Machine Learning Based Vehicle Performance Analyzer

Team Members:

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Pre Requisite:

- Install Anaconda
- Install Python Packages:
  - Pandas
  - Numpy
  - Matplotlib
  - Seaborn
  - Flask
- Prior Knowledge

Github Account:

User name : pavi2305

Installation Of IDE'S:

Anaconda navigator install and the all requirements are installed successfully.

Literature Survey:

Impact of driver behavior on fuel consumption: classification, evaluation and prediction using machine learning.

References:

- Integrated indicator to evaluate vehicle performance across: Safety, fuel efficiency and green domains.
- Instantaneous vehicle fuel consumption estimation using smartphones and recurrent neural networks.
- Driving Behavior Analysis through CAN Bus Data in an Uncontrolled Environment.
- Fuel Efficiency Modeling and Prediction for Automotive Vehicles: A Data-Driven Approach.
- Personalised assistance for fuel-efficient driving.

Problem Statements:

- The evaluation of vehicle's efficiency and green performance ratings in a flexible scale for different scenarios and taking into account vehicles engine size and age categories.
- A comparison between Long-Short-Term-Memory Neural Networks and Recurrent Neural Networks (RNN) showed that the second type is more appropriate for the instantaneous fuel consumption estimation of vehicles.
- It is foreseen to investigate the performance of the soft sensor by combining analytical vehicle models and data-based approaches to make the results more interpretable.
- Analysis of fuel efficiency by including other factors like the road condition and real-time traffic with the help of google maps, this would help in analysing much deeper.
- Car manufacturing companies to improve the fuel economy by considering the characteristics that substantially influence the fuel efficiency.