

Project Design Phase Problem – Solution Fit

Date	18 February 2026
Team ID	LTVIP2026TMIDS84143
Project Name	Electric Motor Temperature Prediction using Machine Learning
Maximum Marks	2 Marks

Problem – Solution Fit:

The Problem–Solution Fit canvas demonstrates that electric vehicle manufacturers and industrial maintenance teams face difficulty in measuring internal permanent magnet temperature due to high sensor cost and technical limitations. Existing solutions such as physical sensors and periodic inspections are expensive and inefficient.

The proposed machine learning-based web application directly addresses this gap by predicting motor temperature using available operational data. It aligns with customer behaviour by providing a cost-effective, real-time, and scalable predictive monitoring solution. This improves reliability, reduces maintenance costs, and enhances operational safety.

Problem-Solution Fit Canvas: Electric Motor Temperature Prediction

Perceive CS	1. CUSTOMER SEGMENT(S) CS Who is your customer? 1. Industrial engineers and maintenance teams 2. Electric vehicle manufacturers	6. CUSTOMER CONSTRAINTS CC What constraints prevent customers from taking action or limit their choice of solution? 1. High cost of sensors, 2. Lack of knowledge about predictive maintenance	5. AVAILABLE SOLUTIONS AS Which solutions are available to customers when they face the problem or need to get the job done? 1. Install physical temperature sensors inside motors (costly) 2. Manual periodic inspections (less accurate)	
	2. JOBS-TO-BE-DONE / PROBLEMS J&P Which jobs-to-be-done (problems) do you address for your customers? 1. Prevent electric motors from overheating 2. Enable predictive maintenance to avoid breakdowns	9. PROBLEM ROOT CAUSE RC What is the reason for the problem? 1. Internal PM temperature is hard to measure, 2. Sensors are expensive and complex to install	7. BEHAVIOUR BE Which does your customer do to address the problem and get the job done? 1. Install costly temperature sensors 2. Schedule and perform periodic inspections	
Behnigeert	3. TRIGGERS TR What triggers customers to act? i.e. seeing their neighbors installing solar panels, reading about a more efficient solution in the news. 1. Sudden motor failure 2. Rising maintenance costs	<div style="text-align: center;"> Machine learning web application </div>		8. BEHAVIOUR BE 1. Install costly temperature sensors 2. Schedule and perform periodic inspections
	3. TRIGGERS TR 1. Sudden motor failure 2. Rising maintenance costs			8.1. CHANNELS of BEHAVIOUR CH 8.1. ONLINE 1. Search for predictive maintenance solutions 2. Read articles and case studies about ML applications in industry
Pröy seuhinas kigilik SA	4. EMOTIONS: BEFORE / AFTER EM How do customers feel when they face a problem & afterward? (a lost, insecure > confident, in control — use it to your communication strategy & design. <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> BEFORE: Stressed, worried <small>20025, ng abt rastomare frat ure avo l care mactrive monitoring</small> BEFORE: Dressed, worried about motor failure </div> <div style="width: 45%;"> AFTER: Confident, in control with predictive monitoring </div> </div>	10. CHANNELS of BEHAVIOUR <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> 8.1. ONLINE 1. Search for predictive maintenance solutions 2. Read articles and case studies about ML applications in industry </div>		8.2. CHANNELS of BEHAVIOUR CH 8.1. ONLINE 1. Search for predictive maintenance solutions 2. Read articles and case studies about ML applications in industry 8.2. OFFLINE 1. Discuss motor maintenance issues in team meetings 2. Consult with motor equipment suppliers

References:

- <https://www.ideahackers.network/problem-solution-fit-canvas/>
- <https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe>