

Project Name

Agriculture and Food Sustainability with AI - Disease Detection

Group Members:

- Abenezer Tesfaye
- Shewanek Zewdu
- Emran Kamil
- Hewan
- Biniyam Berga

Project Objective:

Crop diseases reduce agricultural yields, threatening food security. This project aims to develop an AI system using image recognition to detect crop diseases early, enabling farmers and agricultural technicians to act swiftly and provide solutions. This project could be scaled to benefit diverse crops and regions, amplifying its impact on a country's agriculture.

Relevance to Sustainable Development Goals (SDGs):

This project aligns with SDG 2: Zero Hunger by enhancing food security through sustainable agriculture and SDG 12: Responsible Consumption and Production by minimizing crop waste.

Literature Examples:

Example 1: A study used convolutional neural networks (CNNs) to classify leaf images and detect diseases in crops like tomatoes with high accuracy. [link](#)

Example 2: Research combined drone imagery with AI to monitor fields for disease outbreaks in real-time. [link](#)

Data Description:

- **Source:** PlantVillage dataset with labeled images of healthy and diseased plants.
- **Format:** JPEG/PNG images.
- **Size:** hundreds of crop images.
- **Preprocessing:** Resize images, normalize pixel values, augment data, and etc

Approach:

Deep Learning (CNNs) is chosen for its ability to handle complex image patterns, ideal for distinguishing healthy and diseased plants.

