




# **HCL** **PREDICTIVE** **ANALYTICS SOLUTION**

A large jet engine is shown in a hangar, with its fan blades visible. The engine is mounted on a stand, and the hangar's metal structure is visible in the background. The lighting is warm, suggesting an indoor setting.

HCL Technologies has created an application built on SAP Cloud Platform that will support Proactive Maintenance of Engines to ensure that the Aircrafts have maximum Airtime and reduce unplanned downtime.

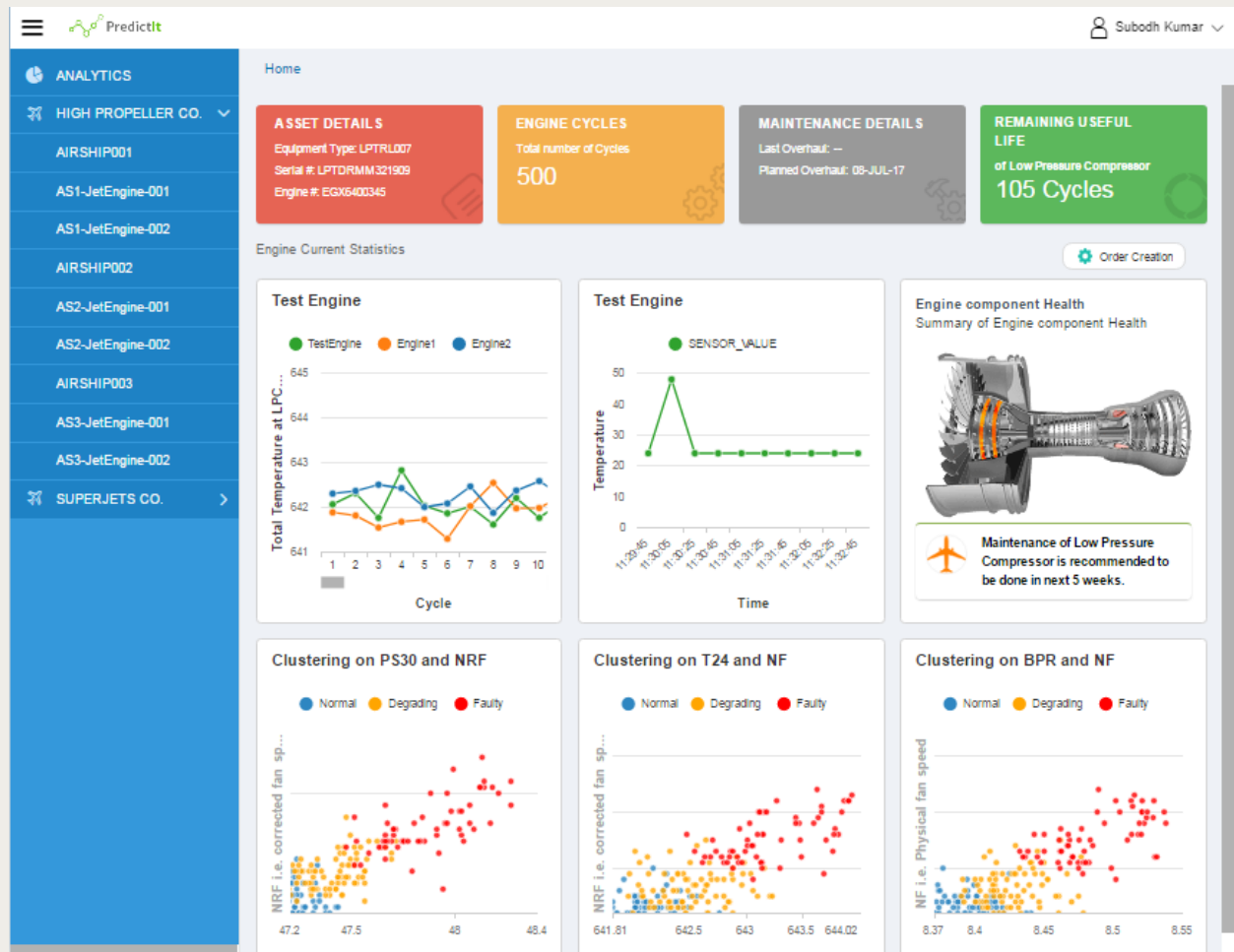
This solution utilizes services offered by SAP Cloud Platform to integrate IOT devices to address specific technical problems related to Engine maintenance and repair operations (MRO).

