Proposed Solution Template

Date: 27 June 2025
Team ID : LTVIP2025TMID45523
Project Name: Enchanted Wings: Marvels of Butterfly Species
Maximum Marks: 2 Marks

Proposed Solution Template

Enchanted Wings leverages transfer learning to classify 6499 images across 75 butterfly species, enabling biodiversity monitoring, ecological research, and citizen science. The project team shall fill the following information to outline the proposed solution for accurate and accessible butterfly species identification.

Proposed Solution Table

S.NO	Parameter	Description
1.	Problem Statement (Problem to be solved)	Manual butterfly identification is time-consuming, error-prone, and inaccessible for non-experts, hindering biodiversity monitoring and conservation efforts
2.	Idea / Solution description	A mobile app and API using a fine-tuned ResNet-50 model for real-time butterfly classification, integrated with geolocation tagging and a citizen science platform for data submission and educational content.
3.	Novelty / Uniqueness	Combines lightweight transfer learning for low-resource devices, geolocation-based species mapping, and an accessible app interface,

		enabling both experts and non-experts to contribute to global biodiversity databases.
4.	Social Impact / Customer Satisfaction	Empowers citizen scientists, researchers, and ecologists with accurate, user-friendly tools, promoting conservation awareness, enhancing research efficiency, and fostering public engagement in environmental efforts.
5.	Business Model (Revenue Model)	Freemium model: Free app with basic features; premium subscription for advanced features (e.g., offline mode, detailed analytics). Partnerships with conservation organizations and research institutions for data licensing.
6.	Scalability of the Solution	Cloud-based API supports global user base; model optimization ensures compatibility with low-end devices; expandable database accommodates growing image and metadata contributions.