

**Project Design Phase**  
**Proposed Solution Template**

Date	27 June 2025
Team ID	LTVIP2025TMID34022
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.	Problem Statement (Problem to be solved)	Post-harvest fruit loss due to manual and error-prone sorting processes affects both farmers' profits and consumer satisfaction. There's a need for a scalable, accurate solution.
2.	Idea / Solution description	This project develops a smart fruit-sorting system using transfer learning. A pre-trained CNN model identifies rotten fruits in real-time, triggering automated sorting using robotic arms.
3.	Novelty / Uniqueness	Unlike traditional image classifiers, this system applies fine-tuned deep learning models in a physical conveyor setup. It combines computer vision, automation, and practical agriculture.
4.	Social Impact / Customer Satisfaction	It reduces food waste, boosts agricultural productivity, and ensures better produce reaches consumers. Farmers and suppliers benefit from improved efficiency and profits.
5.	Business Model (Revenue Model)	This system can be commercialized as a plug-and-play product for farms and warehouses or licensed as a service model (FaaS - Farming as a Service). Maintenance and upgrades offer recurring revenue.
6.	Scalability of the Solution	The approach can be extended to other perishable goods like vegetables or flowers by training on respective datasets. With cloud-based model updates, deployment can be global.