Ideation Phase
Define the Problem Statements

Date	31 January 2026
Team ID	LTVIP2026TMIDS38689
Project Name	Electric Motor Temperature Prediction using Machine Learning
Maximum Marks	2 Marks

Customer Problem Statement Template:

The problem statements above highlight a critical gap in industrial maintenance: the transition from **reactive** to **predictive** care. project addresses these specific pain points through the following technical architecture:

Data Driven Insights: Utilizing variables like ambient, torque, coolant, and motor_speed to build a robust feature set.

Predictive Modelling: Implementing **Random Forest Regressors** (as seen in sensor_model_train.py) to accurately forecast the pm (permanent magnet temperature) before it reaches critical levels.

Real-Time Accessibility: A **Flask-based web dashboard** (app.py) that allows these various customers (Maintenance Engineers, Plant Managers) to input data and receive immediate temperature predictions.

Example:

Problem Statement (PS)	**I am (Customer)**	**I'm trying to**	**But**	**Because**	**Which makes me feel**
PS-1	An industrial maintenance engineer	Monitor motor temperature to prevent overheating	I cannot predict temperature rise in advance	Traditional systems only detect faults after overheating occurs	Stressed about unexpected equipment failures and downtime

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-2	A plant manager	Ensure smooth and continuous production	Motors sometimes fail due to overheating	There is no predictive system to warn about future failures	Worried about production delays and financial losses
PS-3	A facility energy manager	Optimize energy efficiency of motors	Motors operate at inefficient temperature levels	Lack of real-time insights and predictive analytics	Frustrated by high energy costs and inefficiency
PS-4	An industrial operations supervisor	Improve equipment reliability and lifespan	Unexpected breakdowns interrupt operations	Overheating damages motor components over time	Concerned about maintenance costs and reduced equipment life