Synopsis Presentation on

Deep Learning-Based Mobile and Web App for Multi-Plant Disease Detection and Treatment

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Multi-Plant Disease Detection and Treatment

Deep Learning-Based Mobile and Web App
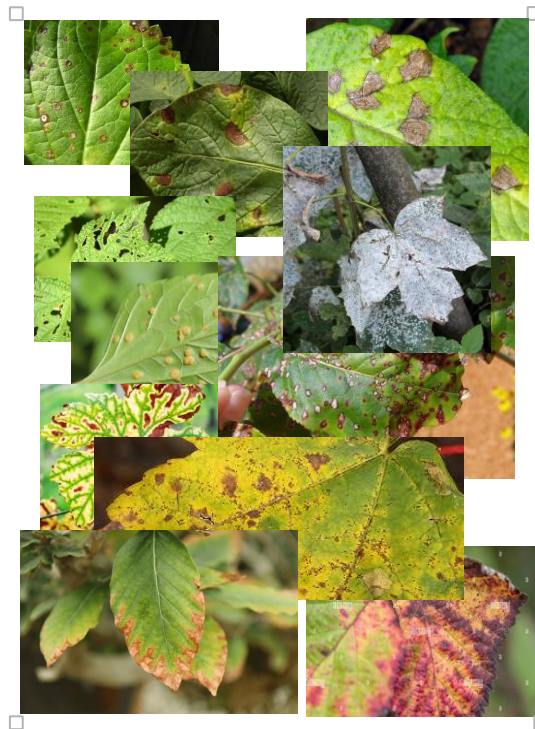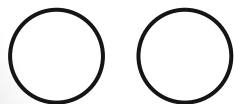
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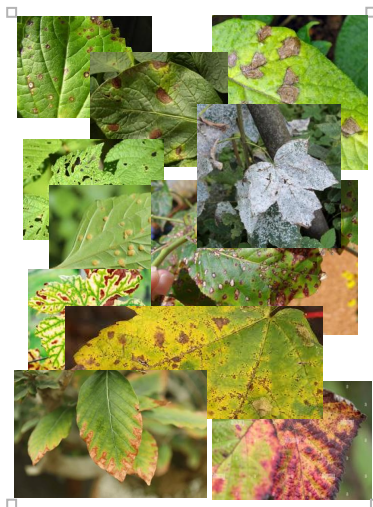
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INTRODUCTION TO AI, ML, AND DEEP LEARNING

AI

AI, or Artificial Intelligence, is when computers are made to think and learn like humans. It helps machines solve problems, understand speech, recognize images, and even play games. AI is used in things like smartphones, online searches, and self-driving cars.

ML

Machine learning is a type of AI where computers learn from data instead of being directly programmed. It's like teaching a computer to spot patterns and make decisions on its own, based on examples. For instance, if you show a machine many pictures of cats and dogs, it can learn to tell the difference between them.

DEEP LEARNING

Deep learning is a kind of machine learning that uses structures called neural networks, which are designed to work like the human brain. These networks have many layers, allowing the computer to learn from huge amounts of data

LEAVES

DISEASE
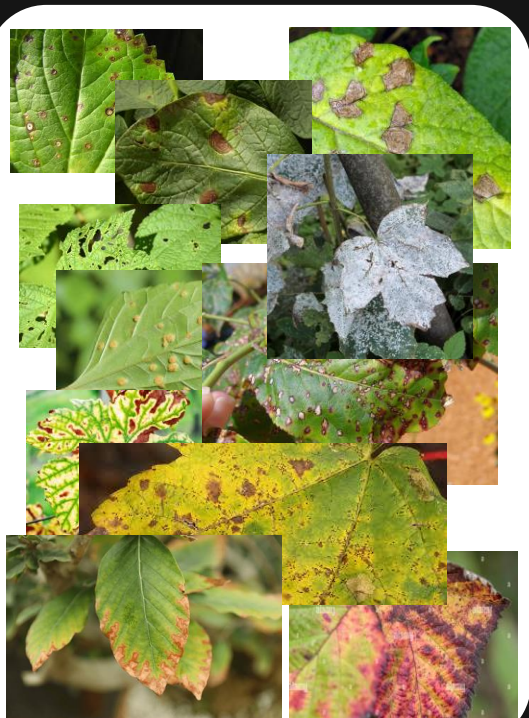
PROBLEM STATEMENT

This project focuses on developing a deep learning-based solution for early detection of plant leaf diseases to protect crop yield and quality. It will classify diseases in plant leaves and offer treatment recommendations. A mobile and web app will allow users to upload images for disease diagnosis, view treatment options, and purchase suggested products.