HCL's Aircraft Predictive Analytics will measure key parameters like Temperature, Pressure, Physical Fan speed, By Pass Ratio, etc. to predict remaining usable life of an Aircraft Engine and therefore plan Maintenance accordingly, with least disruption to operations..

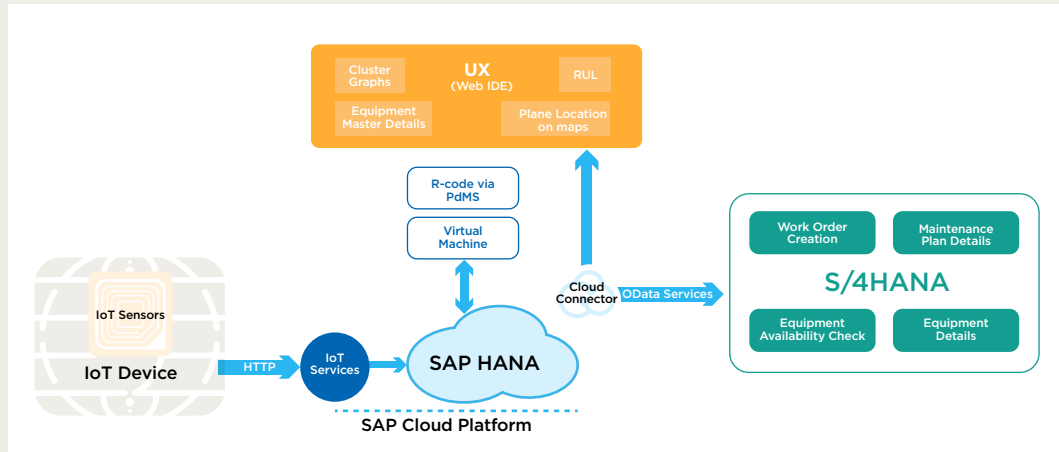


## Following are the key features of this application:

- Integration with IOT devices to address specific business problem related to Engine.
- Ability to view Engine Component Health.
- The solution can be used / deployed on PC or an iOS device (iPad).
- Ability to create Maintenance Work Orders in S/4 HANA or Gen2iMRO
- Integration with R to utilize its clustering algorithms; Uses PdMS / PAL (Predictive Analysis Library) in SAP HANA for RUL calculation Instead of R model to utilize the algorithms available in PAL (Predictive Analysis Library) in SAP HANA
- Proactive alerts based on user defined parameters



## HCL Aircraft Predictive Analytics - Architecture



### Value Proposition:

The application provides following key benefits:

- Supports Proactive Maintenance of Engines to ensure that the Aircrafts have maximum Airtime.
- Ability to Predict RUL (Remaining Useful Life) of an Aircraft Engine by measuring key parameters like Temperature, Pressure, Physical Fan speed, By Pass Ratio to predict remaining usable life of an Aircraft Engine.
- Reduction in Revenue loss by predicting failures of Aircraft Engines and optimizing service windows.

### Technologies Used:

- SAP Ui5
- Predictive services
- PAL Algorithm and Integration with R
- Integration with SAP S/4HANA
- Integration with IOT services - Utilize IOT service of SAP Cloud Platform to measure parameters
- SAP WebID from SAP Cloud Platform utilizing SAP Ui5



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