**Project Design Phase**

**Solution Architecture**

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| Date | 15 February 2025 |
| Team ID | LTVIP2025TMID20355 |
| Project Name | PATTERN SENSE |
| Maximum Marks | 4 Marks |

**🔧 Overview**

The architecture is modular, enabling end-to-end pattern classification using deep learning. It supports:

* Real-time image input
* Preprocessing and model inference
* Output of pattern classification with confidence score
* Optional integration for defect detection or quality control (QC)
*  **User Input & Interface**: Users upload fabric images via a web or mobile interface connected to a backend API.
*  **Preprocessing & API Layer**: The image is preprocessed (resized, normalized) and passed through a Flask/Django API for prediction.
*  **Model Inference Layer**: A trained deep learning model (e.g., CNN using TensorFlow/Keras) classifies the pattern (e.g., floral, striped) and returns confidence scores.
*  **Output & Storage**: The predicted label is displayed to the user; optionally, results are stored and used for quality control or analytics.

