**Project Design Phase**

**Proposed Solution**

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| Date | 26-06-2025 |
| Team ID | LTVIP2025TMID59656 |
| Project Name | Enchanted Wings: Marvels of Butterfly Species |
| Maximum Marks | 2 Marks |

**Proposed Solution for Enchanted Wings: Marvels of Butterfly Species.**

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| **S. No.** | **Parameter** | **Description** |
| **1** | **Problem Statement** (Problem to be solved) | Researchers, conservationists, and enthusiasts often struggle with identifying butterfly species due to visual similarity, fragmented data, and lack of accessible tools for monitoring and classification. Manual efforts are time-consuming and error-prone. |
| **2** | **Idea / Solution Description** | *Enchanted Wings* is an AI-powered platform designed to automatically identify butterfly species through image recognition, while also offering an extensive database, predictive ecological insights, and public engagement tools. The system supports research, conservation, and education through an intuitive interface, real-time predictions, and citizen science participation. |
| **3** | **Novelty / Uniqueness** | - Deep learning-based image recognition for species classification  - Predictive analysis of butterfly population dynamics and migration  - Centralized, accessible ecological database  - Interactive maps and species visualizations  - Mobile and web apps supporting crowd-sourced data collection |
| **4** | **Social Impact / Customer Satisfaction** | -Promotes biodiversity conservation and ecological awareness  - Empowers students, researchers, and citizen scientists with user-friendly tools  - Bridges the gap between technology and environmental science  - Encourages participation in environmental tracking and stewardship |
| **5** | **Business Model (Revenue Model)** | - Freemium access to public with premium tools for researchers and institutions  - Licensing to academic and environmental organizations  - Partnerships with biodiversity NGOs and ecological tourism bodies  - Branded educational content and workshops |
| **6** | **Scalability of the Solution** | - AI model scalable to other insect or plant species  - Modular and API-based backend architecture  - Cloud-enabled infrastructure for large-scale image processing  - Expandable to global butterfly species and ecosystems |