**Project Planning Phase:**

**Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)**

|  |  |
| --- | --- |
| Date | 15 February 2025 |
| Team ID | LTVIP2025TMID38289 |
| Project Name | Fabrics using Deep-Learning |
| Maximum Marks | 5 Marks |

**✅ 1. Product Backlog**

A high-level list of all the features/tasks needed for the system.

| **ID** | **Feature / Task** | **Description** | **Priority** | **Est. Story Points** |
| --- | --- | --- | --- | --- |
| PB1 | Dataset Collection | Gather a labeled dataset of fabric images with types/defects. | High | 8 |
| PB2 | Data Preprocessing | Resize, normalize, augment, and clean images for model input. | High | 5 |
| PB3 | Train Deep Learning Model (CNN) | Build and train a convolutional neural network to detect fabric defects/types. | High | 13 |
| PB4 | Evaluate Model Performance | Calculate accuracy, precision, recall, F1-score, and confusion matrix. | Medium | 5 |
| PB5 | Integrate ChatGPT for Natural Descriptions | Use ChatGPT to generate natural explanations for model predictions. | Medium | 8 |
| PB6 | Build GUI/Frontend Interface | Simple UI for users to upload fabric images and view results. | High | 8 |
| PB7 | Store Prediction History in Database | Save prediction logs with timestamps and results. | Medium | 5 |
| PB8 | Admin Panel for Dataset Management | Upload/delete datasets and retrain model via admin controls. | Low | 8 |
| PB9 | Testing and Debugging | Functional testing and bug fixing across system components. | High | 5 |
| PB10 | Deployment and Hosting | Deploy app using cloud (Heroku/AWS/Render etc.). | Medium | 8 |

**2. Sprint Planning (Assume 2-week Sprints)**

| **Sprint** | **Sprint Goal** | **User Stories Covered** | **Story Points** |
| --- | --- | --- | --- |
| Sprint 1 | Prepare dataset and preprocessing pipeline | PB1, PB2 | 13 |
| Sprint 2 | Train and evaluate CNN model | PB3, PB4 | 18 |
| Sprint 3 | Integrate ChatGPT and build frontend | PB5, PB6 | 16 |
| Sprint 4 | Add database and admin functionalities | PB7, PB8 | 13 |
| Sprint 5 | Testing, bug fixing, and deployment | PB9, PB10 | 13 |

3. User Stories

| **User Story ID** | **As a...** | **I want to...** | **So that...** | **Est. Points** |
| --- | --- | --- | --- | --- |
| US1 | Developer | Upload fabric image datasets | I can use them to train the model | 3 |
| US2 | System | Preprocess and augment the dataset | It can improve training quality | 5 |
| US3 | System | Train the model on fabric images | It can learn to classify types or detect defects | 8 |
| US4 | Developer | Evaluate model with test data | I can verify performance and optimize it | 5 |
| US5 | User | Upload a fabric image | I can receive analysis and detection results | 3 |
| US6 | User | View ChatGPT's description of the prediction | I can understand results in a human-friendly manner | 5 |
| US7 | Admin | Access backend to retrain model | I can update the model with better data | 8 |
| US8 | Developer | Deploy system online | Others can use it remotely | 8 |

4. Story Points Scale (Effort Estimation Reference)

| **Story Points** | **Effort Estimate** | **Meaning** |
| --- | --- | --- |
| 1 | Very Low (~0.5 day) | Minor UI change or text fix |
| 3 | Low (~1 day) | Simple logic or single component |
| 5 | Medium (~2–3 days) | Moderate complexity task |
| 8 | High (~4–5 days) | Multi-step task with coordination |
| 13 | Very High (~1 week+) | Complex task with ML model or integration |

Reference :

<https://scrumguides.org/scrum-guide.html>

<https://www.atlassian.com/agile>

<https://docs.langchain.com/docs/integrations/chat/openai/>

<https://www.kaggle.com/datasets/aneesrahman/fabric-images>