PREDICTING CO2 EMISSIONS BY VEHICLE USING DATA SCIENCE

Name of the students: Sandhiya B, Sandhiya M

Register Number: 211423104567, 211423104570

Name of the Guide: Mr A VADIVELU

ABSTRACT

One of the major global sources of CO2 emissions is the transportation industry. This harms air quality and speeds up climate change.

We put together a large dataset to study this. It includes important information about vehicles that affects their emissions.

Some key things we looked at are:

• Engine size

• Fuel type

• Transmission type

• Fuel consumption

We cleaned the data for analysis. We filled in any missing info so there were no gaps. Then, we changed text labels—like fuel type or transmission type—into numbers. Linear Regression, Random Forest, and Neural Networks are used for analysis purposes. Finally, we adjusted the scale of all the numbers. Big numbers like vehicle weight got scaled down so they don’t overpower smaller ones like fuel efficiency. This keeps everything balanced for the model to learn better.

We used different machine learning methods to analyze the data. This involved preparing the data and creating features. Keywords include data science, linear regression, random forest, gradient boosting, fuel type, transmission, and machine learning.

This project looks at how the transportation sector’s growth increases CO₂ emissions. This causes climate change, air pollution, and health issues.

We developed a system to predict the amount of CO₂ a vehicle emits using data science and machine learning.

We used the data like

* Engine size
* Fuel type
* Transmission type
* Vehicle condition
* Maintenance frequency
* vehicle model
* Vehicle type
* Year of the model
* Vehicle condition
* Climate zone
* City driving
* Annual Car mileage
* Primary usage of the vehicle

Our process involved collecting data, cleaning it, exploring it, building models, and testing them. We used Linear Regression, Random Forest, and Neural Networks.

Users can enter vehicle details and see real-time emission predictions.

This system can help find high-emission vehicles. It supports policies to control pollution and encourages cleaner transportation. It also helps meet global goals for climate action and health by reducing emissions and improving air quality.