

Project Design Phase Solution Architecture

Date	18 February 2026
Team ID	LTVIP2026TMIDS80710
Project Name	Smart Sorting: Transfer Learning for Identifying rotten fruits and vegetables
Maximum Marks	4 Marks

Solution Architecture:

- The **business problem** is the manual, time-consuming, and error-prone process of identifying and sorting rotten fruits and vegetables in agricultural, retail, and domestic environments.
- The **project uses computer vision** powered by **transfer learning with the VGG16 deep learning model**, trained on datasets of fresh and rotten fruits/vegetables to automate this identification process.
- The **system captures real-time images** of produce using camera devices installed in conveyor systems, supermarket docks, or refrigerators.
- These images are **pre-processed** and passed through a **fine-tuned VGG16 model**, which performs binary classification (Fresh vs Rotten).
- The architecture includes **data acquisition (image capture)**, **preprocessing (resizing, normalization)**, **model inference (VGG16)**, and **user interaction** (through dashboard or mobile app alerts).
- Deployment is supported via **Raspberry Pi for edge devices**, **Flask for interface**, and **cloud or local deployment** depending on use-case (industrial, retail, or smart home).

.Example - Solution Architecture Diagram and flow diagram

