Project Design Phase
Problem – Solution Fit Template

Date	22 June 2025
Team ID	LTVIP2025TMID35377
Project Name	Smart Sorting: Identifying rotten fruits and vegetables using transfer learning
Maximum Marks	2 Marks

Problem – Solution Fit Template:

The Problem–Solution Fit in this context means that we've identified a critical issue faced by farmers, vendors, and supply chain managers — difficulty in accurately and quickly identifying rotten fruits and vegetables — and developed an AI-based solution that uses transfer learning to automate spoilage detection, reducing waste, saving time, and improving efficiency.

Purpose:

❑ Help farmers, vendors, and distributors solve the critical problem of detecting spoiled fruits and vegetables using an accurate and easy-to-use AI solution that fits their daily operations.

❑ Accelerate adoption by leveraging existing devices like smartphones and familiar behavior like taking pictures, making the solution accessible even in rural or low-tech environments.

❑ Strengthen communication and outreach by using messaging that connects emotionally—focusing on reducing losses, ensuring quality, and building trust with buyers.

❑ Build stronger relationships with end-users by addressing real, everyday frustrations such as labor costs, manual errors, and unexpected spoilage, and by providing a reliable and fast alternative.

Template:

1. CUSTOMER SEGMENT(S):
- Small-scale farmers
- Fruit/vegetable vendors
- Agricultural cooperatives

6. CUSTOMER CONSTRAINTS
- Low budget or cash flow issues
- Lack of digital literacy or AI knowledge
- Poor internet connectivity in rural areas

5. AVAILABLE SOLUTIONS
- - Manual inspection by laborers
- Basic sorting machines (color/weight based)
- Chemical sensors (expensive)

2. JOBS-TO-BE-DONE / PROBLEMS:
- Reduce manual inspection time and labor costs
- Prevent mixing of fresh and rotten produce

9. PROBLEM ROOT CAUSE:
- Lack of affordable and accessible quality control tools
- High dependency on manual labor with low skill variance
- Supply chain delays lead to spoilage

7. BEHAVIOUR

Manually sort and check each item visually
- Employ additional seasonal labor during harvest
- Dispose bulk quantities when spoilage is noticed late
- Use visual scales to grade fruits

3. TRIGGERS

High product returns due to poor quality
Customer complaints or health concerns

4.EMOTIONS:BEFORE/AFTER:

Stage	Emotion
Before	**Stressed, uncertain, tired, overwhelmed, worried about loss**
	After: Relieved, confident, in control, satisfied, tech-

10. YOUR SOLUTION

Smart Sorting: AI-Based Detection of Rotten Fruits & Vegetables
- Use transfer learning with MobileNetV2 to detect spoilage early
- Deploy on mobile/web app using camera capture
- Classifies items as "Fresh" or "Rotten" with confidence scores
- Easy-to-use UI for farmers/vendors

8. CHANNELS OF BEHAVIOUR

8.1 ONLINE
- Search for agricultural best practices on YouTube
- Watch training or demo videos on smart farming

8.2 OFFLINE
- Attend farmer meetups, Krishi melas (agri fairs)
- Visit cooperative societies or agri-dealers
- Government training centers

References:

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