Project Design Phase-II

Solu on Requirements (Func onal & Non-func onal)

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| Date | 1 July 2025 |
| Team ID | LTVIP2025TMID44259 |
| Project Name | Pattern Sense: Classifying Fabric Patterns using  Deep Learning |
| Maximum Marks | 4 Marks |

Func onal Requirements:

Following are the func onal requirements of the proposed solu on.

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| FR No. | Func onal Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
| FR-1 | Image Input & Upload | Allow users to upload single fabric images via web interface |
| FR-2 | Pa ern Classifica on | Classify fabric images into predefined categories |
| FR-3 | Data Preprocessing | Normalize, resize, and centre images before model inference |

Non-func onal Requirements:

Following are the non-func onal requirements of the proposed solu on.

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| FR No. | Non-Func onal Requirement | Descrip on |
| NFR-1 | Performance | The system shall classify a single image in less than 2 seconds and handle batch uploads efficiently. |
| NFR-2 | Scalability | The system shall scale horizontally to process increasing numbers of users or images concurrently. |
| NFR-3 | Availability | The service shall maintain 99.5% up me during opera onal hours |
| NFR-4 | Security | All user data and API endpoints shall be secured via HTTPS and token-based authen ca on. |
| NFR-5 | Reliability | The system shall recover gracefully from errors and log all failed classifica ons for review. |