

# **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.**

### **1.1. OVERVIEW:**

**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.**


### **1.2. PURPOSE:**

**The new EV's are combined Electric 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 AND DESIGN THINKING

## 2.1 Empathy map


Target role



### Empathy map canvas

Use this framework to empathize with a customer, user, or any person who is affected by a team's work. Document and discuss your observations and note your assumptions to gain more empathy for the people you serve.

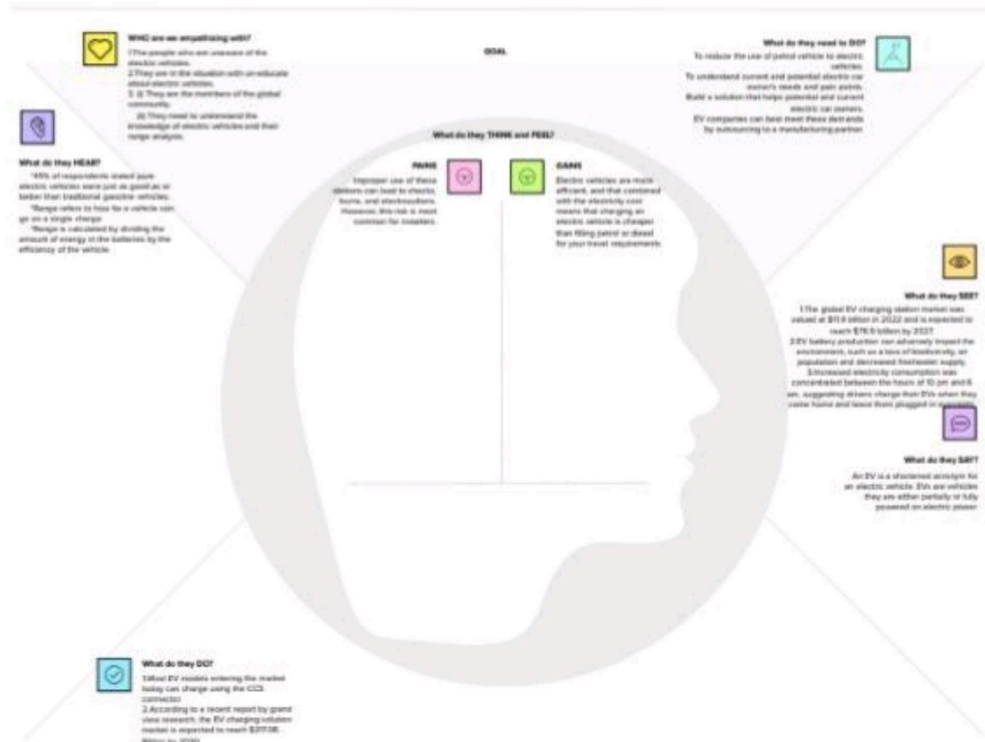
Originally created by Bruce Kelley at IDEO



Share feedback

### VISUALIZATION TOOLS FOR ELECTRIC VEHICLES AND RANGE ANALYSIS

\*Specify the Business Problem  
\*Business Requirements  
\*Literature Survey  
\*Social or Business Impact



**WHO are we empathizing with?**

1. The people who are unaware of the electric vehicles.
2. They are in the situation with an inadequate about electric vehicles.
3. 6. They are the members of the global community.
4. They need to understand the knowledge of electric vehicles and their range analysis.

**What do they HEAR?**

44% of respondents stated that electric vehicles were just as good as or better than traditional gasoline vehicles. Range refers to how far a vehicle can go on a single charge. Range is calculated by dividing the amount of energy in the batteries by the efficiency of the vehicle.

**What do they SEE?**

1. The global EV charging station market was valued at \$11.3 billion in 2022 and is expected to reach \$76.5 billion by 2037.  
2. EV battery production can adversely impact the environment, both as a result of land-use, air pollution and decreased freshwater supply.  
3. Increased electricity consumption was concentrated between the hours of 6 p.m. and 8 a.m., suggesting drivers charge their EVs when they leave home and leave them plugged in overnight.

**What do they SAY?**

An EV is a shortened acronym for an electric vehicle. EVs are vehicles that are either partially or fully powered on electric power.


