Annexure -A

Registration form for Minor Project-I

Student Details

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Project Information

Proposed Project Title: Edge-Aided Plant Species Identification Using Leaf Image Analysis and Hybrid Classification Techniques

Domain/Area of Specialization: Computer Vision

Preferred Faculty Guide : Sitanshu kar

Tentative Abstract:

Figuring out the plant species from a simple leaf image sounds easy, but it's actually quite tricky—especially when images are taken in the real world. There might be shadows, blur, messy backgrounds, or just plain noise. In this project, we're planning to build a plant recognition system that still works well, even when the image quality isn't great.

We'll be testing four classic edge detection methods—Sobel, Prewitt, Laplacian of Gaussian, and Canny—to see which one best captures the shape and vein structure of leaves. Before that, we'll process the images by making them grayscale, resizing them, and adding noise at three levels: low, medium, and high, to simulate real conditions.

After applying the methods, we'll check how each one performs based on things like image clarity (PSNR), similarity to the original (SSIM), processing time, and how effectively it captures the edges. We're mainly trying to see which method still gives decent results when the image isn't perfect. Hopefully, what we learn here will make it easier to build basic tools that can help with plant.

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Group No:	**Section:**	**Project Category (ML/DL/NLP/IoT/AI/Cyber Security/Others)**

Approval Signatures

Supervisor **Class Teacher** **Dr. Neelamadhab Padhy**
Dy. Dean Computational Science(R&D)
Project Coordinator, 4th Year