

# SMART INDIA HACKATHON 2024

- Problem Statement ID – 1638
- Problem Statement Title –AI Driven Crop Disease Prediction and Management System
- Theme-Agriculture , Food Tech and Rural development
- PS Category – Software
- Team ID –
- Team Name (Registered on portal)- Team Predestinato



# Objective

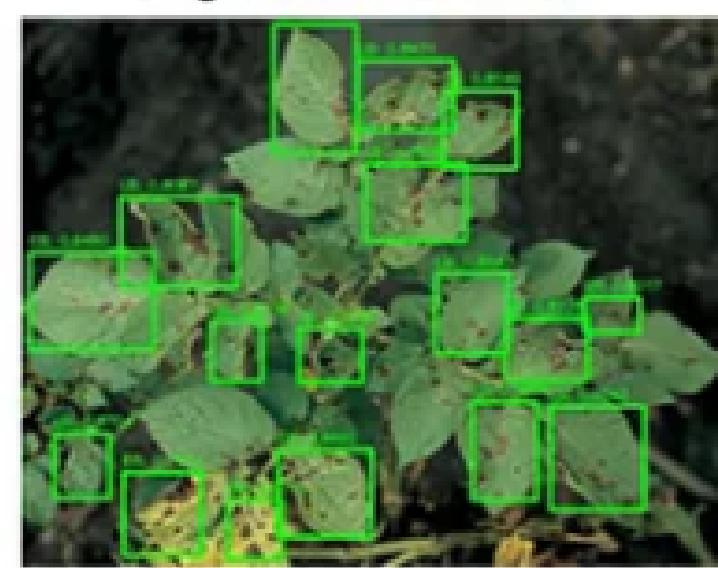
- Development of a mobile and web app that uses machine learning to identify crop diseases early.
- Analyzes crop photos and environmental data to predict disease outbreaks.
- Provides personalized treatment suggestions to help farmers act quickly and improve yields.

