PROJECT REPORT

PLANT DISEASE DETECTION IN INDONESIAN STAPLE CROPS

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ABSTRACT (ABSTRACT TITLE)

Plant diseases are one of the main challenges in the agricultural sector, especially in staple crops such as rice, corn, soybeans and cassava. This disease can cause significant economic losses if not detected early. This research aims to develop a plant disease detection system using Convolutional Neural Network (CNN). The dataset used includes 15,000 images of plants in healthy and diseased conditions, obtained from various online sources.

The CNN model was designed with three convolution layers, ReLU activation function, and Nadam optimization, resulting in a validation accuracy of 85.02%. The system is implemented in a simple user interface-based application, allowing users to upload plant images and receive diagnostic results instantly, including relevant solution recommendations.

The research results show that CNN-based technology can be an effective tool for detecting plant diseases with high accuracy. This research makes a significant contribution in supporting precision agricultural innovation. Suggestions for future research include collecting richer local datasets, optimizing model architecture, and integrating with IoT technology for real-time monitoring.

Keywords: Plant Disease, CNN, Disease Detection, Image Analysis, Object Detection