

Lettuce Leaf Deficiency Detection Utilizing Deep Learning

CSE 478

Neural Network and Fuzzy Systems Lab

Project proposal

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Project Title

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Project Purpose

This project aims to develop a deep learning model that can automatically detect deficiencies in lettuce leaves. This would help farmers to identify and address deficiencies early, which could help to improve crop yields and quality. Detection can allow growers to take corrective action, such as adding fertilizer or adjusting the irrigation schedule, to prevent further damage. Deep learning can be used to detect nutrient deficiencies in a variety of conditions, making it more versatile and applicable to a wider range of growers. The specific goals of this project are to:

1. Collect a dataset of images of lettuce leaves with different nutrient deficiencies.
2. Train a deep learning model .
3. Evaluate the performance of the model on a test dataset.
4. Deploy the model to a web application that farmers can use to diagnose deficiencies in their lettuce plants.

Problem Statement

Lettuce leaf deficiency is a common problem that can lead to reduced yield and quality of lettuce crops. Deep learning can be used to develop a system for the early detection of lettuce leaf deficiency. The model can then be used to classify new images of lettuce leaves and identify any present deficiencies.

Objectives

- 1.To develop a deep learning model as CNN that can accurately detect different types of deficiencies in lettuce leaves.
- 2.To train the model on a large lettuce dataset of images of healthy and deficient lettuce leaves from Kaggle(dataset size 354 MB).
- 3.To evaluate the performance of the model on a test dataset of images.