

## Project Initialization and Planning Phase

Date	09 July 2024
Team ID	739842
Project Title	Trip-Based Modelling of Fuel Consumption in Modern Fleet Vehicles Using Machine Learning
Maximum Marks	3 Marks

### Project Proposal (Proposed Solution) template

The proposed solution is to develop a fuel predicting model, which is a Decision tree algorithm that can handle categorical features effectively. The model will be trained using a dataset of Fuel parameters for a trip and will predict fuel consumption based on the input features.

Project Overview	
Objective	<ul style="list-style-type: none"> <li>Develop a machine learning model that can predict the fuel consumption for a trip with high accuracy.</li> <li>Identify the most important factors that influence a modern fleet vehicles fuel consumption for a trip.</li> </ul>
Scope	The “Trip-Based Modelling of Fuel Consumption in Modern Fleet Vehicles Using Machine Learning” project aims to develop a machine learning model that can predict fuel consumption on various fuel-affecting attributes.
Problem Statement	

Description	Fuel consumption is a critical factor in determining economic stability of high fleet vehicles for a trip . Predicting the fuel required can be challenging due to the complexity of factor involved. A machine learning-based approach can provide a more accurate and efficient solution.
Impact	The impact of predicting fuel consumption is positive, it is because by precisely forecasting fuel consumption based on trip parameters, the Trip-Based Modelling of Fuel Consumption in Modern Fleet Vehicles Using Machine Learning research improves fuel economy and lowers operating expenses. By using data-driven insights, this method improves fleet management and route planning.

Resource Type	Description	Specification/Allocation
<b>Hardware</b>		
Computing Resources	CPU/GPU specifications, number of cores	T4GPUs
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
<b>Software</b>		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn
Development Environment	IDE	Jupyter Notebook, Spyder, Google collab notebook

## Data

Data	Source, size, format	Kaggle dataset, csv
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## Proposed Solution

Approach	The project team can develop an accurate and reliable machine-learning model that can predict fuel consumption and provide valuable insights to drivers, travel managers and transport administrators
Key Features	<ul style="list-style-type: none"> <li>• Predicts fuel consumption for upcoming journeys with accuracy by using machine learning algorithms and prior trip data.</li> <li>• Gives instantaneous information about fuel consumption, enabling drivers to make dynamic changes to their driving styles and routes.</li> <li>• Keeps track of and evaluates driving habits to suggest fuel-efficient methods and raise overall effectiveness.</li> <li>• Promotes environmentally friendly driving habits and maximizes fuel efficiency to lower carbon emissions.</li> </ul>

