# Project Design Phase

Proposed Solution Template

Date: 15 June 2025

Team ID: LTVIP2025TMID34516

Project Name: Pattern Scene - Classifying Fabric Patterns Using Deep Learning

Maximum Marks: 2 Marks

### 1. Problem Statement

Manual fabric pattern identification in textile industries is time-consuming, error-prone, and inconsistent across workers. This slows down inventory tagging, quality control, and cataloging processes.

### 2. Idea / Solution Description

We propose a deep learning-based system that uses Convolutional Neural Networks (CNNs) to classify fabric patterns from uploaded images. Users (designers, quality checkers, sellers) can upload photos and receive instant, accurate pattern labels (e.g., floral, striped, geometric).

### 3. Novelty / Uniqueness

Unlike traditional rule-based or barcode-based classification systems, this solution uses visual pattern recognition. It adapts to new designs through retraining and supports multi-language, mobile-friendly deployment.

### 4. Social Impact / Customer Satisfaction

The solution boosts productivity in textile businesses, reduces cognitive load on workers, and ensures high labeling accuracy. It supports visually impaired users with optional audio outputs and creates skilled employment in AI-support roles.

### 5. Business Model (Revenue Model)

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SaaS subscription model for manufacturers and B2B textile suppliers. Freemium version for small shops. Custom integrations and API access available on premium tiers.

### 6. Scalability of the Solution

The system is containerized and deployable on AWS/GCP. It scales horizontally for image upload and inference pipelines, and supports integration with existing ERPs or digital catalogs.