Dr.ZAKIR HUSAIN COLLEGE, ILAYANGUDI

P.G DEPARTMENT OF MATHEMATICS VISUALIZATION TOOL FOR ELECTRIC VEHICLE CHARGE AND RANGE ANALYSIS

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1.INTRODUCTION

1.1 OVERVIEW

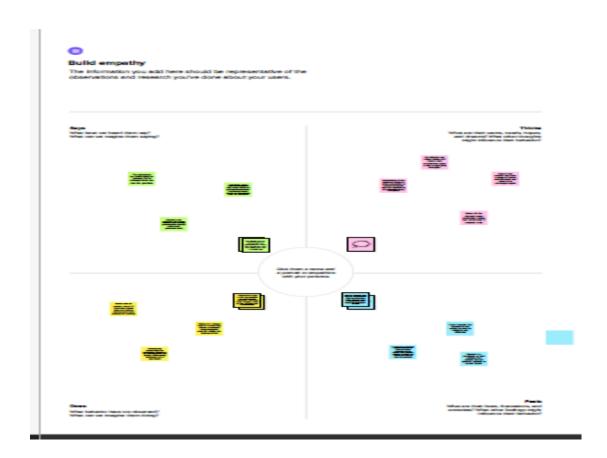
A vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source and have an electric motor instead of an internal combustion engine. The Electric Vehicle (EV) is not new, but it has been receiving significantly more attention 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.

1.2 PURPOSE

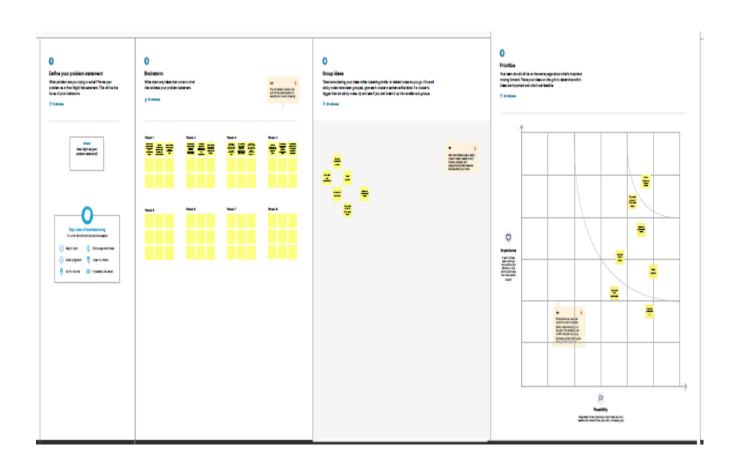
The new EV's are combined Electrical storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer to form a comprehensive transportation solution. Electric vehicles use electricity to charge their batteries instead of using fossil 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.

