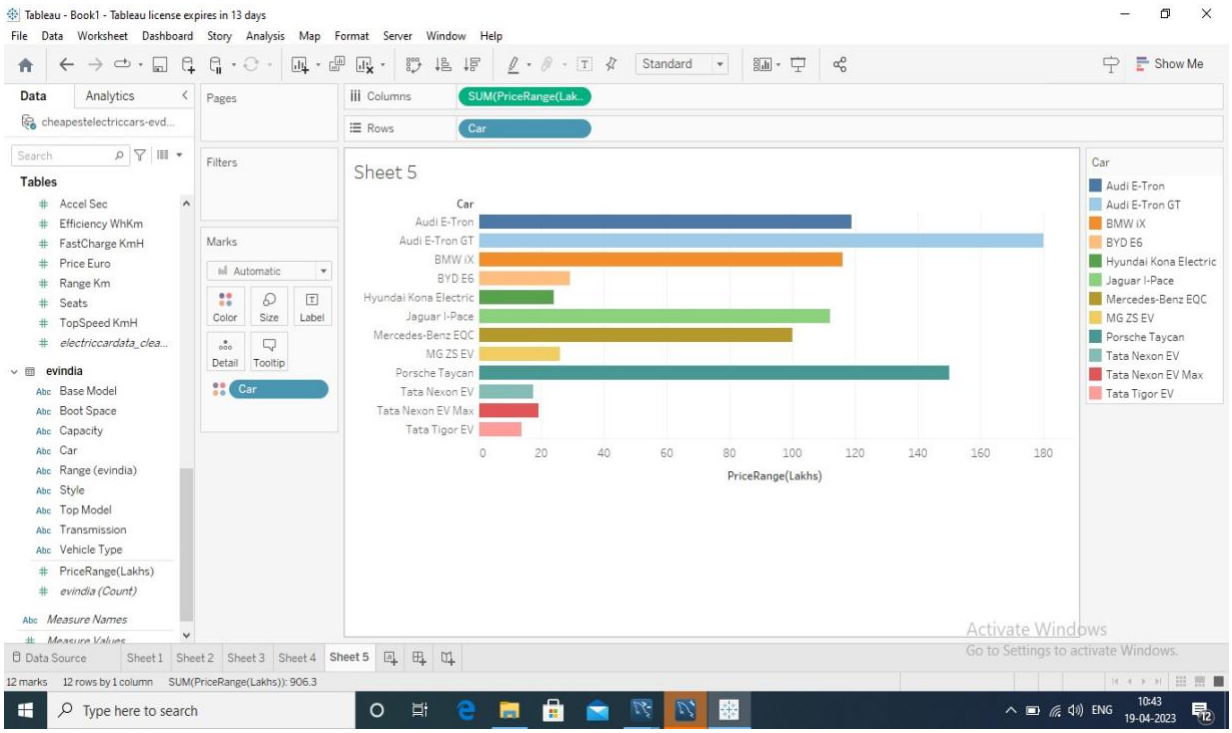
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MG ZS EV
Porsche Taycan
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4. ADVANTAGES & DISADVANTAGES

ADVANTAGES OF ELECTRIC VEHICLES:

It is always cheaper to charge your electric car than spend money on gas for a regular car.

Calculate your savings

You can find real -time comparison of average gas prices and electric car charging prices on the

e- Gallon website.

Electric vehicles have other advantages over those powered by combustion engines:

No fuel required so you save more money on gas

Paying $0.10 per kW is the equivalent of driving on a gasoline that costs less than $1 per gallon.

On average, drivers save about $700 in fuel costs per year while driving electric cars.

Environmental friendly as they do not emit pollutants

Drivers of electric vehicles have reduced CO2 emissions by more than 177,758,804kg

Lower maintenance due to an efficient electric motor

Electric motors have less parts that lead to less damage than a traditional non electric vehicles

which means you save on operating cost

Better performance

Electric cars are not only lighter but have faster acceleration.

DISADVANTAGE OF ELECTRIC VEHICLES

Electric cars can travel less distance. AEVs on average have a shorter range than gas – powered

cars

Electric cars can take a long time to recharge. Fueling an all electric car can also be an issue.

Electric cars can be expensive.

5. APPLICATIONS

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 electric vehicle is cheaper than filling petrol or diesel for your travel requirements.

6. CONCLUSION

The progress that the electric vehicle industry has see in recent years is not only extremely

welcomed, but highly necessary in the light of the increasing global greenhouse gas level. As

demonstrated within the economic, social and environmental analysis section of this webpage ,

the benefits of electric vehicles far surpass the costs. The biggest obstacles to the widespread

adoption of elecy- powered transportation is cost related,as gasoline and the vehicle that run on it

are readily available, convenient,and less costly. As is demonstrated in our timeline,we hope that

over the course of the next decade technological advancements and policy changes will help ease

the transition from traditional fuel – powered vehicles. Additionally,the realisation and success

of this industry relies heavily on the global population, and it is our hope that through mass

marketing and environmental education programs people will feel incentivised and empowered

to drive an electric powered vehicles. Each person can make a difference,so go electric and help

make a difference!

7. FUTURE SCOPE

The economic survey 2023 predicts that India’s domestic electric vehicles 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.