

### 3. Requirements Analysis

#### 3.2 Solution Requirements (Functional & Non-functional)

Date	28 June 2025
Team ID	LTVIP2025TMID35678
Project Name	Pattern Sense: Classifying Fabric Patterns using Deep Learning
Maximum Marks	4 Marks

The Requirements Analysis phase identifies and documents both functional and non-functional requirements of the *Pattern Sense* project. This ensures the system meets the expectations of its users, remains technically sound, and operates efficiently.

#### Functional Requirements:

Functional requirements describe what the system should do. These include specific behaviors, processes, and features that the application must implement to fulfill its purpose.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)	Description
FR-1	Image Upload	- Upload image from device - Drag & drop image into input area	The user should be able to select or drag and drop a fabric image to classify.
FR-2	Pattern Classification	- Preprocess uploaded image - Run prediction using trained CNN model	System must preprocess the image and classify it using the trained CNN model.
FR-3	Prediction Result Display	- Show predicted pattern type - Display confidence score	After processing, the system should display the predicted pattern and confidence score.
FR-4	User Interaction Feedback	- Allow retry with new image - Provide feedback form or rating	Users can upload another image and optionally provide feedback on the prediction.

#### Non-functional Requirements:

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

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Interface should be intuitive and simple for users with little technical knowledge.
NFR-2	Security	Uploaded images must be securely handled using HTTPS, input validation, and isolation.
NFR-3	Reliability	System should consistently provide correct predictions and not crash unexpectedly.
NFR-4	Performance	The model should return predictions in under 3 seconds for a smooth experience.
NFR-5	Availability	The system should be available during demos and handle concurrent users smoothly.
NFR-6	Scalability	Solution should allow future expansion such as more pattern classes or users.