Project Design Phase-II

Solution Requirements (Functional & Non-functional)

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| Date | 26 June 2025 |
| Team ID | LTVIP2025TMID41465 |
| 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.

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| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | Capture Produce Images | Real-time image capture using cameras on conveyor belts, docks, or fridges |
| FR-2 | Preprocess Images | Resize, normalize, and convert images for model compatibility |
| FR-3 | Classification using Transfer Learning | Use fine-tuned MobileNetV2 model to classify produce as fresh or rotten |
| FR-4 | Display or Sort Results | Display results on dashboard or trigger sorting mechanism |

# Non-functional Requirements:

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

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| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | User-friendly dashboard/web/mobile interface for plant workers or home users |
| NFR-2 | **Security** | Local processing in home setup; secure API and restricted data access |
| NFR-3 | **Reliability** | Consistent predictions through trained and validated deep learning models |
| NFR-4 | **Performance** | Real-time classification (< 1 sec) with at least 93% accuracy |
| NFR-5 | **Availability** | Works 24/7 in plant/supermarket setup; user alerts in real-time |
| NFR-6 | **Scalability** | Easily expandable to other produce types and deployment environments |