Project Design Phase
Proposed Solution Template

Date	15 February 2025
Team ID	**LTVIP2025TMID35093**
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)**	Manual sorting of fruits and vegetables is time-consuming, error-prone, and often leads to quality issues, food waste, and customer dissatisfaction. There is a need for an affordable, intelligent solution to automate this process using AI.
2	**Idea / Solution Description**	The proposed solution uses a camera and edge AI (Raspberry Pi + MobileNetV2-based model) to classify fruits/vegetables as fresh or rotten in real-time. Based on the classification, a mechanical sorter separates the items into respective bins. This setup is compact, cost-effective, and ideal for vendors, warehouses, or cold storage.
3	**Novelty / Uniqueness**	The solution combines transfer learning with real-time edge computing on a low-cost device. It can be deployed without internet connectivity and is designed for small vendors as well as larger agricultural hubs. Unlike traditional methods, it doesn't rely on large-scale infrastructure.
4	**Social Impact / Customer Satisfaction**	Reduces food waste, ensures customers receive only fresh produce, and enhances trust in vendors. It also reduces labor costs and increases operational efficiency, making fresh food more accessible and safer for end consumers.

5	**Business Model (Revenue Model)**	Revenue can be generated through direct sales of the sorting units, subscription for dashboard analytics, on-demand retraining support, and white-labeling the solution for large-scale warehouses.
6	**Scalability of the Solution**	The solution is scalable to different types of produce, languages (in UI), and deployment environments—from local markets to industrial sorting lines. Cloud integration and multi-camera setups can further extend its capability.