

# TO FIND THE SCALABILITY OF ELECTRIC CAR USAGE IN CURRENT PERIOD BASED ON SALES

**Dr.S. Krishnaveni,**

**Assistant Professor Department of B. Com (Business Analytics),**

**PSGR Krishnammal College for Women Coimbatore, India**

**krishnavenis@psgrkcw.ac.in**

**M. DHIVYAMALINI,**

**UG Scholar, Department of B. Com (Business Analytics),**

**PSGR Krishnammal College for Women, Coimbatore, India.**

**dhivyamalini83@gmail.com**

## ABSTRACT

Electric motors (EVs) represent one of the maximum promising technologies to green the transportation systems. An crucial trouble is that high penetration of EVs brings heavy electricity call for to the strength grid. The speedy growth of transportation region and related emissions are attracting the eye of policymakers to make certain environmental sustainability. Therefore, the deriving factors of delivery emissions are extremely vital to recognise. The role of electrical motors is vital and growing shipping emissions. Electric automobiles pave the way towards a low-carbon economic system and sustainable surroundings. Successful deployment of electrical vehicles is predicated heavily on electricity intake fashions which can expect strength consumption correctly and reliably. Improving electric powered motors' electricity consumption efficiency will significantly assist to alleviate motive force tension and offer an vital framework for operation, planning, and management of the charging infrastructure. The conventional fuel vehicles are used as a base for comparison. The results display the possibilities to reduce the electric vehicles emissions, during the lifestyles cycle, with 20 to one hundred forty% using the renewable electricity resources [1]. To address the assignment of electric cars' strength intake prediction, this examine pursuits to appoint advanced gadget getting to know models.

## KEYWORDS

Electric vehicle, electricity consumption

## 1.INTRODUCTION

AI system conducts its undertaking, normally predicting output values from given input information. The predominant processes of device learning algorithms are category and regression. The paper affords an outline of the research of Electric Vehicle, Hybrid Electric Vehicle, Plug-in-Hybrid Electric Vehicle and Battery Electric Vehicle invasion price into the marketplace and discusses their distinct modelling method and expectation techniques.

## 2.OBJECTIVE

The Electric cars will account for 20 percent of new car sales in 2025, 40 percent in 2030, and almost 100 percent in 2040. The electric vehicle industry in the second half of the 20<sup>th</sup> century helped show the world the promise of the technology, the true revival of the electric vehicle didn't happen until around the start of the 21<sup>st</sup> century. Electric vehicle deployment has been growing rapidly over the past ten years, with the global stock of electric passengers vehicles passing 6 million in 2018, an increase of 63% from the previous year.

## 3.RELATED WORKS

As electric vehicle is cheaper in long run and also environment friendly, Government is continuously promoting the use of electric vehicles. Since long time many Indian and world trains including metros have been running on electricity. E-bike, E-car, E-rikshaw are already in market. Now people should use more electric vehicles in place of traditional petrol & diesel vehicles. Government has started campaign to promote use of electric vehicles. Some rebate on taxes and subsidy on purchasing the electric vehicles, are also provided by the Government.

Earlier in August 2020 Delhi Government introduced Delhi EV Policy. Under this policy Delhi Government provides waiver on road tax, benefits up to Rs.1.5 lakh on four wheelers and more. Recently Delhi Government has launched 'Switch Delhi' campaign to promote the use of electric vehicles. It was planned for eight weeks from February 3, 2021 to April 6, 2021 and focused on mass awareness campaigns. The campaign targeted raising awareness among people in Delhi regarding the benefits of switching to EVs[1]. This initiative has been taken by Delhi Government to cut down air pollution caused due to smoke by traditional petrol & diesel vehicles.

Electric vehicles release almost no air pollutants at the place where they are operated. In addition, it's is generally easier to build pollution-control systems onto centralized power stations than retrofit enormous numbers of cars. Electric vehicles typically have less noise pollution than an internal combustion engine vehicle, whether it is at rest or in motion. Electric vehicle emit no tailpipe CO<sub>2</sub> or pollutants such as NO<sub>x</sub>, NMHC, CO and PM at the point of use. Electric motors don't require oxygen, unlike internal combustion engines; this is useful for submarines[2].

Achieving a more sustainable method of transportation is crucial, and EVs help reduce dependence on foreign oil by utilizing a relatively inexpensive source of electricity. Fueling a car with electricity is also much more economically efficient than fueling it with gasoline, as electric drivetrains are much better than internal combustion engines at turning energy into miles driven. EVs present numerous opportunities to save money,

and they present potent opportunities to boost the economy in a variety of ways. With electric vehicles becoming more popular, economic experts expect job creation in numerous industries to support the manufacturing of the vehicles.

