ABSTRACT

The decrease in tomato production in Indonesia, reaching 12.3% in December 2023, is caused by seasonal changes, pest and disease attacks. To address this issue, an application is needed to help detect and recognize diseases in tomato plants. In this study, an application was developed for the Android operating system, utilizing deep learning methods, specifically Convolutional Neural Networks (CNN). *The dataset used in this research consisted of 5,000 images of tomato leaves obtained from Kaggle. These images underwent preprocessing and were then divided into training data (80%), validation data (10%), and test data (10%). The data were then trained using a model with three parameter variations. Among these variations, the best accuracy was achieved at 0.9995 for the training data and 0.9833 for the validation data, with a loss value of 0.0759 for the training data and 0.1099 for the validation data. The model with the best accuracy was then converted to TensorFlow Lite and integrated into an Android application. System testing with 520 test data showed an overall accuracy of 98.8%. These results indicate that the developed detection system is capable of identifying diseases in tomato plant leaves with high accuracy, thereby assisting farmers in early disease identification and improving tomato plant productivity.*

Keywords *: Tomato, Plant Disease, Convolutional Neural Network, Android*