Project Design Phase-II Technology Stack (Architecture & Stack)

Date	18 October 2022
Team ID	PNT2022TMID27734
Project Name	Project - Machine Learning Based Vehicle Performance Analyzer.
Maximum Marks	4 Marks

Technical Architecture:

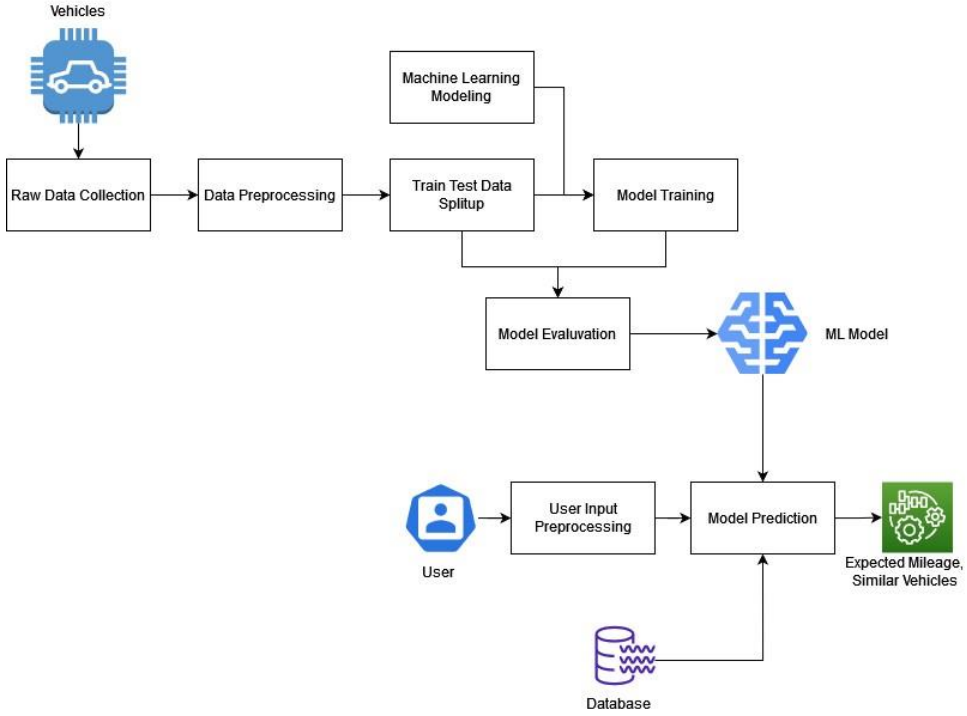

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The user interacts with the application through a Web Application that is responsive to the device that is being used.	React Js
2.	Get User Data	The process collects the user input data that is collected via a form to the server as a JSON Object	REST API
3.	Model Prediction	Use the data collected from the user to make predictions on the mileage expected.	IBM Watson ML
4.	Send User Report	Send the predictions along with suggestions to the user as JSON Object	REST API
5.	Database	Database contain user information such as name, email, vehicle basic information, mileage predicted over time.	MySQL
6.	Cloud Database	Database Service on Cloud	IBM DB2
7.	External API-1	Vehicle Details Database	https://api.auto-data.net/
8.	Machine Learning Model	The machine learning model is used to predict mileage from the user inputs	Regression Modelling.
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Core i5, 8GB RAM Cloud Server Configuration :	Local, Docker

Table 2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	React Js, Flask, Sci-kit Learn	Java script, Python
2.	Security Implementations	Identity and Access Management, OAUTH, WAF	IBM Cloud
3.	Scalable Architecture	3 Tier Architecture, Model-View-Controller implementation.	Model - SQL DB, View - ReactJS, Controller - Flask Server
4.	Availability	Proxy servers, Load Balancers to help balance traffic among servers to help improve uptime	IBM Cloud load balancers
5.	Performance	The front end is detached from the Business logic server reducing requests sent to the server.	Nginx proxy