AI-BASED CROP DISEASE DETECTION AND TREATMENT RECOMMENDATION SYSTEM.

1. Introduction

This project aims on designing a system to identify plant diseases based on the pictures of the leaves of the specific leaves and recommend the necessary steps to avoid the disease in the future.

2. Objectives

- Collect and clean the necessary datasets that are used for the model through the web and real-world.
- Train an Neural Network based on the collected data to successfully find out the disease.
- Find the disease that the plant is having based on the leaf and the spots on the leaves.
- Recommend the necessary steps that must be taken to cure the plant or to avoid the disease in the future.

3. Background and problem statement

The crop disease detection Is important part of knowing the future of the plants, such as predicting the crop health and the output. However, in the past this was done with the use of people who knows well about the plants and who has seen the diseases. The advancements of the technology have introduced us many methods to address these kinds of problems such as using machine learning and AI to find out what kind of disease is the plant having and based on the disease, we can give the recommendations and advise as what has to be done.

4. Technologies to be used

- **Python** – for the main coding purposes
- **Matplotlib** – for the data visualization purposes
- **Keras** – for Machine learning purposes
- **Pandas** – for data manipulation purposes
- **Scikit-learn** – for general machine learning purposes
- **OpenCV** – for computer vision
- And other python supported libraries for the purpose.

5. Other planned advancements for the project

Once all the objectives have been achieved other planned advancements can be added to the project.

- Using a robotic car equipped with camera and other hardware to analyse plant leaves in a crop to demonstrate the usage of the system in the real world.
- Make the application easily accessible to the users through an app or a website.
- Add more variety of plants and their diseases to the system.