Project Report
Team Number: 14

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Abstract

The goal of this project is to develop a model that predicts plant scientific names or general names based on given images. The dataset used for training the model contains images of various plants, well-labeled with scientific or general names.

1 PROBLEM FORMULATION:

The project aims to address the challenge of plant recognition by leveraging machine learning techniques. The primary problem involves accurately identifying and classifying various plant species from images, contributing to ecological and botanical research.

2 QUICK LITERATURE SURVEY:

Reviewing existing literature reveals a diverse range of approaches to plant recognition, including deep learning models, feature-based methods, and hybrid approaches. Noteworthy studies[1] have demonstrated the effectiveness of convolutional neural networks (CNNs) in image-based plant classification.

3 METHOD:

Our proposed methodology involves the development of a deep neural network, utilizing a pre-trained CNN architecture like ResNet or MobileNet for feature extraction. Transfer learning will be employed to fine-tune the model on a dataset containing labeled images of diverse plant species. Data augmentation techniques will enhance model robustness, and the final model will be evaluated using standard metrics such as accuracy, precision, and recall.

We will be using TensorFlow for Deep Learning Framework,CNN for image classification tasks, OpenCV which can assist in image preprocessing, manipulation, and feature extraction.

This approach aims to create a reliable plant recognition model applicable to ecological studies, conservation efforts, and educational purposes.

4 REFERENCES

[1] https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9076426&isnumber=9076357

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[1]B. K. Varghese, A. Augustine, J. M. Babu, D. Sunny and S. Cherian, "INFOPLANT: Plant Recognition using Convolutional Neural Networks," 2020 Fourth International Conference on Computing Methodologies and Communication (ICCMC), Erode, India, 2020, pp. 800-807, doi: 10.1109/ICCMC48092.2020.ICCMC-000149.