Project Design Phase
Solution Architecture

Date	15 February 2025
Team ID	LTVIP2026TMID91218
Project Name	Transferring learning identification of rotten fruits and vegetables
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture defines how the business problem of food spoilage detection is translated into a technology-driven solution. In this project, the solution architecture bridges the gap between manual fruit and vegetable inspection and an automated AI-based quality detection system using transfer learning.

The architecture is designed to identify the best technological approach to reduce food wastage while ensuring usability, accuracy, and scalability. It clearly explains the structure, behavior, and interaction of system components to stakeholders such as developers, evaluators, and end users.

At the core, the solution enables users (farmers, vendors, inspectors) to upload or capture images of fruits and vegetables through a simple interface. These images are processed through an image preprocessing module and then analyzed by a pre-trained deep learning model. The model extracts features and classifies the produce as fresh or rotten, delivering fast and reliable results.

The architecture also defines:

- Key features such as image upload, classification, and result display
- Development phases including data collection, model training, testing, and deployment
- Solution requirements such as performance, reliability, security, and scalability

By providing clear specifications and modular design, the solution architecture ensures that the system can be developed, managed, enhanced, and delivered efficiently. It supports future expansion such as mobile apps, real-time camera integration, or cloud deployment.

Goals Achieved by This Solution Architecture

- ✓ Solves the business problem of inaccurate manual inspection
- ✓ Clearly communicates system structure to stakeholders
- ✓ Defines system features and development flow
- ✓ Ensures scalable and maintainable AI solution

Example - Solution Architecture Diagram: