Crop Disease Detection

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Introduction

The global economy loses over $220 billion each year to plant diseases, and at least $70 billion to invasive insects.

Losses to food crops from diseases range from 8.1–21.0% in potato , 24.6–40.9% in rice, 19.5–41.1% in maize.

Up to 40% of global crop production is lost to plant pests and diseases each year.

Problem Statement

Despite advancements in agriculture, crop diseases continue to pose a significant threat, causing substantial yield losses worldwide. Farmers often struggle with the laborious task of manually identifying diseases, leading to delays in treatment and further crop damage. Addressing these challenges is crucial for ensuring food security and sustainable agricultural practices.
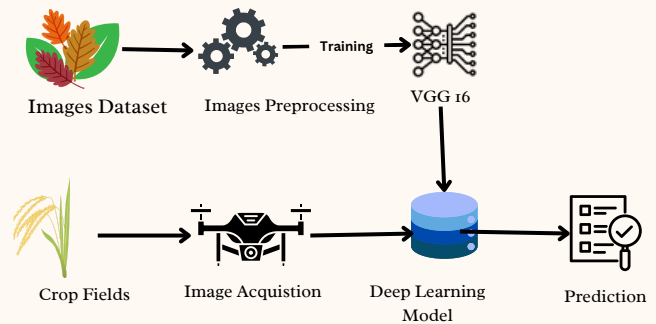
Solution

Our solution leverages cutting-edge artificial intelligence algorithms specifically designed to analyze and interpret data effectively. By processing diverse datasets collected from various sources, our system can accurately identify and classify critical patterns in real-time.

- Advanced Algorithm: Utilizing state-of-the-art machine learning models, such as VGG-16, for precise recognition and categorization of complex datasets.
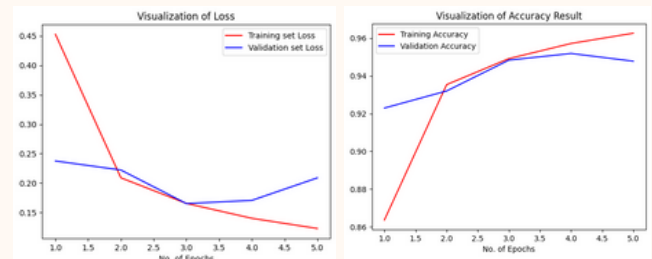
Bibliography

O. Kulkarni, "Crop disease detection using deep learning," in 2018 Fourth International Conference on Computing Communication Control and Automation (ICCUBEA), 2018, pp. 1–4.

Methodology

Images Dataset — Images Preprocessing — Training — VGG 16

Crop Fields — Image Acquistion — Deep Learning Model — Prediction

Result/findings

Impacts

Enhanced Crop Yield

Reduced Chemical Usage

Farmer Empowerment

Future Work

- Combine visual and audio cues for better detection.
- Improve model for varied environmental conditions.
- Integrate drones for large-scale crop monitoring

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