

INTISARI

APLIKASI *WEB* IDENTIFIKASI PENYAKIT PADA DAUN KACANG TANAH BERBASIS MODEL *PRETRAINED* RESNET50V2

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Kacang tanah (*Arachis hypogaea L.*) merupakan komoditas penting di berbagai belahan dunia, namun produksinya sering terhambat oleh penyakit daun. Identifikasi dini penyakit pada daun kacang tanah dan rekomendasi perawatannya dapat meningkatkan kualitas dan kuantitas panen. Proyek ini bertujuan mengembangkan aplikasi web untuk mengidentifikasi penyakit daun kacang tanah menggunakan *deep learning* dan memberikan rekomendasi perawatan. Model *pretrained Convolutional Neural Network* (CNN) seperti ResNet50V2, InceptionV3, dan VGG19 dibandingkan untuk menentukan performa terbaik berdasarkan akurasi, *precision*, *recall*, dan *f1 score*. Model terpilih diimplementasikan dalam aplikasi menggunakan *Streamlit* untuk mempermudah pengguna. Hasil pengujian menunjukkan ResNet50V2 unggul dengan akurasi pelatihan, validasi, dan pengujian masing-masing sebesar 97,43%, 94,15%, dan 94,91%, serta *precision* 0,96, *recall* 0,95, dan *f1 score* 0,95. Model ini lebih baik dibandingkan InceptionV3 dan VGG19. Aplikasi ini diharapkan menjadi solusi praktis bagi petani untuk mengelola penyakit tanaman dan meningkatkan efisiensi pertanian.

Kata kunci : Kacang tanah (*Arachis hypogaea L.*), aplikasi berbasis web, ResNet50V2, *convolutional neural network*.

ABSTRACT

WEB APPLICATION FOR DISEASES IDENTIFICATION IN PEANUT LEAVES BASED ON THE PRETRAINED RESNET50V2 MODEL

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Peanuts (Arachis hypogaea L.) are a vital commodity in various parts of the world, yet their production is often hindered by leaf diseases. Early identification of these diseases, along with management recommendations, can enhance the quality and quantity of the harvest. This project aims to develop a web-based application capable of identifying peanut leaf diseases using deep learning while providing treatment recommendations. Pretrained Convolutional Neural Network (CNN) models, including ResNet50V2, InceptionV3, and VGG19, were compared to determine the best-performing model based on accuracy, precision, recall, and F1 score. The selected model was implemented in the application using the Streamlit framework for user convenience. Testing results showed that ResNet50V2 outperformed other models, achieving training, validation, and testing accuracies of 97.43%, 94.15%, and 94.91%, respectively, along with a precision of 0.96, recall of 0.95, and F1 score of 0.95. This model surpassed the performance of InceptionV3 and VGG19. The application is expected to serve as a practical solution for farmers in managing crop diseases and improving agricultural efficiency.

Keyword : Peanut (Arachis hypogaea L.), web based application, ResNet50V2, convolutional neural network.