Project Design Phase
Proposed Solution Template

Date	28 January 2026
Team ID	LTVIP2026TMIDS62799
Project Name	Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1. 1	Problem Statement (Problem to be solved)	Manual identification of rotten fruits and vegetables in processing plants, supermarkets, and households is time-consuming, error-prone, and inefficient, leading to increased food waste, financial losses, and reduced customer satisfaction. There is a need for an automated, accurate, and real-time solution to detect and separate spoiled produce effectively.
2. 2	Idea / Solution Description	Smart Sorting uses transfer learning with pre-trained deep learning models to classify fruits and vegetables as fresh or rotten through image recognition. The system integrates cameras, AI-based classification, real-time alerts, and automated sorting mechanisms to improve quality control in industries and reduce food waste in homes.
3. 3	Novelty / Uniqueness	The project leverages transfer learning to achieve high accuracy with limited domain-specific datasets and applies the solution across multiple environments—food processing plants, supermarkets, and smart refrigerators—making it a versatile and scalable AI-driven quality monitoring system.
4. 4	Social Impact / Customer Satisfaction	The solution reduces food waste, improves food safety, enhances consumer trust by ensuring fresh produce availability, and helps households manage food efficiently, contributing to economic savings and environmental sustainability.
5. 5	Business Model (Revenue Model)	Revenue can be generated through subscription-based SaaS models for supermarkets and processing plants, licensing of the AI model, hardware integration partnerships (camera/sensor providers), and premium mobile app features for households.

6. 6	Scalability of the Solution	The solution is cloud-based and designed with scalable architecture, allowing it to handle increasing numbers of users, real-time camera feeds, and bulk image processing across multiple locations without performance degradation.