Tomato Farming 2.0: Predicting Disease And Fertilizer Recommendation

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Overview

Introduction

- Machine learning is used for a wide range of applications across various domains due to its ability to automate tasks, make predictions, and extract insights from data.
- Deep Learning has led to great performance in various fields like Image Recognition, Speech Recognition, and Natural Language Processing.
- Convolutional Neural Networks (CNNs) are a specialized type of deep learning model designed for processing grid-like data, such as images and videos.

Problem Statement

- Delayed disease detection and imprecise fertilizer application pose significant challenges in tomato crop management, leading to yield losses and compromised quality. This project integrates advanced technologies, such as image recognition and data-driven analytics, to provide early disease detection and personalized fertilizer recommendations, aiming to revolutionize and optimize tomato cultivation practices.

Objectives

- Early Disease detection.
- Precision Fertilizer Recommendations.
- Sustainability in Agriculture.
- Contribution to Precision Agriculture.

Motivation

- **Personal Growth and Learning Opportunity:** View the project as an opportunity for personal and intellectual growth, providing hands-on experience in an area of keen interest.
- **Enhanced Crop Resilience:** - The project addresses the current need for enhanced crop resilience in the face of evolving climate conditions and emerging plant diseases, ensuring consistent and reliable yields.
- **Positioning Agriculture in the Digital Era:** By incorporating advanced technologies, the project aligns with the broader trend of digitization in agriculture, positioning the industry to meet the challenges and opportunities of the digital era.

Sustainable Development Goals

- Crop disease detection contributes to sustainable food production by identifying and mitigating threats to crop yields.
- Some crop diseases can have health impacts, and detecting and managing them can indirectly contribute to improved human health.

Plan of Action

- The whole process is divided into three stages:

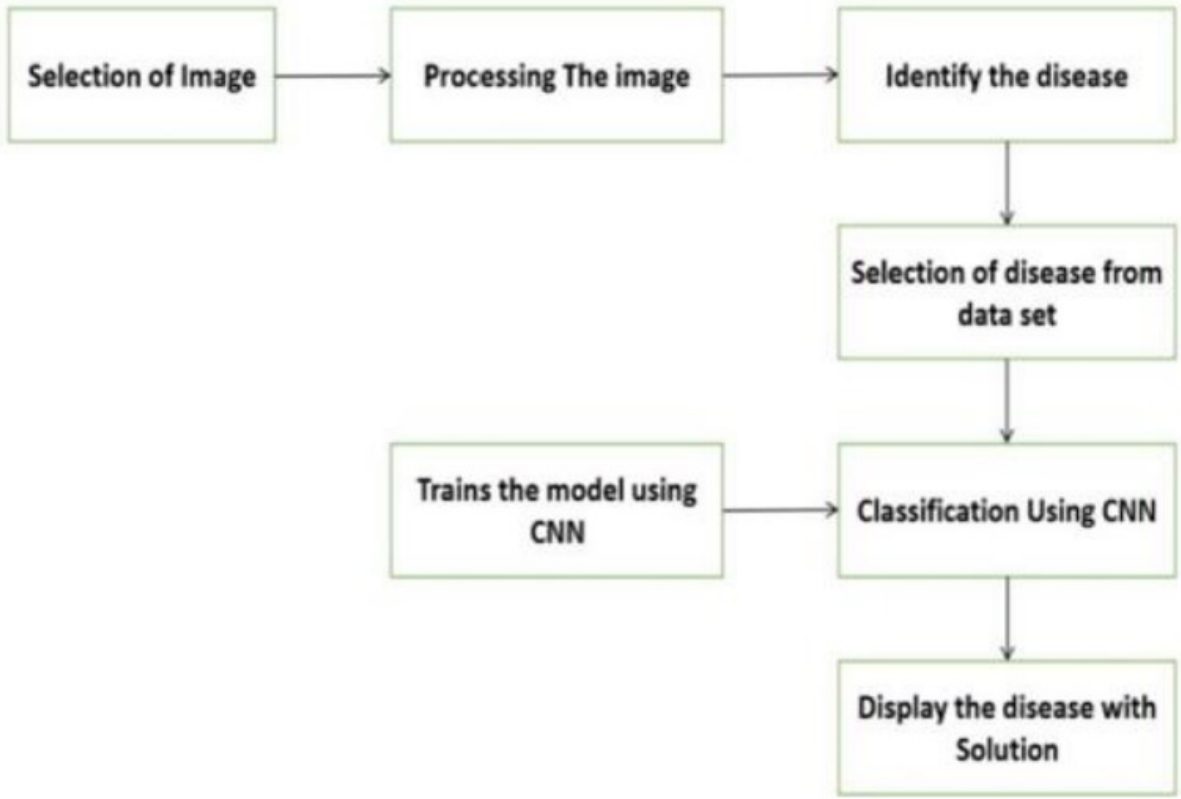

Figure: System Overview