**What do they THINK and FEEL?**

**THINKS**

Improper use of these devices can lead to electric fires, and electric shocks. However, this risk is most common for installers.

**FEELS**


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.



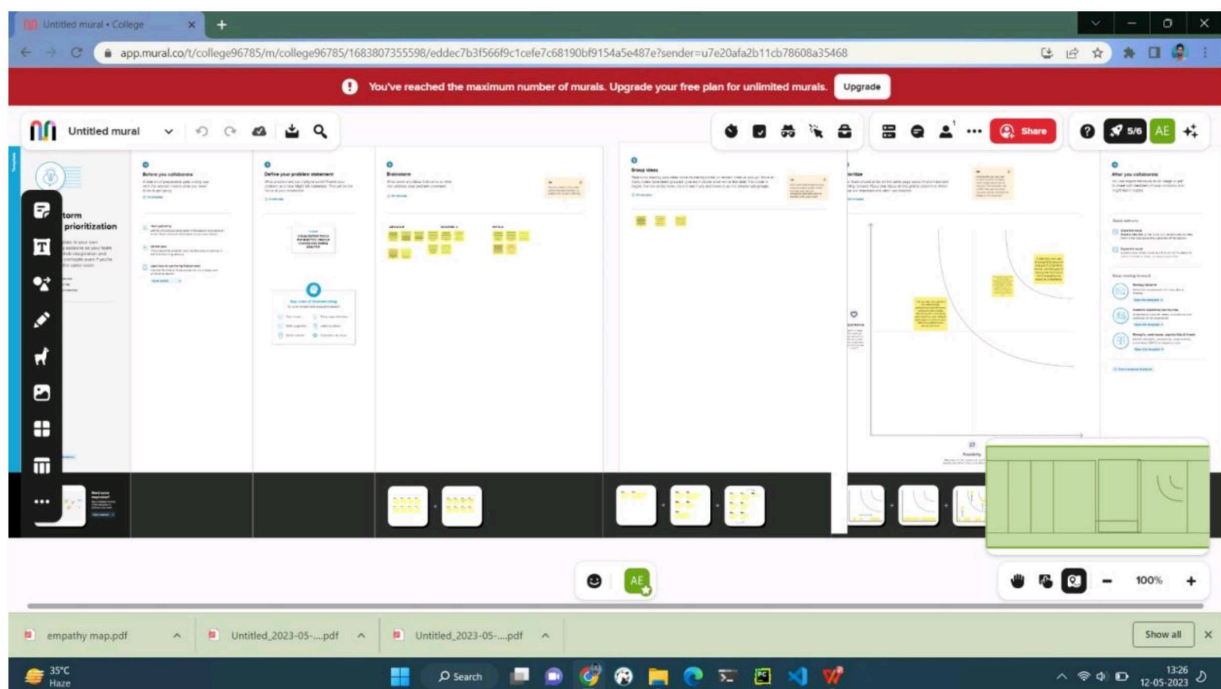
Need some inspiration?

See a list of ideas at the end of the workshop or workshop pack here.

