

Project Design Phase-I Problem – Solution Fit

Date	1 October 2022
Team ID	PNT2022TMID06086
Project Name	Project - Machine Learning-Based Predictive Analytics for Aircraft Engine
Maximum Marks	2 Marks

Problem-Solution fit canvas 2.0 Team ID: PNT2022TMID06086

<p style="text-align: center; font-weight: bold;">Define CS, fit into</p>	<p>1. CUSTOMER SEGMENT(S) CS</p> <ul style="list-style-type: none"> • Pilots • Passengers • Airline Companies • Maintenance Engineers 	<p>6. CUSTOMER CONSTRAINTS CC</p> <ul style="list-style-type: none"> • Aircraft engine failures happens very quickly hence prediction must be very fast. • Since there are many passengers in a flight the prediction must be very accurate. • The parameters of an aircraft engine varies frequently makes it complex to predict. 	<p>5. AVAILABLE SOLUTIONS AS</p> <ul style="list-style-type: none"> • Aircraft Engine Remaining Useful Life Prediction Framework for Industry • A rare failure detection model for aircraft predictive maintenance using a deep hybrid learning approach. • Predictive Maintenance of the Aircraft Engine Bleed Air System Component • Needs more downtime • Reliability analysis
<p style="text-align: center; font-weight: bold;">Focus on J&P, tap into BE, understand</p>	<p>2. JOBS-TO-BE-DONE / PROBLEMS JB</p> <ul style="list-style-type: none"> • Collecting parameter values of aircraft engine • Using the available parameters of aircraft engines to predict failure. • Engine failure leads to customer dissatisfaction. • Hence these should be resolved. 	<p>9. PROBLEM ROOT CAUSE R</p> <p>Aircraft engine failures happens due to</p> <ul style="list-style-type: none"> • Improper maintenance • Poor weather conditions • Other physical damages 	<p>7. BEHAVIOUR B</p> <ul style="list-style-type: none"> • Using the engine failure prediction one can avoid aircrashes. • Provides good fault predictions system • Easy for maintenance of an aircraft engine. • Risks are reduced for passengers
<p style="text-align: center; font-weight: bold;">Identify strong TR & EM</p>	<p>3. TRIGGERS TR</p> <ul style="list-style-type: none"> • To accurately predict the failure of an engine. • To track the flight. 	<p>10. YOUR SOLUTION SL</p> <ul style="list-style-type: none"> • Sensors can be used to predict the failures of the engine. • Fuel problems such as exhaustion should be prevented. • Structural failures such as broken connecting rod, crank, valve also be prevented 	<p>8. CHANNELS of BEHAVIOUR C</p> <p>8.1 ONLINE</p> <ul style="list-style-type: none"> • Track the status of the engine using the values provided by the sensors. <p>8.2 OFFLINE</p> <ul style="list-style-type: none"> • Check the engine regularly and maintain properly. • Check the fuel and oil levels regularly in the engine.
<p style="text-align: center; font-weight: bold;">Identify strong TR & EM</p>	<p>4. EMOTIONS: BEFORE / AFTER EM</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div> <ul style="list-style-type: none"> • unsafe • frustrated </div> <div style="font-size: 2em; color: green;">➡</div> <div> <ul style="list-style-type: none"> • safe • calm </div> </div>		

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