

Project Design Phase
Problem – Solution Fit Template

Date	20 Feb 2026
Team ID	LTVIP2026TMIDS65668
Project Name	Online-Payments-Fraud-Detection-using-Machine-Learning
Maximum Marks	2 Marks

Problem – Solution Fit Template: Wind Turbine Energy:

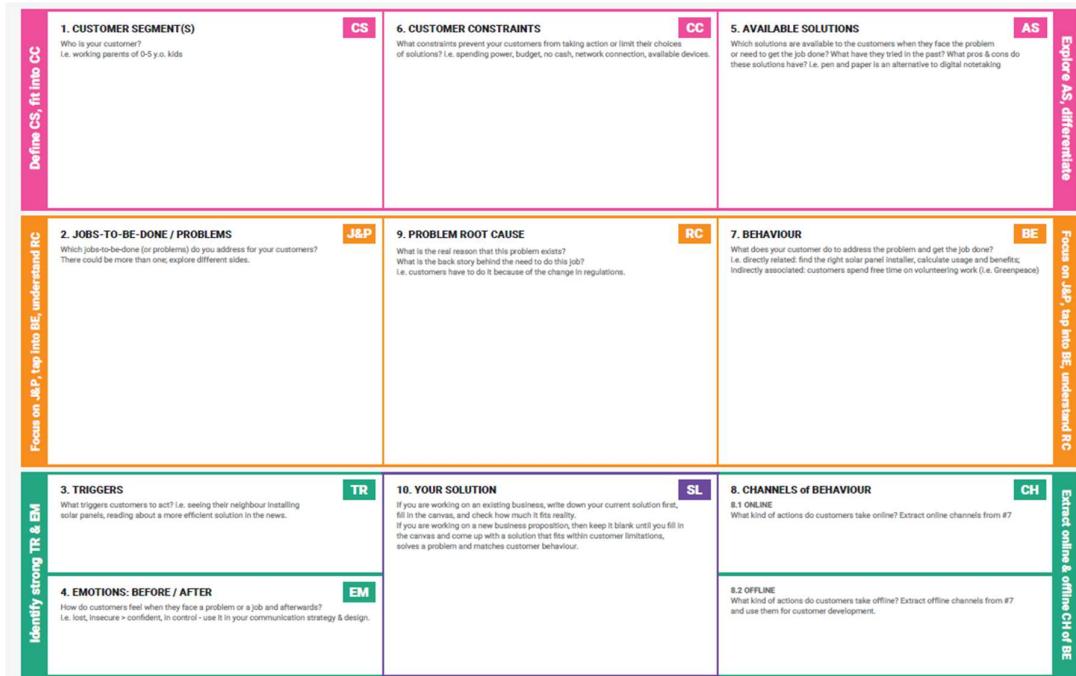
- Online payment platforms are facing increasing fraudulent transactions, leading to financial losses, customer distrust, and compliance risks. Traditional rule-based fraud detection systems are unable to detect evolving fraud patterns effectively.
- Develop a Machine Learning-based fraud detection system that analyzes transaction patterns and predicts fraudulent transactions in real-time using classification algorithms such as Random Forest and XGBoost.
- As online payment fraud increases, financial institutions need an intelligent, real-time fraud detection system that adapts to evolving fraud patterns — which our machine learning-based solution provides.
- **Grid Operators** find it difficult to balance renewable energy with traditional sources, leading to instability in the grid.

Solution:

The system will automate fraud detection using historical transaction data and deploy the trained model through a web-based application.

- ◆ **Step 1: Data Collection**
 - **Use historical online payment transaction data**
 - **Includes features like transaction type, amount, old & new balances, etc.**
- ◆ **Step 2: Data Preprocessing**
 - **Remove irrelevant columns**
 - **Handle missing values**
 - **Encode categorical variables**
 - **Split data into training & testing sets**
- ◆ **Step 3: Model Training**
 - **Train classification models such as:**

- Random Forest
 - Decision Tree
 - XGBoost (Best performing model)
- ◆ Step 4: Model Evaluation
- Evaluate using Accuracy, Precision, Recall, F1-Score
 - Select best-performing model
- ◆ Step 5: Deployment
- Save trained model as .pkl file
 - Integrate with Flask web application
 - Enable real-time fraud prediction



References:

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