Classification

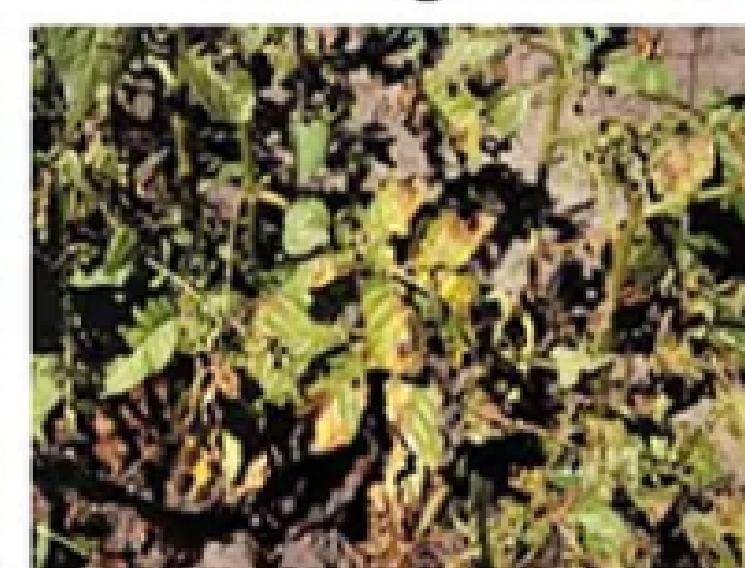


Potato early blight

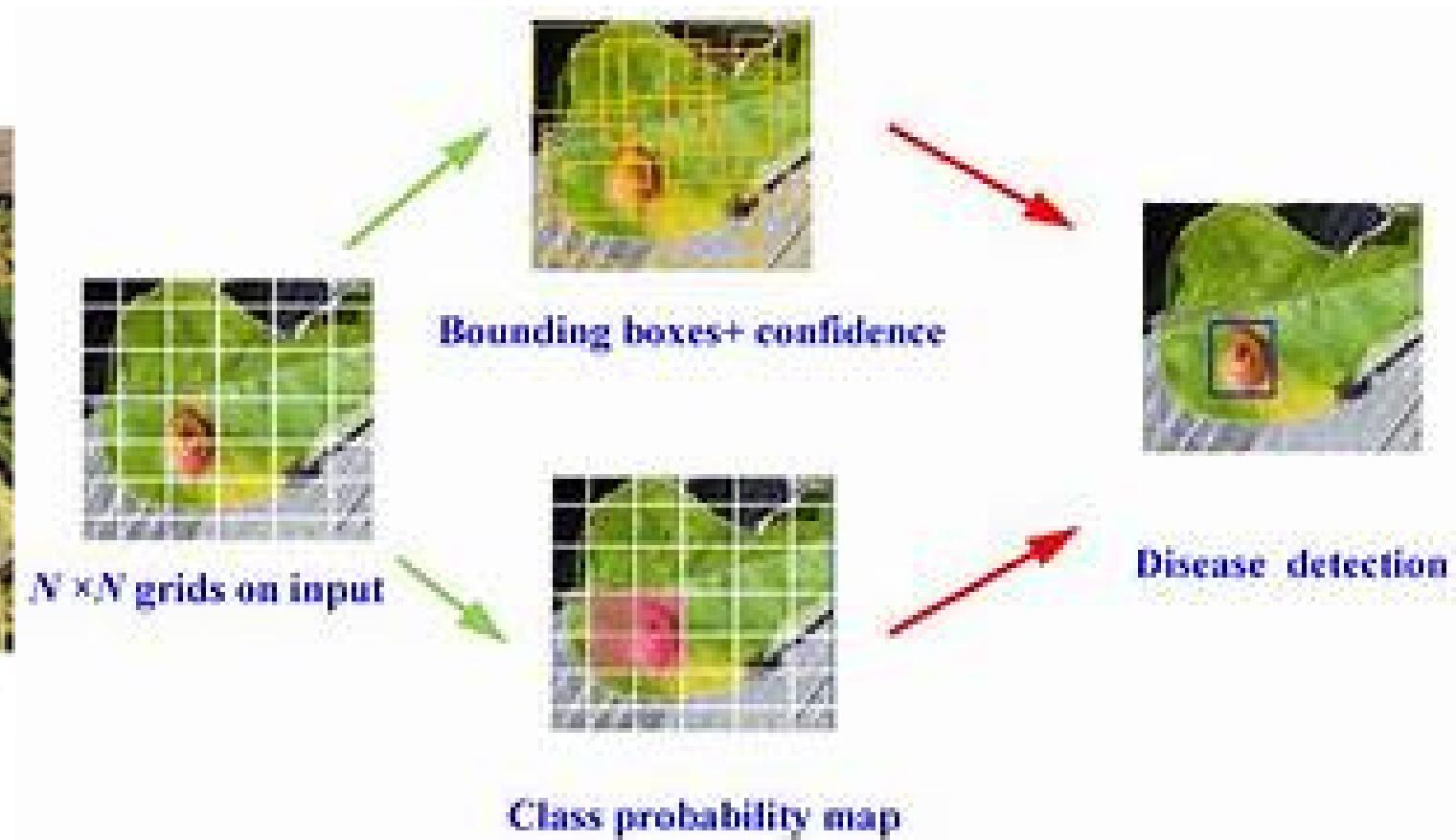
Object detection



Color segmentation

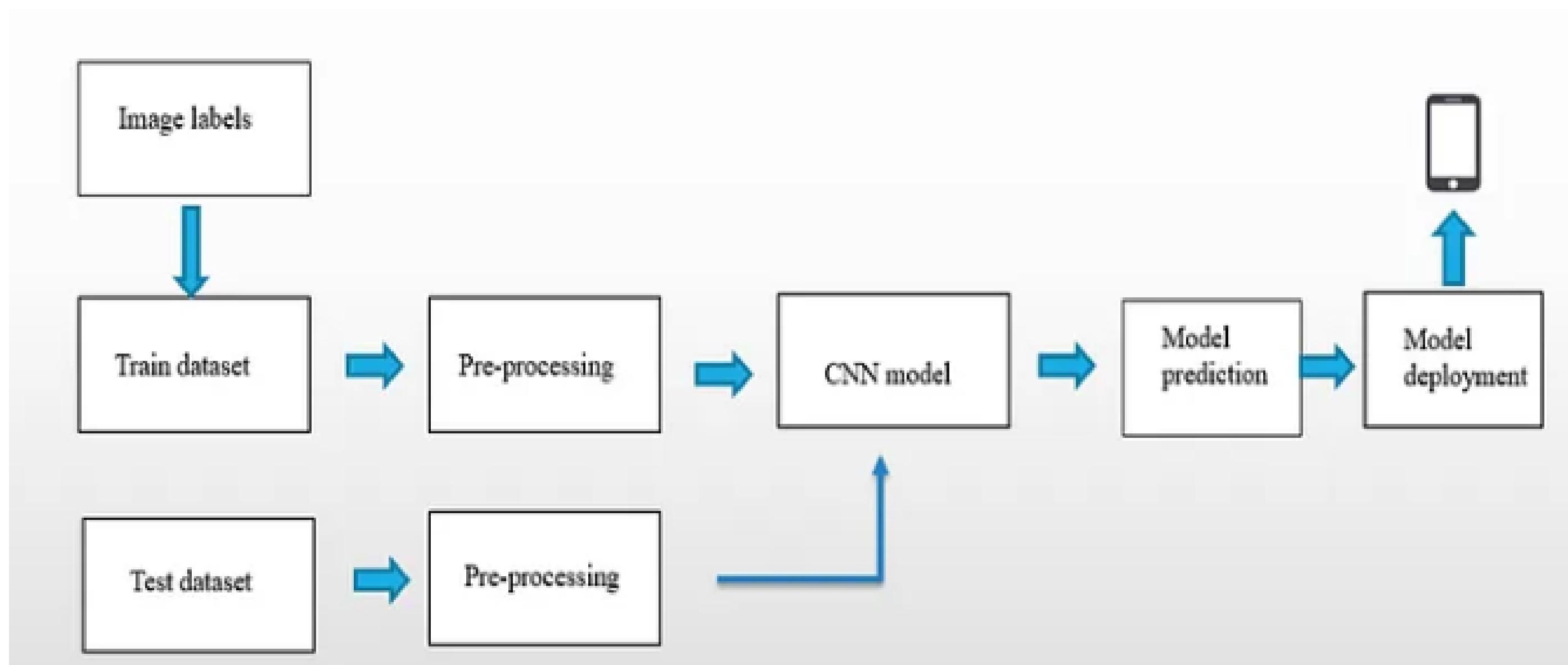


98% disease severity



# Proposed Solution

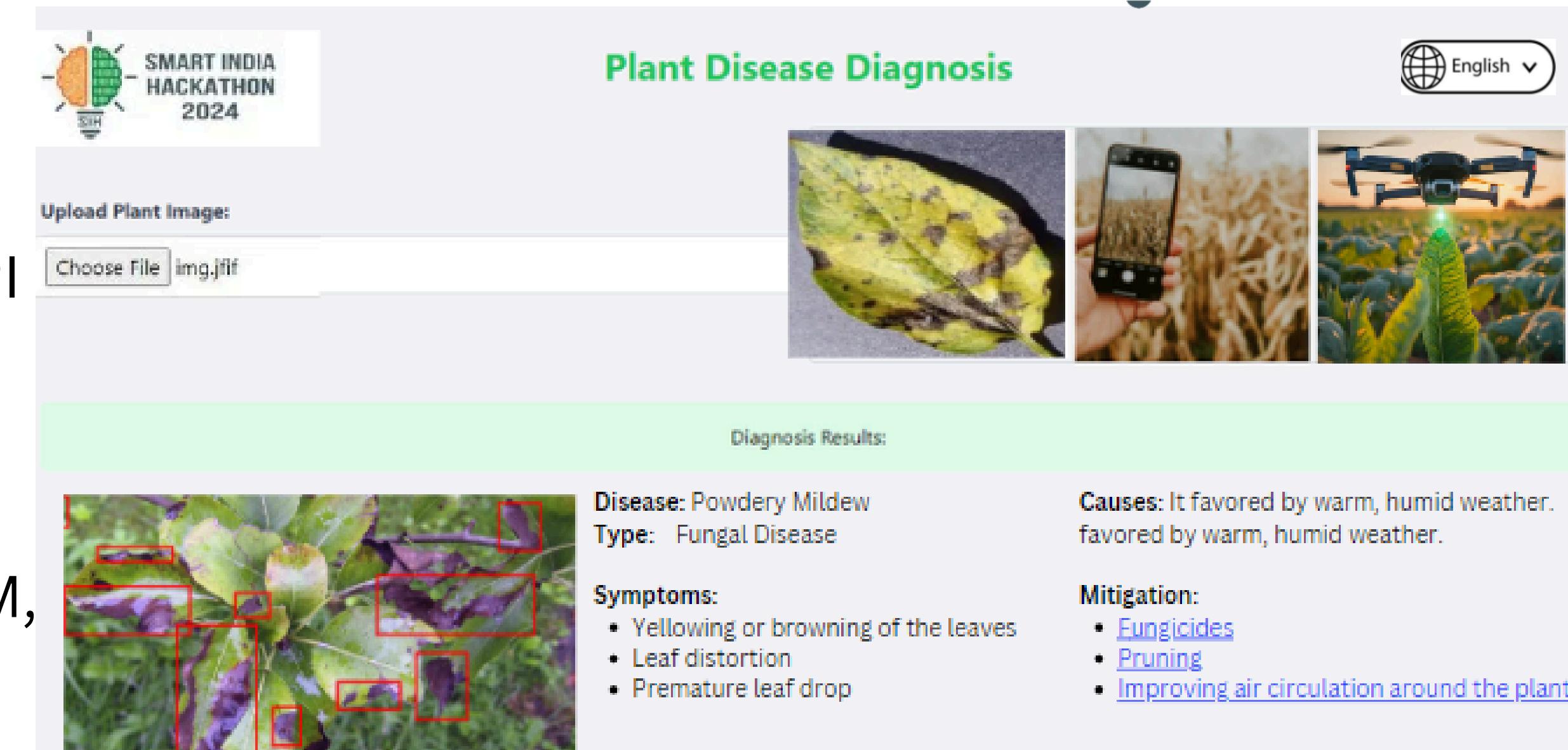
- The system analyzes crop images and sensor data in real-time to detect early signs of disease and provides tailored treatment recommendations.
- It includes video tutorials to help farmers improve crop yield and prevent diseases.



