Project Design Phase
Problem – Solution Fit Template

Date	19 February 2026
Team ID	LTVIP2026TMIDS83873
Project Name	**Smart-Sorting-Transfer-Learning-forIdentifying-Rotten-Fruits-and-Vegetables**
Maximum Marks	2 Marks

Problem – Solution Fit Overview:

The **Problem–Solution Fit** ensures that *Smart Sorting* effectively addresses the real-world challenges of freshness inspection in the food industry. This validation is essential before expanding the solution to other domains like retail and smart homes.

Purpose:

- Automate and simplify fruit/vegetable sorting

- Reduce labor dependency and human error

- Improve efficiency in food quality control

- Prevent food wastage through early detection

- Provide a low-cost, scalable AI-powered tool

Problem Statement:

Workers, retailers, and quality control professionals face several challenges such as:

- Manual sorting is slow, inconsistent, and prone to human error
- Difficult to process large quantities of produce efficiently
- No existing AI-based system in place for small- or mid-scale operations
- High chances of spoiled items reaching customers
- Lack of real-time tools for freshness inspection ● .

Solution:

Smart Sorting offers a fast and intelligent image-based detection system:

- **Upload-based interface for fruit/vegetable classification**

- **Real-time freshness prediction using a VGG16 model**

- **Easy-to-use, lightweight Flask-powered web app**

- **Supports use in supermarkets, warehouses, and smart homes**

- **Clear visual prediction results to aid sorting decisions**

- **Scalable model deployable via cloud platforms**