Project Design Phase
Problem – Solution Fit Template

Date	19 February 2026
Team ID	LTVIP2026TMIDS89552
Project Name	Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	2 Marks

Problem – Solution Fit:

Problem Statement

Consumers, retailers, and small-scale vendors often struggle to accurately identify whether fruits and vegetables are fresh or rotten. Visual inspection by humans can be inconsistent and subjective, especially when early signs of spoilage are not clearly visible.

This leads to:

- Food wastage due to incorrect rejection of good produce

- Health risks from consuming spoiled items

- Financial losses for vendors and suppliers

- Lack of standardized quality assessment

There is a need for an automated, fast, and reliable system that can classify fruits and vegetables as **healthy or rotten** using image-based detection.

Target Users

- Household consumers

- Grocery shop owners

- Supermarket chains

- Agricultural suppliers

- Food quality inspection teams

Customer Pain Points

- Difficulty identifying early-stage spoilage

- No technical tool for quick freshness verification

- Manual inspection is time-consuming

- Inconsistent quality grading

- Increased food waste

Proposed Solution

NutriGaze is a web-based application that uses a trained **CNN model (VGG16 transfer learning)** to classify fruits and vegetables as *healthy or rotten* based on uploaded images.

How the Solution Works:

1. User uploads an image of a fruit or vegetable.

2. The image is preprocessed.

3. The trained deep learning model analyzes visual features.

4. The system outputs predicted class (e.g., Tomato__Rotten, Apple__Healthy)

Purpose:

❏ Solve complex problems in a way that fits the state of your customers.
❏ Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
❏ Sharpen your communication and marketing strategy with the right triggers and messaging.
❏ Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
❏ **Understand the existing situation in order to improve it for your target group.**

Template:

References:

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