2. PROBLEM DEFINITION & DESIGN THINKING

2.1 EMPATHY MAP

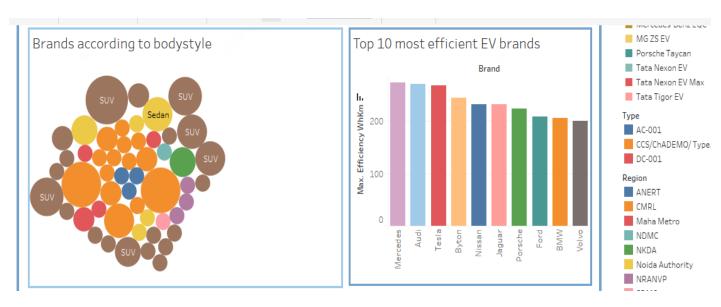


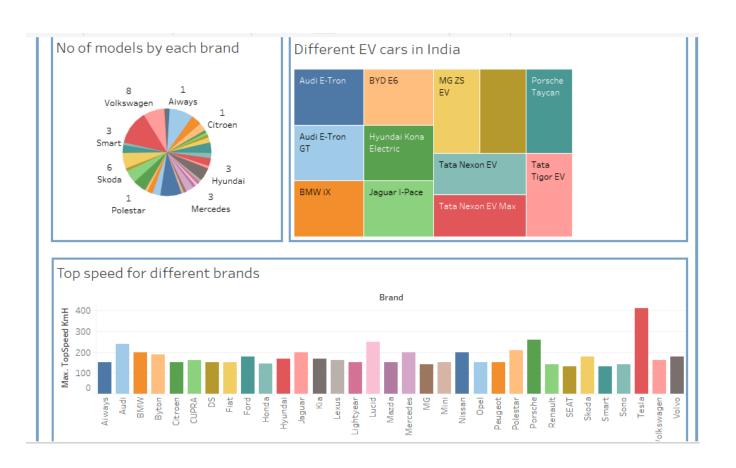
2.2 IDEATION & BRAINSTORMING MAP

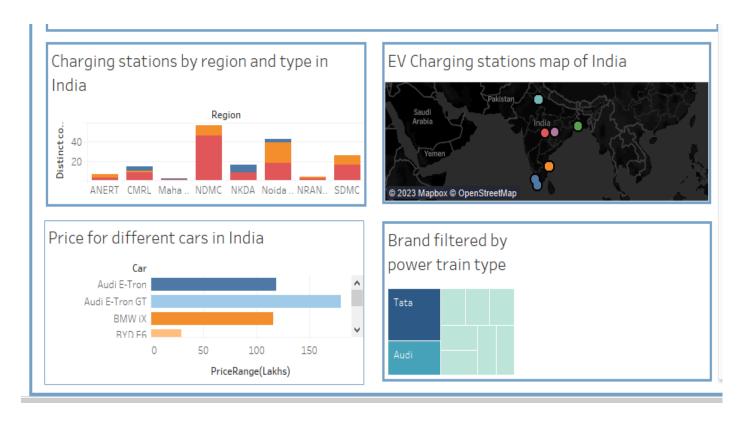


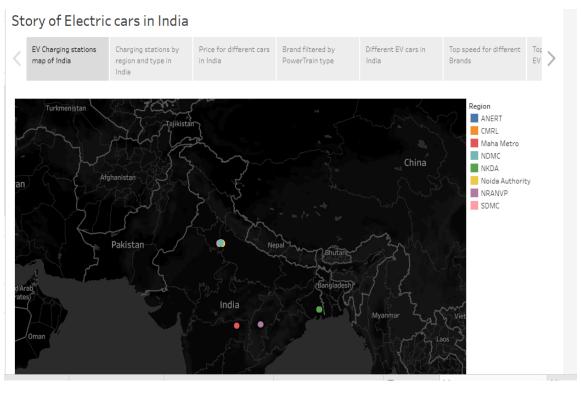
3. RESULT

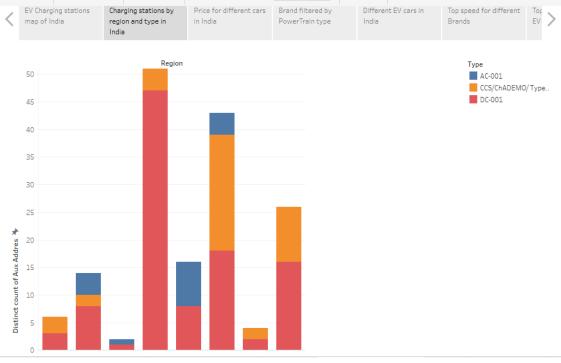


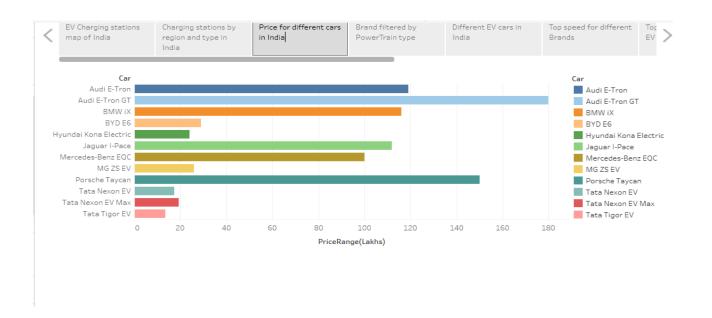


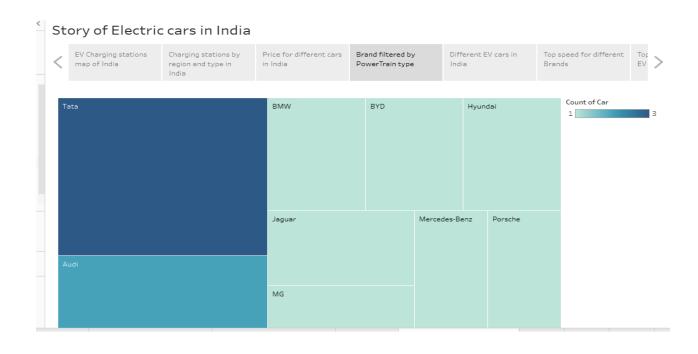






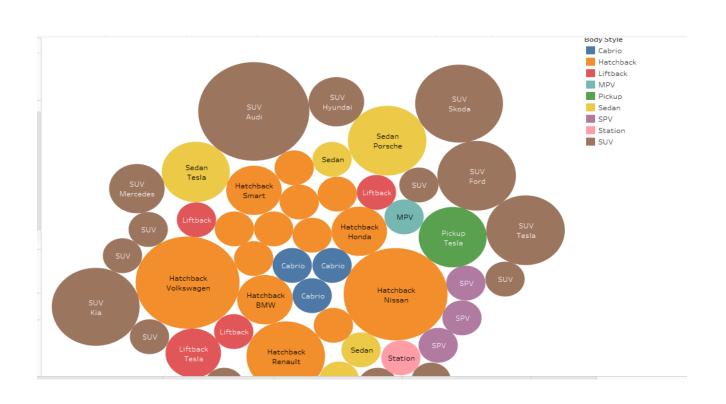


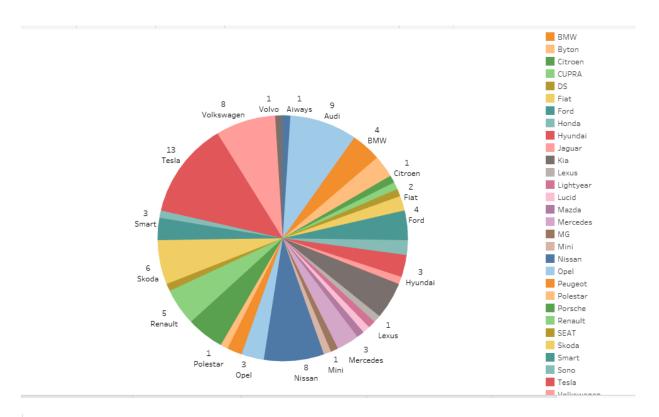












Story of Electric cars in India

	Top speed for different	Top 10 most efficient	Brands according to	No of models by each	Different brands of	Different Electric car	
	Brands	EV Brands	Bodystyle	brand	Electric cars globally	brands in India	,

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Story of Electric cars in India

<	Top speed for different Brands	Top 10 most efficient EV Brands	Brands according to Bodystyle	No of models by each brand	Different brands of Electric cars globally	Different Electric car brands in India)
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4. ADVANTAGES

The running cost of an electric vehicle is much lower than an equivalent petrol or diesel vehicle. 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. Using renewable energy sources can make the use of electric vehicles more eco-friendly. The electricity cost can be reduced further if charging is done with the help of renewable energy sources installed at home, such as solar panels. Electric vehicles have very low maintenance costs because they don't have as many moving parts as an internal combustion vehicle. The servicing requirements for electric vehicles are lesser than the conventional petrol or diesel vehicles. Therefore, the yearly cost of running an electric vehicle is significantly low.

5.DISADVANTAGES

