Plant Disease Detection Web App

GitHub Repository Description

Project Overview

A deep learning-based web application that detects plant diseases from leaf images using Transfer Learning (ResNet / MobileNet) models. The system is built with Python Flask and uses MongoDB for storing prediction results and user data.

Features

- Upload plant leaf images (JPG/PNG)
- Automatic image preprocessing
- Disease prediction using pretrained ResNet / MobileNet
- Confidence score display
- Treatment & prevention suggestions
- Store prediction history in MongoDB
- Lightweight Flask-based backend
- Easy cloud deployment

Model Details

- Transfer Learning using pretrained CNN models (ResNet / MobileNet)
- Fine-tuned on plant disease dataset (e.g., PlantVillage)
- Input size: 224x224 RGB images
- Output: Disease class label with probability score

Tech Stack

- Python 3.8+
- Flask
- TensorFlow / PyTorch
- MongoDB (NoSQL Database)
- PyMongo
- NumPy & OpenCV

- HTML, CSS, JavaScript

Database (MongoDB)

- Stores uploaded image metadata
- Saves prediction results with timestamp
- Maintains user history (optional authentication support)
- Scalable and cloud-ready (MongoDB Atlas supported)

Objective

To assist farmers, researchers, and agricultural professionals in early plant disease detection, enabling timely treatment and improved crop yield through AI-powered insights.