But maybe most importantly, EVs are crucial to lower carbon emissions in the transportation sector and help contribute to a greener environment as they do not produce any emissions while on the road.

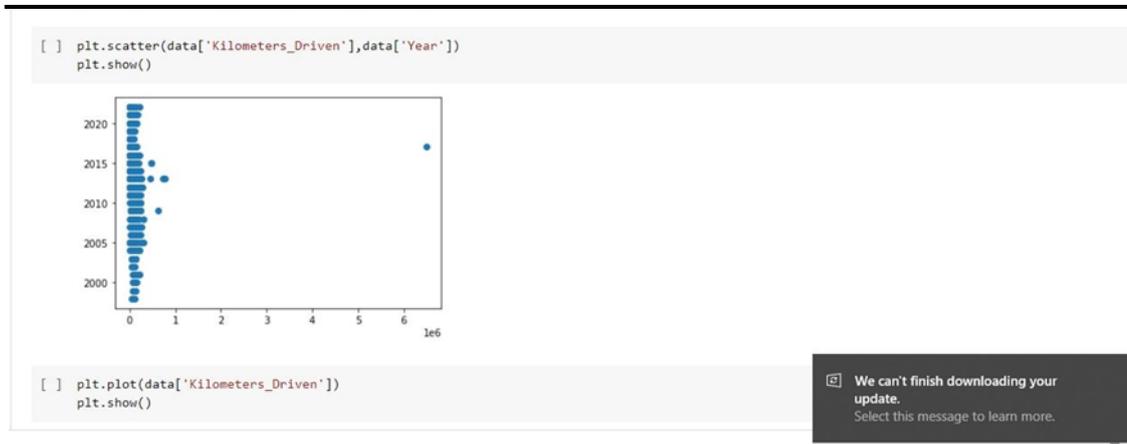
The Hindu news paper on 17th March 2022 stated that the "Union road transport and highways minister Nitin Gadkari made an ardent plea in parliament for adopting alternative fuels ,and said sales of electric vehicle were set to rise by 10 times by 2022 end in the country. The minister cited a official figures to show a uptick in demand for EVs in the recent .Between 2019-20and2020-21sale of four-wheelers up by 230% from 4,695 to 15,860.The number of electric buses increased from 80 to 1,117 over 1200[3]. The minister is sure that the cost of petroleum two wheelers, petroleum cars and petroleum buses will be the same .And he says my prediction is that at end of this year ,the sale of EVs will be increased by 10times. He said it was important for the country to adopt alternate fuels to cut dependence on import of oil and reduce import bill"[3].

## 4.METHODOLOGY

A system learning model turned into advanced to expect the expectation of purchasers based at the mileage and fee of an EV. In that I have used a recent year and sales to visualize the current year percentage. For this paintings, we used the automobile database.

