Project Design Phase
Problem – Solution Fit Template

Date	15 February 2025
Team ID	**LTVIP2025TMID35093**
Project Name	Smart Sorting & Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	2 Marks

Problem – Solution Fit Template:

☑ Problem

Manual sorting of fruits and vegetables is slow, inefficient, and prone to human error. Vendors and supply chain operators often struggle with detecting spoilage in time, leading to food waste, customer dissatisfaction, and economic loss. The current methods rely heavily on labor, are not scalable, and miss subtle signs of decay.

☑ Customer Segment

- Local fruit & vegetable vendors
- Cold storage managers
- Wholesale suppliers
- Small to mid-size agricultural businesses
- Farmer Producer Organizations (FPOs)

☑ Current Behavior / Pain Points

- Manual checking is time-consuming and inconsistent.
- Spoiled produce often goes undetected until it reaches the customer.
- Customer complaints reduce business credibility.
- Food loss reduces revenue.
- Many vendors lack access to affordable automation solutions.

☑ Proposed Solution

An AI-powered smart sorting system using transfer learning and low-cost hardware (e.g., Raspberry Pi and camera) to classify produce as fresh or rotten in real time. The system automates sorting and integrates with a dashboard or display interface for monitoring.

☑ Why This Solution Works

- Affordable and offline-capable (works without cloud dependency).
- Built using transfer learning, which needs less data and training time.
- Simple integration with existing sorting tables or belts.
- Reduces labor dependency and errors.
- Improves consistency, quality control, and trust with end customers.

☑ Fit Justification

The solution directly addresses a critical, costly problem faced by the target segment. It aligns with their current pain points and behavior (manual sorting) and offers a practical, easy-to-use alternative. The added value of automation and low operational costs increases the chance of rapid adoption and long-term impact.