

## Project Design Phase-II

### Technology Stack (Architecture & Stack)

Date	19 February 2026
Team ID	LTVIP2026TMIDS83873
Project Name	Smart-Sorting-Transfer-Learning-for-Identifying-Rotten-Fruits-and-Vegetables
Maximum Marks	4 Marks

#### **Technical Architecture:**

**Smart Sorting** is designed using a modular and scalable 3-tier architecture optimized for real-time image classification and user interactionPresentation

**Layer (Frontend):** User-friendly interface for patients and healthcare providers to book and manage appointments.

#### **1. Presentation Layer (Frontend)**

A clean, responsive user interface that allows users to upload an image and view results in real-time. It handles:

- File input (image upload)
- Result display (Fresh / Rotten)
- Error messages or prediction feedback

#### **2. Business Logic Layer (Backend)**

Handles all application logic including:

- File handling
- Image preprocessing
- Model prediction using a trained .h5 file (VGG16)
- Routing between frontend and backend (Flask)

#### **3. Data & Model Storage Layer**

- Temporarily stores uploaded image files
- Loads trained deep learning model from storage
- Optionally stores image predictions (in advanced versions)

S.N o	Component	Description	Technology
1.	User Interface	Web and mobile-friendly interface for patients and providers	HTML, CSS, JavaScript / React Js etc.
2.	Application Logic-1	Upload processing, file handling, image prediction	Python, Flask
3.	Application Logic-2	Model loading and classification logic	TensorFlow, Keras, VGG16
4.	Deployment and hosting	Web application hosting and live server	GitHub,

**Table-1 : Components & Technologies**

**Table-2: Application Characteristics**

S.N o	Characteristics	Description	Technology
5.	Open-Source Frameworks	Lightweight, customizable backend + frontend tools	Flask, HTML, CSS
6.	Transfer Learning	Uses pre-trained model for high accuracy predictions	TensorFlow + VGG16 (Keras)
7.	Scalable Deployment	Easily deployable on cloud platforms	Render.com, Gunicorn