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

Date	03 October 2022
Team ID	PNT2022TMID12895
Project Name	Machine Learning-Based Predictive Analytics for Aircraft Engine
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

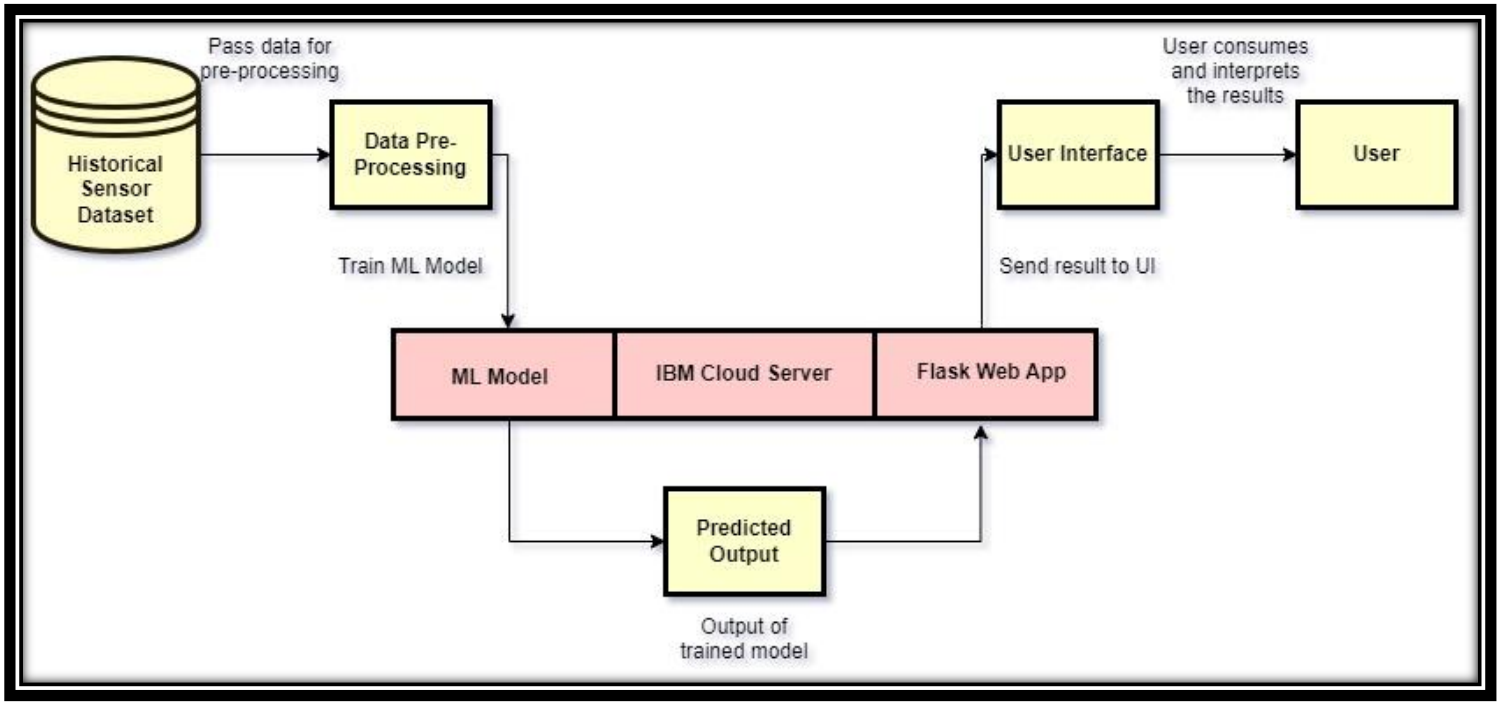

Fig 1: Technical Architecture of the Machine Learning-Based Predictive Analytics for an Aircraft Engine

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The front-end templates	HTML, CSS, JavaScript
2.	Application Logic-1	Authentication using email and password	Python, Flask, SQL
3.	Application Logic-2	Input data to Machine Learning model to check the possibility for engine failure	Python, SKLearn Machine Learning Model
4.	Application Logic-3	Email test results to user	Python, Twilio
5.	Cloud Database	NoSQL type database to store user data on the cloud.	MongoDB Atlas
6.	External API-1	API used to send emails to the users.	Twilio
7.	External API-2	API calls to store and retrieve data from the database.	Python, pymongo
8.	Machine Learning Model	Purpose of Machine Learning Model	Aircraft Engine Failure detection model
9.	Infrastructure (Server / Cloud)	Basic server to host web application	IBM Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Flask
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	Hashing to store the passwords on the database
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Model, view, controller architecture of the Flask framework
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	IBM Cloud infrastructure
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN’s) etc.	-