Share feedback

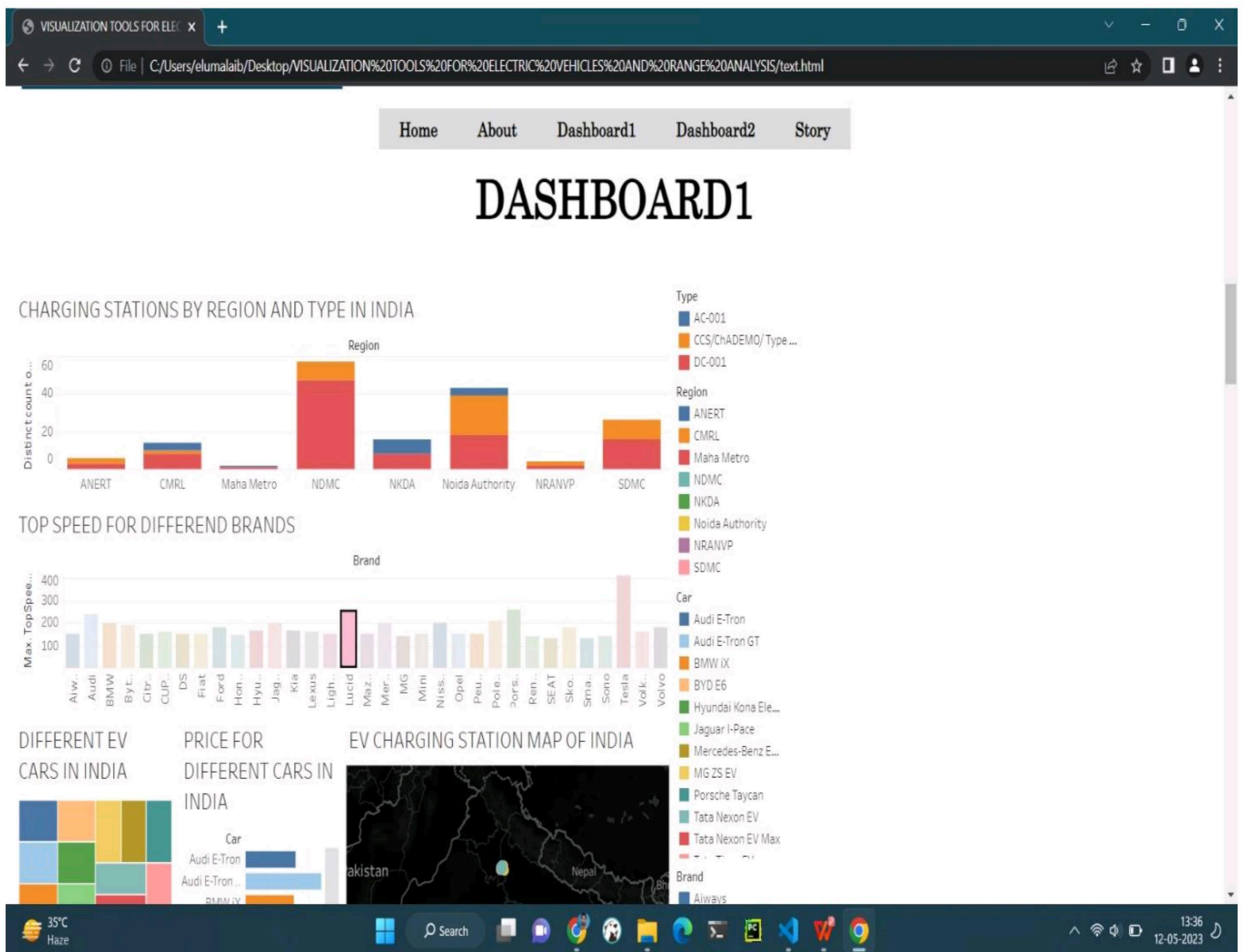


