Project Design Phase
Proposed Solution Template

Date	19 February 2026
Team ID	LTVIP2026TMIDS89552
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)	Consumers and vendors face difficulty in accurately identifying whether fruits and vegetables are fresh or rotten. Manual inspection is subjective and inconsistent, leading to food wastage, health risks, and financial losses. There is a need for an automated, reliable freshness detection system.
2.	Idea / Solution description	NutriGaze is a web-based AI application that uses a deep learning model (VGG16 with transfer learning) to classify fruits and vegetables as *healthy or rotten* using image input. Users upload an image, the system preprocesses it, and the trained model predicts the freshness.
3.	Novelty / Uniqueness	Unlike traditional manual inspection, NutriGaze provides automated AI-based classification. It integrates deep learning with a simple web interface, making advanced image classification accessible to non-technical users. The system standardizes quality assessment and reduces dependency on human judgment.
4.	Social Impact / Customer Satisfaction	The solution helps reduce food waste, improves food safety, and supports healthier consumption. Vendors benefit from reduced losses, and consumers gain confidence in food quality.
5.	Business Model (Revenue Model)	Freemium model for individual users and subscription-based model for vendors and supermarkets. Revenue can be generated through premium features, API integration for retail chains, and enterprise licensing.
6.	Scalability of the Solution	The system follows a 3-tier architecture (UI → Flask Backend → ML Model). It can be deployed on cloud platforms (AWS/GCP/Azure). The model can be extended to include more categories or integrate IoT devices for smart retail systems.