

Project Design Phase
Proposed Solution Template

Date	28 June 2025
Team ID	LTVIP2025TMID41474
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 rotten fruits and vegetables in large-scale settings (like food processing units, supermarkets, and homes) is time-consuming, prone to human error, and contributes to unnecessary food waste. There is a strong need for an automated, intelligent system that can efficiently detect spoilage in real-time.
2.	Idea / Solution description	We propose a smart web-based application that uses transfer learning to classify fruits and vegetables as healthy or rotten. Users can simply upload an image of the item, and the system will analyze it using a fine-tuned deep learning model and provide an instant result.
3.	Novelty / Uniqueness	The project's novelty lies in its hardware-independent design — it requires only an image upload via a browser, avoiding the cost and complexity of real-time camera systems. By leveraging transfer learning , the system achieves high accuracy even with a limited dataset, making it suitable for real-world deployment in resource-constrained environments.
4.	Social Impact / Customer Satisfaction	This application contributes to reducing food waste , improving food safety , and empowering small-scale users (e.g., households, local sellers) with accessible technology. Early identification of spoiled produce helps avoid health risks and financial losses, contributing to overall societal well-being.
5.	Business Model (Revenue Model)	The platform can adopt a freemium model where basic predictions are free for individual users, while advanced features such as bulk analysis, report downloads, or API access are available under a subscription. It also has potential for B2B licensing in the food and retail industry.

6.	Scalability of the Solution	The architecture is scalable in terms of both data and functionality . It can be extended to include more produce types, additional spoilage categories, or integrated into broader quality control systems. Cloud-based deployment ensures it can serve multiple users simultaneously from various regions.
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