## 2.2 BRAIN STORMING

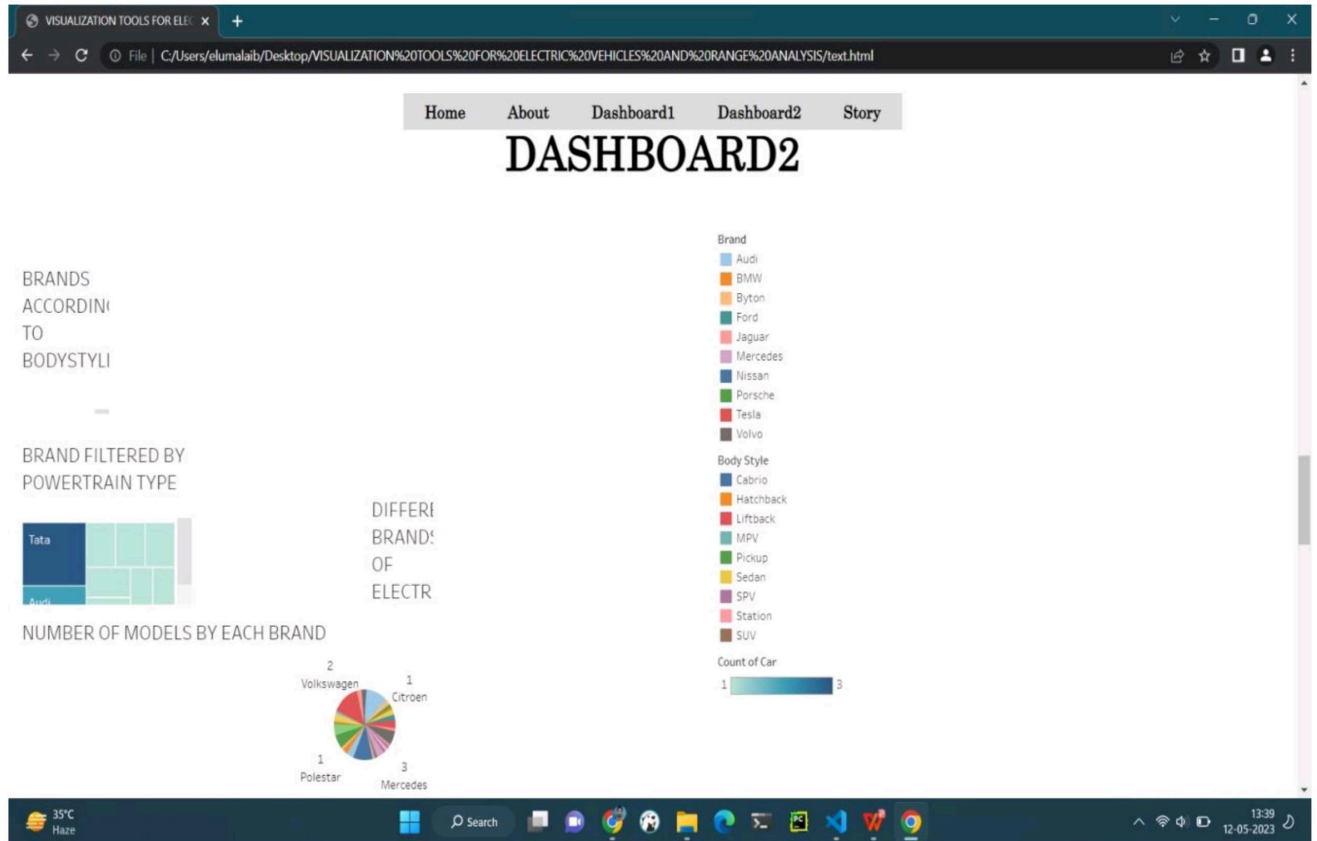


RESULT:

