Project Design Phase
Proposed Solution Template

Team ID	LTVIP2025TMID38189
Project Name	smart sorting: transfer learning for identifying rotten fruits and vegetables
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Post-harvest losses due to delayed or inaccurate identification of rotten fruits and vegetables lead to significant food waste and economic loss. Manual sorting is inefficient, error-prone, and labour -intensive.
2.	Idea / Solution description	Develop an AI-powered smart sorting system using transfer learning (e.g., MobileNetV2 or ResNet50) to detect and classify rotten vs. fresh produce. The system captures real-time images, processes them, and activates mechanical sorters to separate the produce efficiently.
3.	Novelty / Uniqueness	Combines real-time image capture with fine-tuned deep learning models for high accuracy. Uses transfer learning to minimize training time and data requirements. Deployable on edge devices (like Raspberry Pi or smartphones) for affordability and portability.
4.	Social Impact / Customer Satisfaction	Reduces food waste, improves food safety, and enhances operational efficiency. Ensures better quality for end consumers and improves trust in food supply chains. Small farmers and vendors benefit from automation and increased earnings.
5.	Business Model (Revenue Model)	B2B sales to agriculture vendors, supermarkets, and food processing units. Subscription model for software updates and cloud-based analytics. Hardware kits for small-scale producers. Potential for white-label solutions for logistics and supply chains.
6.	Scalability of the Solution	Can scale across different types of fruits and vegetables with minimal retraining. Modular design allows integration with existing conveyor or packaging systems. Adaptable for use in rural, urban, and industrial settings.