The average petrol car can easily do four or five hundred miles on a tank of petrol. A diesel car might do closer to 700 miles. The all-electric <u>Peugeot e-208</u> on the other hand needs recharging every 217 miles. Filling up your petrol or diesel car can take just 5 minutes. <u>Charging your EV</u> can take anything from 30 minutes to an hour using the latest public rapid chargers. You may be twiddling your thumbs for an entire day if you are using a standard domestic socket.

5.APPLICATION

The electromagnetic simulation is an integral part of the physical modeling and simulation of electric and hybrid vehicles. Whether it is the modeling of the battery, the electric motor, the various electromechanical components, the power electronics components, the various antennas and communication systems, the electromagnetic simulation is indispensable. Together, EMS and HFWorks, and their Multiphysics capabilities empower you, the electric vehicle engineer, to design more efficient and less expensive your electric vehicle. In this section, several simulation examples where EMS and HFWorks are used to model several parts and components used in electric and hybrid vehicles are shown.

6. conclusion

EVs make a good case as a viable choice for an inexpensive driving experience with a per litre of gasoline really above the 81 Tanks in Delhi. The progress that the electric vehicle industry has seen in recent years is not only extremely welcomed, but highly necessary in light of the increasing ...

7. FUTURE SCOPE

Most Indian buyers believe that an electric vehicle will be ready by 2023, but the majority also believe that it would no longer be available until 2025. Consumers in India are looking for a lower price for EVs than those in other countries, with the global average tipping price for EVs being \$36,000. (around Rs27 lakh). The cost of lithium-ion batteries is roughly \$250/kWh globally, which translates to approximately Rs5.7 lakh in battery prices alone. Currently, lithium-ion batteries account for half of the cost of an electric vehicle, making them more expensive than conventional vehicles.

8.APPENDIX

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