OBJECTIVES

IDENTIFY PLANT DISEASES

Develop a system that can detect multiple types of diseases in different plants using images or data

ACCURATE DIAGNOSIS

Ensure the system correctly identifies the specific disease affecting a plant

PROVIDE TREATMENT SUGGESTIONS

Offer appropriate treatment methods or solutions for each detected disease

LITERATURE SURVEY

SL. No.	Year	Author	Paper
1	2020	Sue Han Lee et al.	Plant disease characterization based on deep learning
2	2016	Trivedi J et al.	Deep Neural Networks Based Recognition of Plant Diseases by Leaf Image Classification
3	2019	Hussain M et al.	CNN Transfer Learning for Image Classification
4	2016	Mohanty Sharada P et al.	Using Deep Learning for Image-Based Plant Disease Detection

METHODOLOGY

- Data Collection & Preprocessing
- Algorithms for Plant Disease Classification
- API Development with FastAPI
- Mobile App Development
- Web App Development
- Database
- Deployment

ARCHITECTURE

Data Cleaning and Pre-Processing

FastAPI

Model Building

React

Web and Mobile App
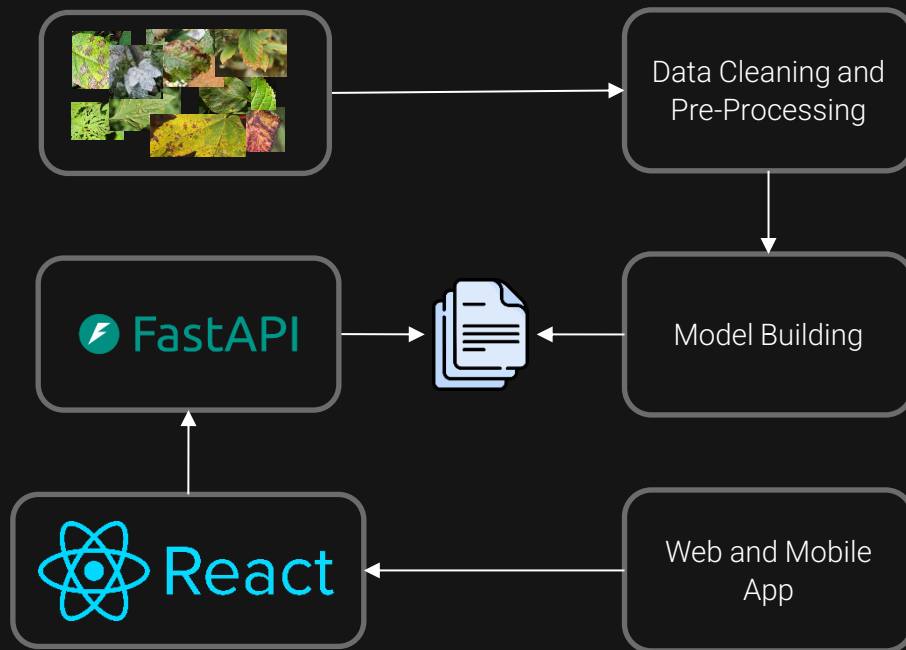
REQUIREMENTS

SOFTWARE

- FastAPI
- TensorFlow/Keras
- ReactJS
- React Native
- MySQL
- AWS/GCP
- Postman

HARDWARE

- Cloud GPU for model training
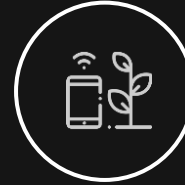- Android/iOS devices for deployment

Applications

Agriculture and Farming

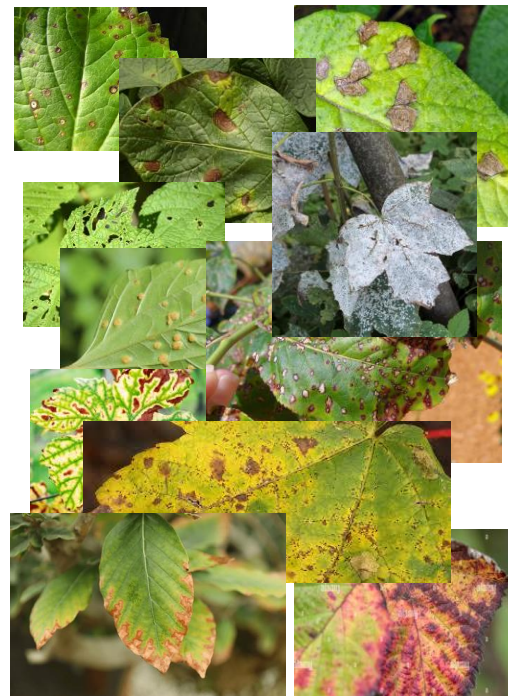**Agri tech Solutions**

E-Commerce

Educational Tool

REFERENCES

1. Ebrahim Hirani, Varun Magotra, Jainam Jain, Pramod Bide, **"Plant Disease Detection Using Deep Learning"**, IEEE 2021 6th International Conference for Convergence in Technology (I2CT)

2. Preview project work **"Potato Disease Classification"**

3. **Dataset:** PlantVillage Dataset

THANK YOU