ABSTRACT

Soil fertility, weather, and temperature are factors that can support the agricultural sector in Indonesia. However, farmers often experience crop failure due to pest or disease attacks. One of the reasons for this is the insufficient understanding of the disease and improper handling. Therefore, to make it easier for farmers to get information and understand the types of diseases in rice plants, this final project aims to develop a website that utilizes deep learning technology by comparing three CNN architectures, namely DenseNet121, ResNet101, and MobileNetV2 to classify the types of diseases in image-based rice plants with several hyperparameter settings. The test was conducted using 2,928 datasets that have been divided into training data, validation data, and test data with four different scenarios to evaluate the performance of each model. The final results show that MobileNetV2 has the best performance with the highest accuracy of 99%. This website is expected to help farmers more effectively, thus reducing the risk of crop failure.

Keywords: Convolutional Neural Network, DenseNet121, MobileNetV2, Paddy Plant Disease, ResNet101.