# Prototype

## APIS/LIBRARIES USED:

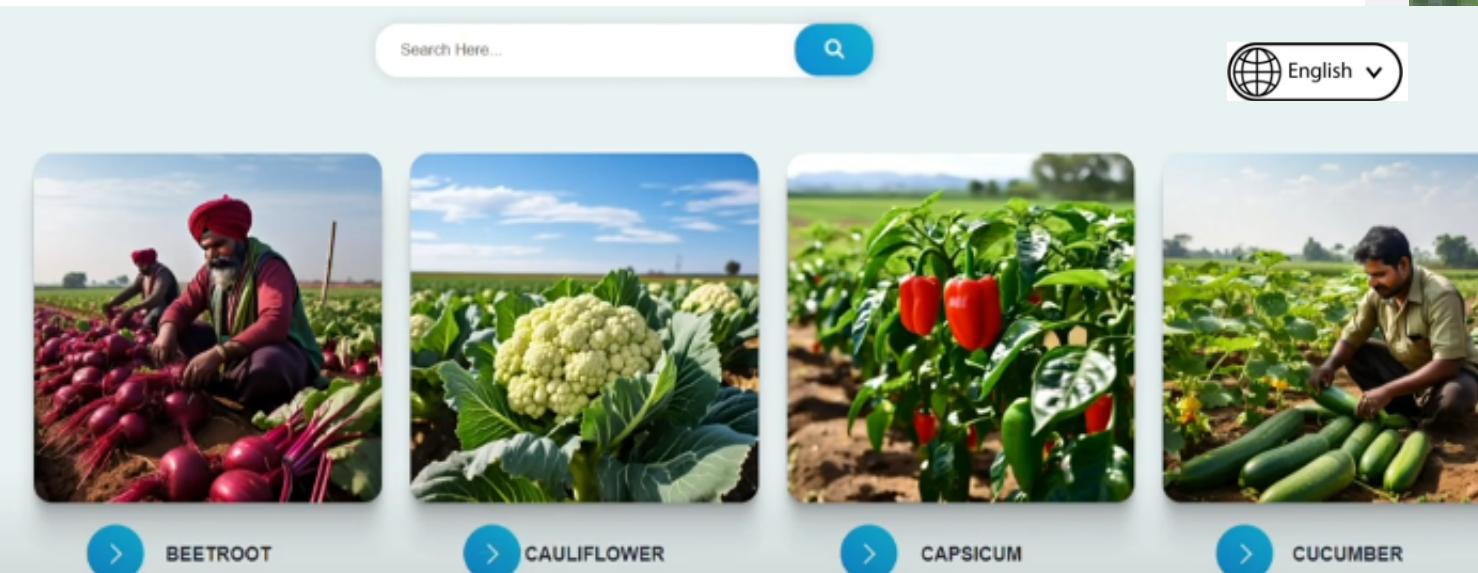
- TensorFlow API
- Open Weather Map API
- Sentinel Hub and Twilio API
- NumPy ,Pandas ,OpenCV



The interface shows a "Plant Disease Diagnosis" section. At the top, there's a "Upload Plant Image:" input field with a "Choose File" button and a file name "img.jpg". Below this is a large image of a leaf with several red boxes highlighting specific symptoms. To the right, under "Diagnosis Results:", it says "Disease: Powdery Mildew" and "Type: Fungal Disease". It also lists "Symptoms:" such as "Yellowing or browning of the leaves", "Leaf distortion", and "Premature leaf drop". On the far right, there's a "Causes:" section stating "It favored by warm, humid weather." and a "Mitigation:" section with links to "Fungicides", "Pruning", and "Improving air circulation around the plants.". The top right corner features a language selection dropdown set to "English".