### 4.1.DATA PREPROCESSING

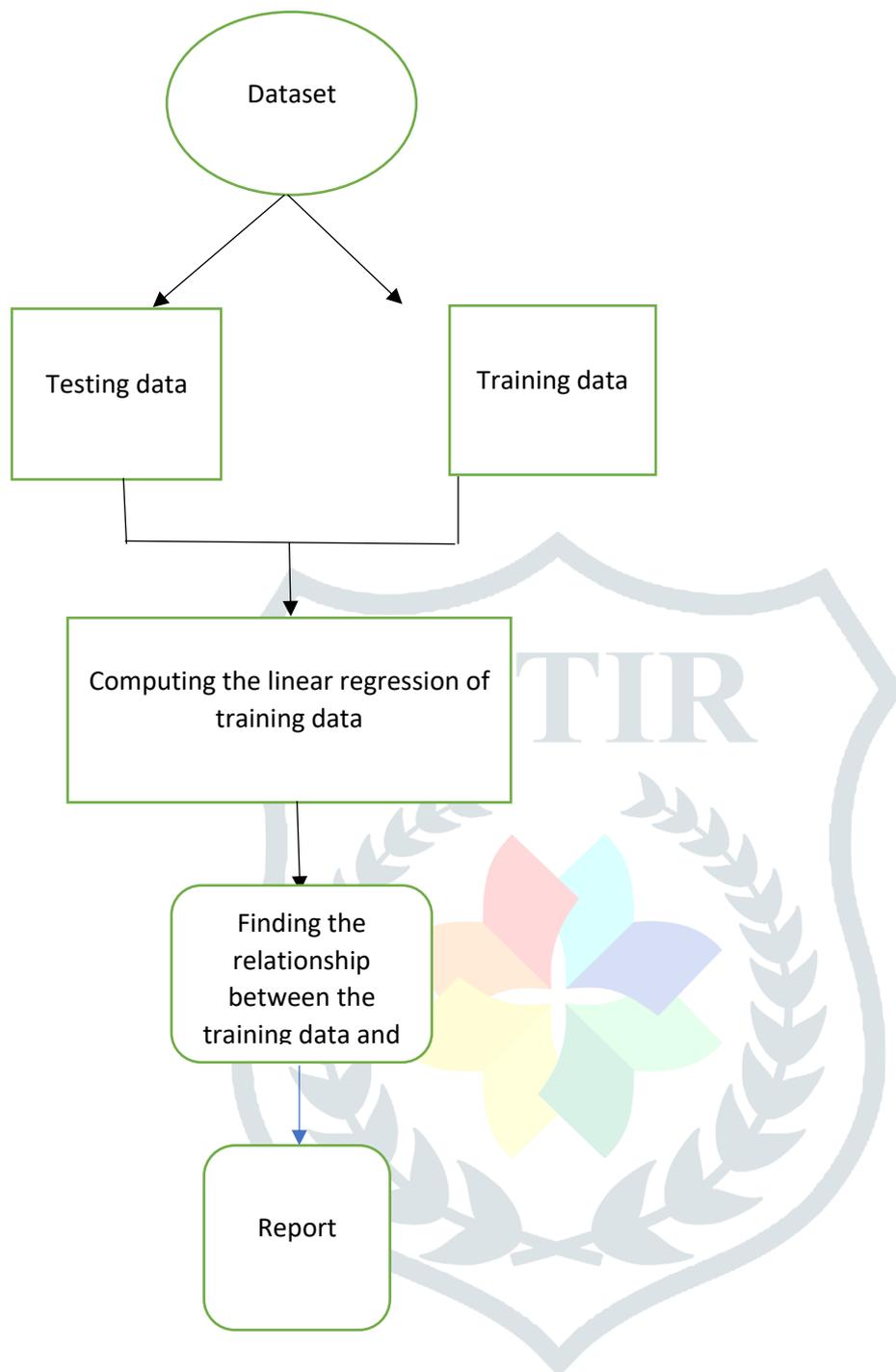
The vehicle dataset provides statistics on the vehicle version, mileage, place of income, 12 months of income, fuel type, efficiency, energy, emblem, acceleration, range, body style, phase, fee, co2 emission . The automobile dataset become collected among 1998 and 2022 containing 1,32,396 facts in total consisting of one-of-a-kind gasoline types of delivery. The extracted dataset receives into the manner of records cleansing and is splitted into two specific datasets, the take a look at and train units with the ratio of 3:7.

**Fig 4.1**

## 4.2.MACHINE LEARNING ALGORITHM

Colab an open-source machine learning tool was used to prepare the data for the machine learning algorithm and to test the machine learning algorithms. Colab is a complete cloud management source tool. Logistic regression is one of the maximum famous Machine Learning algorithms, which comes beneath the Supervised Learning approach. It is used for predicting the explicit based variable the usage of a given set of unbiased variables. Logistics regression predicts the output of a categorical structured variable. Therefore the outcome have to be a specific or discrete cost.

### 4.3. FLOWCHART



**Fig 4.3**

## 5.RESULT



**Fig 5.1** scatter plot

Here the diagram shows that the compare the sales and year to see the fluctuation of the particular year. It shows that the count of current period is about 2010 it was 14 count, and then the fluctuation is low in 2022 the count was 2 count.

```
[ ] #Mean Absolute Error(MAE)
from sklearn.metrics import mean_absolute_error
print("MAE: ",mean_absolute_error(y_test,y_pred))

MAE: 0.7225806771222922

[ ] #Mean Squared Error(MSE)
from sklearn.metrics import mean_squared_error
print("MSE: ",mean_squared_error(y_test,y_pred))

MSE: 0.9433780046768243

[ ] #Root Mean Squared Error(RMSE)
print("RMSE: ",np.sqrt(mean_squared_error(y_test,y_pred)))

RMSE: 0.9712764820980813
```

**Fig 5.2**

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