

## Project Design Phase 1

### Proposed Solution Template

Date	09-10-2022
Team Id	PNT2022TMID54414
Project Name	Machine Learning Based Vehicle Performance Analyzer
Maximum Marks	2 Marks

### Proposed Solution:

S.No	Parameter	Description
1.	Problem Statement	As discussed in section 6 the models developed have promising results in predicting the fuel efficiency with the model outperforming all other models by constantly predicting better for all the experiments conducted with different train and test split ratio.
2.	Idea/Solution Description	The dataset consisted of a number of parameters of which few are speed, fuel level, fuel consumption and acceleration the Random Forest outperformed the other two models built. Several factors which directly influences the fuel consumption was considered in the study but other main factors like the engine RPM, traffic conditions and load were not considered in the study.
3.	Novelty/Uniqueness	Although this model was run on the data collected from small passenger car, the model is not limited only to that class and can be generalised for any vehicle with the driving data and vehicle characteristics available.
4.	Social Impact / Customer Satisfaction	To analyze the relationship between driving behaviour and fuel economy of a car .Based on the acceleration. Driving behaviour was classified as moderate, aggressive and claim.
5.	Business Model (Revenue Model)	The primary objective of the project was to develop a model using machine learning techniques which precisely predicts the fuel efficiency and to propose the optimum driving style and vehicle characteristics to achieve better fuel efficiency.
6.	Scalability of the Solution	Analysis on mass air flow rate, intake air temperature and other vehicle characteristics with the predicted fuel efficiency is also carried out which gives deeper insight and better recommendations to mitigate fuel consumption.