Project Design Phase –I

Solution Architecture

TEAM ID	PNT2022TMID16815
PROJECT TITLE	Machine Learning-Based Predictive Analytics for Aircraft Engine
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Solution Finding:

Machine learning techniques will be adopted for this project, and the we will follow a three-step methodology:

1. .Pre-process the engine dataset and discover key parameters affecθng engine health.
2. Develop simple machine learning model to predict the RUL of engines and verify the prediction accuracy.
3. Introduce other advanced algorithms to further improve the prediction performance, such as involving time series analysis.

Using Machine Learning Models:

1. **Multiple Linear Regression :**

    Multiple linear regression attempts to model the relationship between the sensor variables of our data and the Health Index by fitting a linear equation table observed data.

2. **K Nearest Neighbour Regressor :**

    K Nearest neighbors is a simple algorithm that stores all available cases and classifies new cases based on a similarity measure.

3. **Artificial Neural Networks :**

    An Artificial neural network is an attempt to simulate the network of neurons that make up a human brain so that the computer will be able to learn things and make decisions in a human-like manner. ANNs are created by programming regular computers to behave as though they are interconnected brain cells.

Architecture:

Analyzer

Previous Datasets

Working Engine data

Data from running Engines

Bringing

Required data

HTML

Backend

Resulting environment

Machine learning

Python tools

Creating mechanism

Flash tools which are properly programmed for prediction

Providing exact results