

Project Design Phase
Proposed Solution Template

Date	15 February 2025
Team ID	LTVIP2025TMID33870
Project Name	Pattern Sense: Classifying Fabric Patterns using Deep Learning
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Identifying and classifying fabric patterns manually is time-consuming and error-prone, especially in large-scale textile industries. Current systems lack automation and accuracy in differentiating between complex textile designs, which limits productivity and quality control.
2.	Idea / Solution description	Our solution, "Pattern Sense," is a deep learning-based system designed to automatically classify fabric patterns (such as floral, striped, geometric, etc.) from images. Leveraging convolutional neural networks (CNNs), it will accurately detect and label patterns to assist textile companies in inventory management, design verification, and automated quality checks.
3.	Novelty / Uniqueness	Pattern Sense stands out by combining computer vision with a domain-specific approach to textiles. Unlike generic image classifiers, it is trained on curated datasets specific to fabric types and patterns. The solution also includes an adaptive learning component that improves classification performance over time with new fabric data.
4.	Social Impact / Customer Satisfaction	This solution significantly reduces manual labor and inspection time, leading to increased operational efficiency. It benefits local textile artisans and industries by enabling technology adoption, enhancing quality standards, and supporting fair trade with verifiable labeling.
5.	Business Model (Revenue Model)	The business model includes B2B licensing of the software to textile manufacturers, monthly SaaS subscriptions for SMEs, and customization services for high-end fabric design houses. Future monetization can include integration with e-commerce platforms for automated cataloging.

6.	Scalability of the Solution	Pattern Sense is highly scalable due to its modular architecture. It can be expanded to support multiple languages, integrate with industrial cameras and ERP systems, and classify more complex patterns with minimal retraining. Cloud deployment ensures accessibility for manufacturers worldwide.
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