**Project Design Phase-II**

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

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| Date | 27 June 2025 |
| Team ID | LTVIP2025TMID34763 |
| Project Name | Pollen's Profiling: Automated Classification of Pollen Grains |
| 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 | 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 & Preprocessing | |  |  | | --- | --- | |  | Upload image of pollen grain |  |  |  |  | | --- | --- | --- | |  |  | Resize and normalize image (128x128) |  |  |  |  | | --- | --- | --- | |  |  | Validate file format and size | |
| FR-4 | |  | | --- | |  |  |  | | --- | | Image Classification | | |  | | --- | | Pass image through CNN model |  |  |  |  | | --- | --- | --- | |  |  | Predict pollen class and accuracy score | |
| FR-5 | Result Display | |  | | --- | | Display predicted class label to user |  |  |  |  | | --- | --- | --- | |  |  | Show confidence score and model explanation | |
| FR-6 | User Dashboard | |  |  | | --- | --- | |  | View upload history and prediction results |  |  |  |  | | --- | --- | --- | |  |  | Edit user profile | |

**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** | The web app should have an intuitive UI for smooth navigation and interaction. |
| NFR-2 | **Security** | User data, uploaded images, and login credentials must be protected (HTTPS, hashing). |
| NFR-3 | **Reliability** | The model should return consistent and accurate results for valid inputs. |
| NFR-4 | **Performance** | Image uploads and predictions should be processed within 3–5 seconds. |
| NFR-5 | **Availability** | The system should be available 99% of the time with minimal downtime. |
| NFR-6 | **Scalability** | The solution should support growing numbers of users and image uploads easily. |