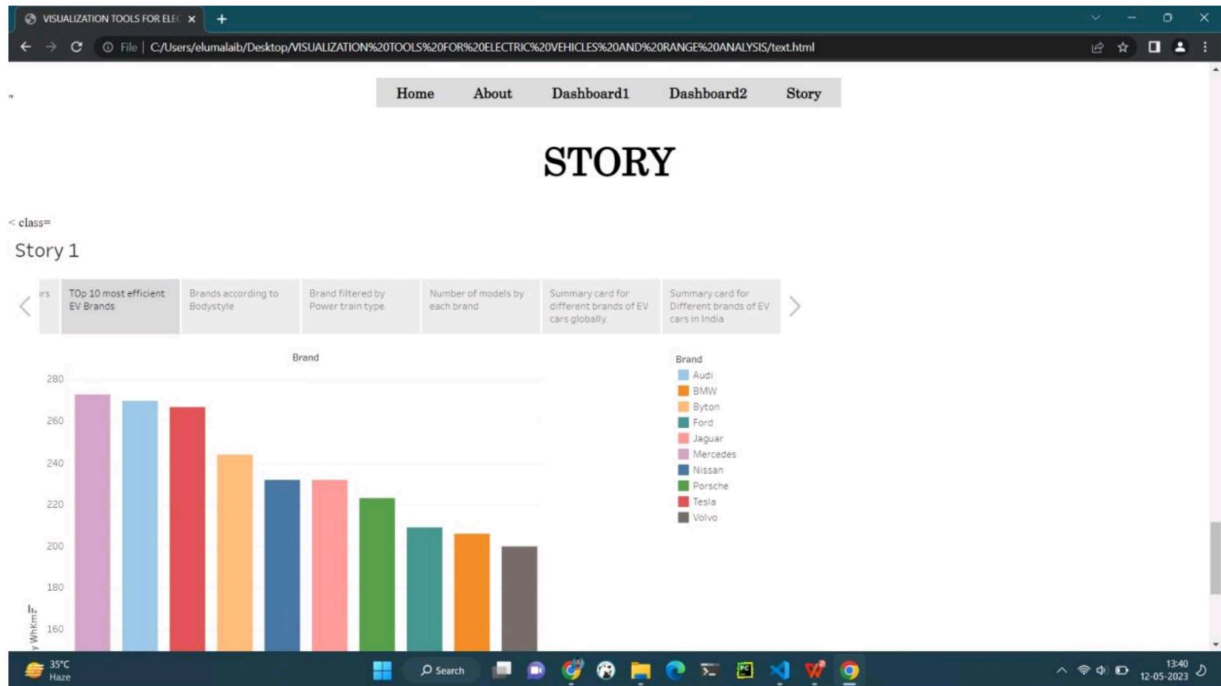
### 3.1 DASHBOARD 1



