**Project Design Phase**

**Proposed Solution Template**

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| Date | 23 June 2025 |
| Team ID | LTVIP2025TMID35513 |
| Project Name | pattern sense: classifying fabric patterns using deep learning |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

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| **S.No.** | **Parameter** | **Description** |
|  | Problem Statement (Problem to be solved) | Fabric pattern recognition is largely manual, time-consuming, and prone to errors. Designers, manufacturers, and retailers struggle to accurately classify and catalog fabric patterns, leading to inventory issues, production delays, and limited automation in textile industry processes. |
|  | Idea / Solution description | A deep learning-based system that automatically classifies different fabric patterns (e.g., floral, geometric, striped) from images with high accuracy. This solution leverages convolutional neural networks (CNNs) to learn intricate features and provide consistent, fast, and scalable pattern recognition. |
|  | Novelty / Uniqueness | Unlike traditional manual or rule-based methods, this solution can learn from vast datasets and improve over time. It provides high precision even for complex or overlapping patterns and can be adapted to new fabric styles and trends with minimal retraining. |
|  | Social Impact / Customer Satisfaction | Reduces manual workload, increases operational efficiency, and helps designers focus on creativity instead of repetitive tasks. Manufacturers and retailers gain higher accuracy in cataloging and faster time to market, resulting in improved customer satisfaction and reduced operational costs. |
|  | Business Model (Revenue Model) | Licensing the AI-based software as a service (SaaS) to textile manufacturers, fashion retailers, and design studios. Additional revenue through custom model training, integrations, and data analytics services to provide deeper market insights. |
|  | Scalability of the Solution | Highly scalable across different fabric types and global markets. The solution can be trained on diverse datasets to support new patterns and trends, and deployed via cloud to accommodate large-scale industrial needs without compromising speed or accuracy. |