**Project Design Phase**

**Proposed Solution Template**

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| --- | --- |
| Date |  |
| Team ID | LTVIP2025TMID38966 |
| Project Name | GRAINPALETTE |
| Maximum Marks | 4 Marks |

**Proposed Solution Template:**

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

| **S.No.** | **Parameter** | **Description** |
| --- | --- | --- |
| 1 | **Problem Statement** | Farmers, food inspectors, and traders face challenges in manually identifying and sorting different rice varieties, which is time-consuming and error-prone. |
| 2 | **Idea / Solution Description** | Grain Palette is an AI-powered image classification tool that uses deep learning (MobileNetV2) to automatically identify rice types from grain images. |
| 3 | **Novelty / Uniqueness** | Unlike manual methods or traditional classification systems, Grain Palette leverages transfer learning to offer high-speed, real-time, and accurate predictions using minimal training data. |
| 4 | **Social Impact / Customer Satisfaction** | It helps farmers and distributors ensure quality control, reduces human labor, and increases fairness in trade by minimizing misclassification. It also enhances food traceability. |
| 5 | **Business Model (Revenue Model)** | Revenue can be generated through SaaS subscriptions for food industries, mobile app sales for local farmers, and integration services for agritech companies. |
| 6 | **Scalability of the Solution** | The model can be scaled to include more grain types (wheat, barley, corn), support multiple languages, integrate with mobile apps, and be deployed globally via cloud APIs. |