

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	26 January 2026
Team ID	LTVIP2026TMIDS62799
Project Name	Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task 1)
FR-1	User Registration & Login	Registration through Email & Password
FR-2	Image Capture & Upload	Capture Image using Mobile Camera
FR-3	AI-Based Rotten/Fresh Detection	Apply Transfer Learning Model
FR-4	Automated Sorting (Plant Use Case)	Detect Rotten Items on Conveyor
FR-5	Real-Time Monitoring (Supermarket Use Case)	Bulk Shipment Scanning
FR-6	Smart Home Monitoring & Alerts	Continuous Fridge Monitoring

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The Smart Sorting system must provide a simple, intuitive, and user-friendly interface for mobile users, supermarket staff, and plant operators, enabling easy image capture, real-time result viewing, and report access with minimal training.
NFR-2	Security	The system must ensure secure user authentication, encrypted data transmission (HTTPS/SSL), protected image storage, and role-based access control to prevent unauthorized access to user data and AI models.
NFR-3	Reliability	The application must consistently provide accurate rotten/fresh classification results with high model accuracy and maintain stable operation during continuous real-time scanning in plants, supermarkets, and smart homes.
NFR-4	Performance	The system must process and classify images within a few seconds (low latency) to support real-time

		conveyor belt sorting and bulk shipment scanning without delays.
NFR-5	Availability	The application must maintain high uptime (e.g., 99% or above) using cloud infrastructure and backup services to ensure continuous monitoring and detection services.
NFR-6	Scalability	The architecture must support scaling to handle increasing numbers of users, image uploads, and real-time camera feeds by using cloud-based deployment and containerized services.