**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

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| --- | --- |
| Date | 27 June 2025 |
| Team ID | LTVIP2025TMID35598 |
| 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)** |
| --- | --- | --- |
| **FR-1** | **User Registration** | **Registration through Form** |
|  |  | **Registration through Gmail** |
|  |  | **Registration through LinkedIn** |
| **FR-2** | **User Confirmation** | **Confirmation via Email** |
|  |  | **Confirmation via OTP** |
| **FR-3** | **Image Upload / Input** | **Upload image of fruits/vegetables** |
|  |  | **Capture image via camera** |
| **FR-4** | **Prediction / Smart Sorting** | **Identify rotten vs fresh produce using transfer learning** |
|  |  | **Provide confidence score for prediction** |
|  |  | **Suggest sorting action (e.g., discard / keep)** |
| **FR-5** | **View Results / Reports** | **Display classification result immediately** |
|  |  | **Show past predictions history (optional)** |
| **FR-6** | **Admin / Dataset Management (if applicable)** | **Upload new training data (admin)** |
|  |  | **Trigger model retraining (admin)** |

**Non-functional Requirements:**

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

| **FR No.** | **Non-Functional Requirement** | **Description** |
| --- | --- | --- |
| NFR-1 | **Usability** | The system should have a clean, intuitive UI for users to easily upload images and view results without technical expertise. |
| NFR-2 | **Security** | The system should protect user data (images, login info) using encryption and secure authentication methods. |
| NFR-3 | **Reliability** | The system should consistently provide accurate predictions with minimal failure or downtime during usage. |
| NFR-4 | **Performance** | The prediction response time should be under 2 seconds for a single image classification. |
| NFR-5 | **Availability** | The system should be available 24/7 with minimal service interruptions. |
| NFR-6 | Scalability | The solution should handle increasing users or image inputs by scaling the model inference service and storage infrastructure as needed. |