Project Design Phase
Proposed Solution Template

Date	2 July 2025
Team ID	LTVIP2025TMID36817
Project Name	Enchanted wings: marvels of butterfly species
Maximum Marks	2 Marks

Proposed Solution Template:

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

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Identifying butterfly species manually is slow and requires expert knowledge, making it difficult for researchers to scale biodiversity studies. It also excludes students and nature lovers from participating. An automated system is needed to simplify and speed up the process for all users.
2.	Idea / Solution description	We propose an AI-based butterfly classification system using transfer learning with models like MobileNetV2 or EfficientNetB0. Trained on 6,499 images across 75 species, it will identify butterflies from images accurately and efficiently. The tool will run on mobile and web platforms for ease of access
3.	Novelty / Uniqueness	This solution is focused solely on butterflies, unlike generic wildlife classifiers. It is lightweight, works offline, and is optimized for real-time use in the field. It also encourages user image contributions to improve the model continuously
4.	Social Impact / Customer Satisfaction	The tool enables researchers, students, and nature enthusiasts to engage in biodiversity tracking with ease. It promotes environmental awareness and citizen science. Its accessibility and

		accuracy will lead to higher user satisfaction and better conservation outcomes
5.	Business Model (Revenue Model)	A freemium model offers basic features for free and advanced tools for paid users. Institutions can license the tool, and CSR partners can support wider adoption. Schools and colleges can use the tool in educational packages to enhance learning
6.	Scalability of the Solution	The model can easily expand to cover more species and regions. It can be adapted for other organisms like birds or plants. As user data increases, the system becomes smarter, making it highly scalable for global ecological use