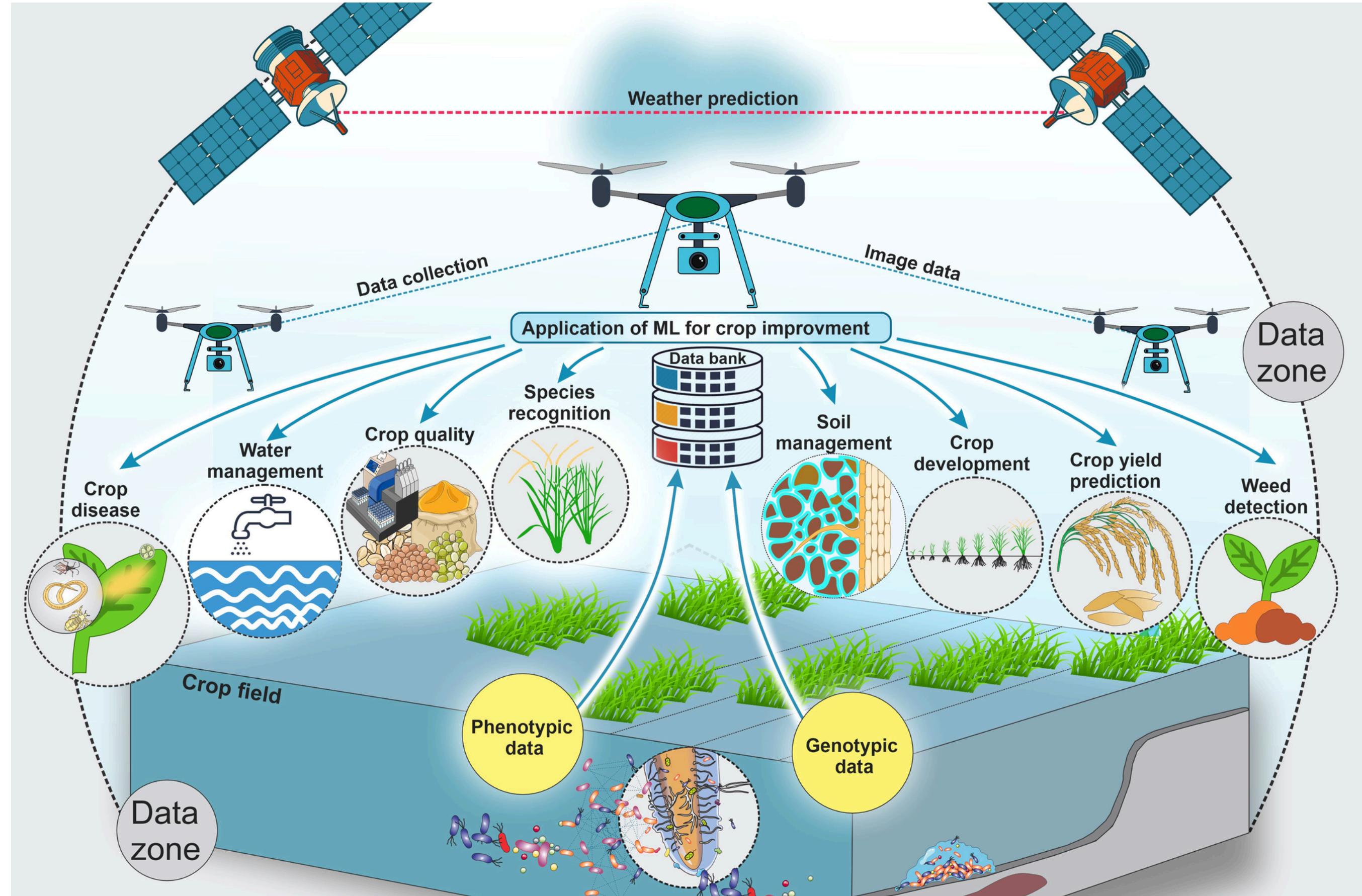
## ALGORITHMS USED:

- CNN, Random Forest, LSTM, Support Vector Machine



The interface includes a search bar with a placeholder "Search Here..." and a magnifying glass icon. Below the search bar is a language selection dropdown set to "English". A grid of four images shows different crops: Beetroot, Cauliflower, Capsicum, and Cucumber. Each image has a circular navigation arrow below it. The bottom row also contains labels: "BEETROOT", "CAULIFLOWER", "CAPSICUM", and "CUCUMBER".

# Impact and Benefits



# References

- Crop Disease Detection with AI
- Image Processing Using CNN
- Plant Disease Classification Dataset
- Weather API
- Satellite Imaging API
- Drone API
- TensorFlow