

ABSTRACT

ANDROID-BASED APPLICATION FOR CORN PLANT DISEASE DETECTION USING CNN ALGORITHM AND TENSORFLOW LITE PRE-TRAINED MODEL

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Corn serves as a strategic commodity in Indonesia's agricultural sector, playing a crucial role as a source of food, animal feed, and industrial raw materials. However, corn production in several regions, such as Lampung, experienced a decline due to plant diseases. These diseases could be identified through symptoms visible on the leaves, such as leaf blight, common rust, and gray leaf spot. To assist farmers in detecting these diseases quickly and accurately, this study developed an Android-based application using a Convolutional Neural Network (CNN) algorithm with a pre-trained TensorFlow Lite model. The dataset consisted of four categories with 4,000 images—1,000 images per category: Healthy, Blight, Common Rust, and Gray Leaf Spot. The CNN model was evaluated using metrics such as accuracy, precision, recall, and F1-score, yielding an accuracy of 94.82% for the 70:30 training-testing ratio and 95.16% for the 80:20 ratio. The application enabled farmers to identify corn diseases simply by capturing an image, allowing faster and more effective response measures.

Keywords: CNN (Convolutional Neural Network), Corn Leaf Diseases, Image Classification