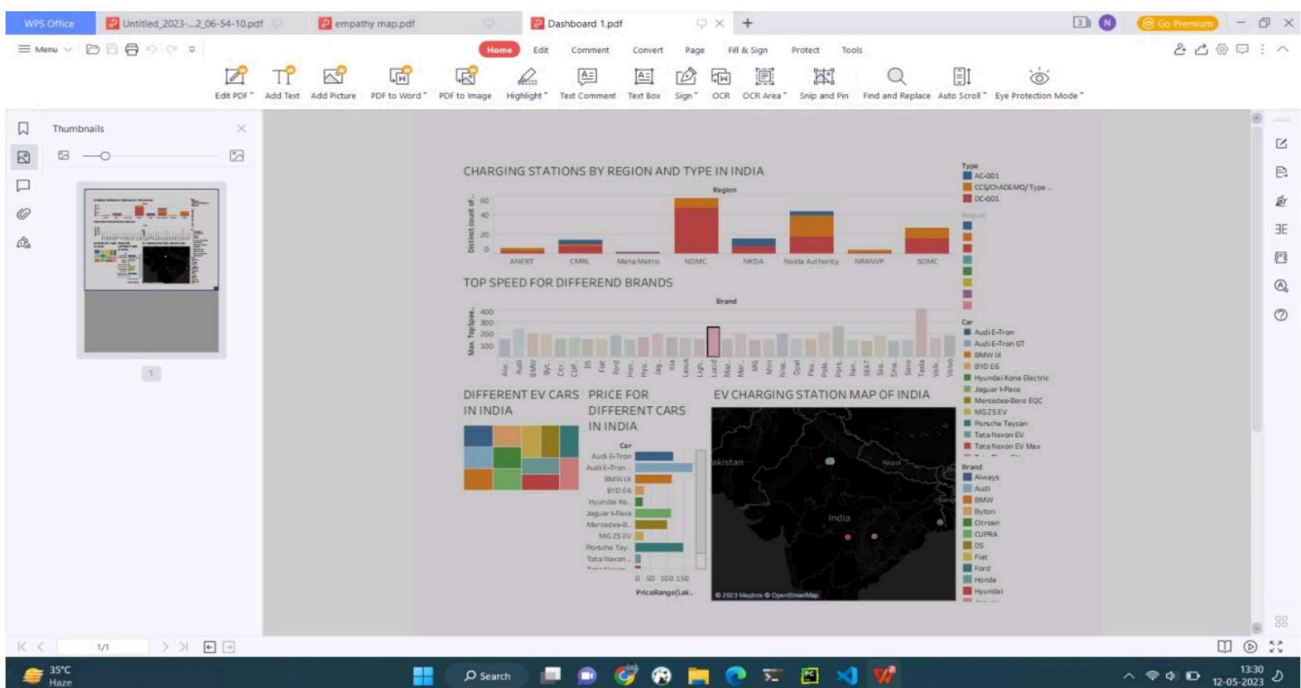
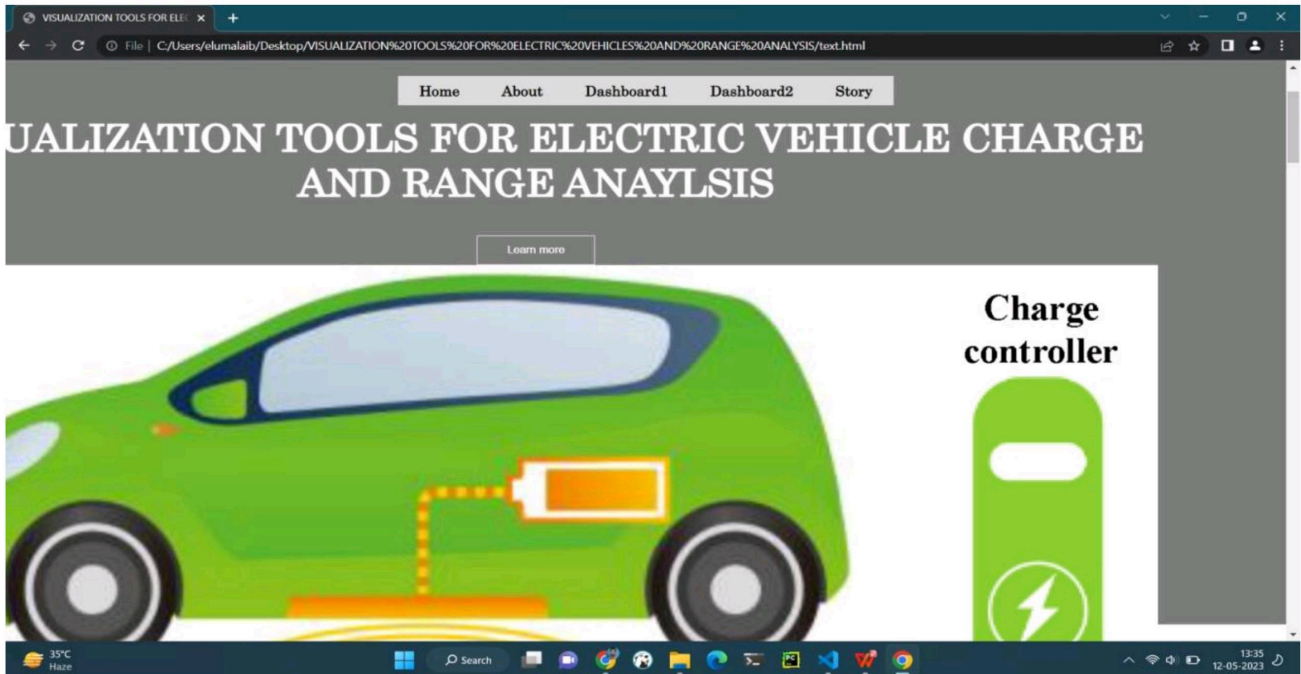
## 3.2 DASHBOARD 2

