Project Design Phase ProposedSolutionTemplate

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| Date | 26June2025 |
| TeamID | LTVIP2025TMID33776 |
| ProjectName | Pattern sense:ClassifyingFabricPatternsusingDeep Learning |
| MaximumMarks | 2Marks |

**ProposedSolutionTemplate:**

Projectteamshallfillthefollowinginformationintheproposedsolutiontemplate.

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| **S.No.** | **Parameter** | **Description** |
| 1. | ProblemStatement(Problemtobe solved) | Manualfabricpatternclassificationis  time-consuming,inconsistent,anderror-prone. Existing automated systems fail to accurately recognizetraditionalanddiversepatterntypes, causingdelaysinproductionandqualitychecks. |
| 2. | Idea/Solutiondescription | Our solution is a deep learning-based image classificationsystemthatautomaticallydetects and classifies various fabric patterns with high accuracy.Themodelusesconvolutionalneural networks (CNNs), trained on a diverse dataset of fabric images, and provides real-time  feedbackwithconfidencescores. |
| 3. | Novelty/Uniqueness | The system integrates both modern and traditional pattern recognition. It includes confidence scoring, support for multiple uploads,andfeedbackloopstoimprovemodel accuracy continuously. |
| 4. | SocialImpact/CustomerSatisfaction | This solution reduces manual labor, increases efficiencyintextilemanufacturing,andensures quality consistency. Designers and quality control teams benefit from time savings and  improvedreliability. |
| 5. | BusinessModel(RevenueModel) | ThesystemcanbeofferedasaSaaSproductto textile companies with subscription-based pricing. A freemium model could include basic classification, while premium plans offer advanced analytics and customization. |
| 6. | ScalabilityoftheSolution | The model can scale to accommodate more pattern types and adapt to new datasets over time.Itcanalsobedeployedinotherdomains likefashiontech,e-commercefabricfilters,or even mobile applications for on-the-go fabric  recognition. |