Amrita School of Computing
Department of Computer Science and Engineering

Minor Project: 19CSE495
(2020-2024 B.Tech CSE)

Problem Definition Document

I. Project Title:

Paddy Leaf Disease Detection Using Thermal Images and Deep Learning Algorithms

II. Team members:

Roll No.	Name
AM.EN.U4CSE20117	BOLLEPALLI RAVI CHANDU
AM.EN.U4CSE20121	DATLA ANINDH VARMA
AM.EN.U4CSE20123	EDDULA CHANGALA REDDY JAYESH
AM.EN.U4CSE20160	S N V V S GOWTHAM TADAVARTHY

III. Abstract

Paddy leaf diseases are a major threat to rice production, causing significant yield losses. Traditional methods for disease detection are labor-intensive and time-consuming, and they often cannot detect diseases early enough to take effective action.

This study presents an innovative approach for paddy leaf disease detection using thermal imaging and deep learning algorithms. Thermal imaging can capture temperature variations in paddy leaves, which can be used to identify the presence and severity of diseases. Deep learning algorithms, specifically convolutional neural networks (CNNs), can be used to classify diseases based on their thermal signatures.

The proposed methodology involves collecting thermal images of healthy and diseased paddy leaves. These images are preprocessed to enhance quality, and then a CNN-based deep learning model is trained to distinguish between healthy and diseased leaves. Performance evaluation on a comprehensive dataset demonstrates the effectiveness of the approach, achieving high accuracy in detecting various paddy leaf diseases.

IV. Motivation

The motivation for choosing paddy leaf disease detection lies in the need to address the challenges faced by farmers in managing and mitigating the impact of leaf diseases on paddy crops. By implementing effective disease detection methods, farmers can improve crop health, increase yields, and ensure food security
For Example,

Imagine a farmer who has invested a significant amount of time and money into growing paddy rice. As the crop grows, the farmer notices that the leaves don't look healthy. However, the farmer is not sure what is happening, and before they know it, the disease has spread to other leaves, causing significant damage and reducing the yield. If the farmer had access to a system that uses thermal imaging and deep learning algorithms to detect paddy leaf diseases, they could have identified the disease at the early stage and preventive measures could have been taken.

Students' Name and Signature

BOLLEPALLI RAVI CHANDU :

DATLA ANINDH VARMA :

EDDULA CHANGALA REDDY JAYESH :

S N V V S GOWTHAM TADAVARTHY :

Guide's Signature