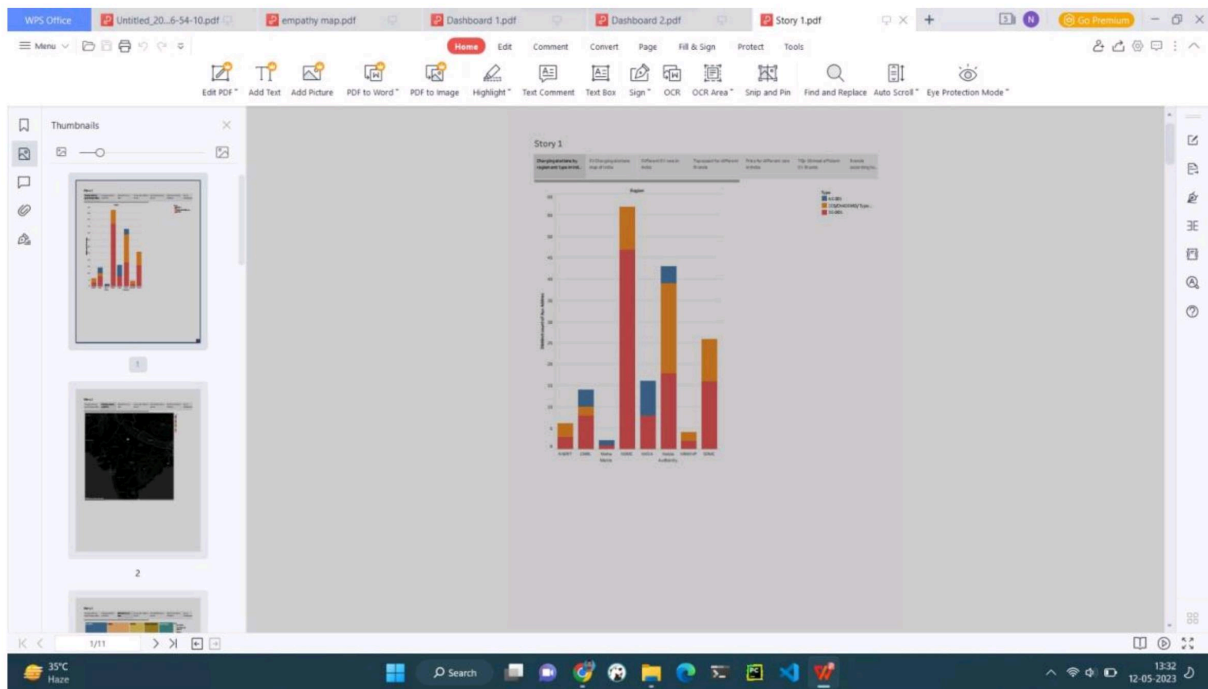
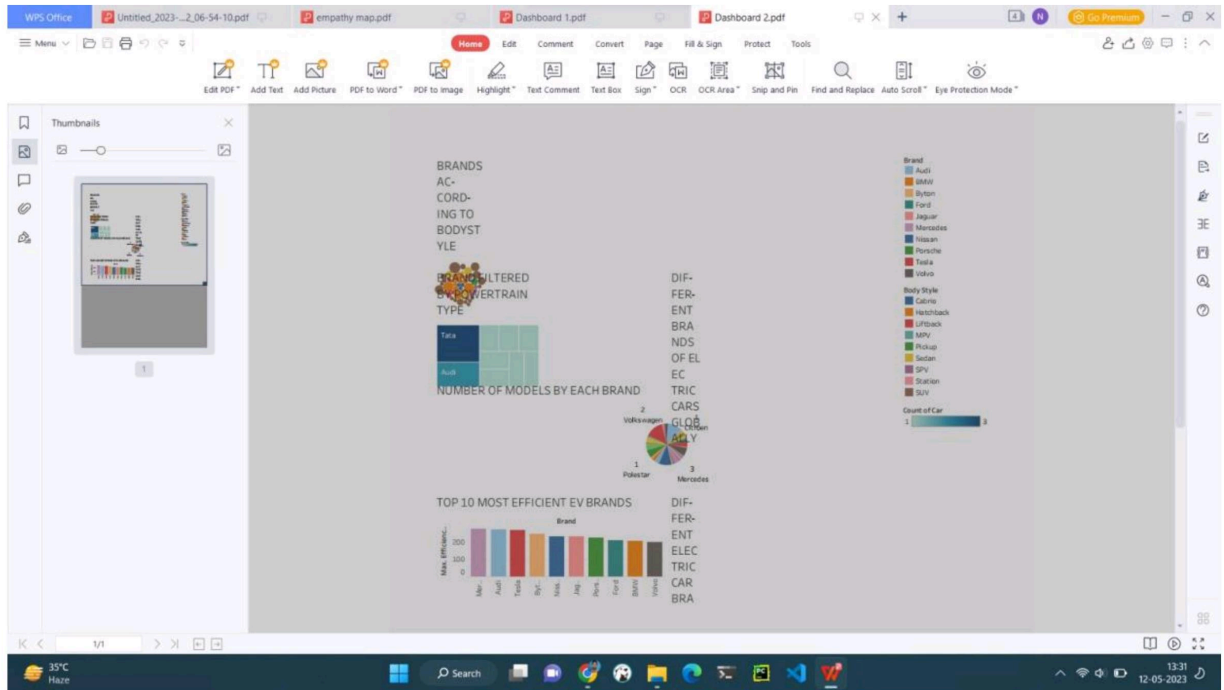


## 3.3 STORY



## 3.4 WEBPAGE







# **CONCLUSION**

As demand grows for more publicly accessible charging stations, there is a greater need for equipment that supports faster charging at higher voltages and currents that are not currently available from residential ESVE. Globally, the number of electric vehicle networks is increasing to provide a system of publicly accessible charging stations for EV recharging. Governments, automakers and charging infrastructure providers have forged agreements to create these networks.