ABSTRACT

IMPLEMENTATION OF CONVOLUTION NEURAL NETWORK USING RESNET-50 AND DENSENET-121 ARCHITECTURE IN STRAWBERRY FRUIT PLANT DISEASES DETECTION SYSTEM

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Strawberries contain lots of vitamins and others that provide health benefits for the body. Cultivating strawberry fruit plants is relatively easy, but these plants are susceptible to diseases that affect the farmers' yields. As technology develops in the 4.0 revolution era, it can provide convenience for everyday life. The purpose of this research is to create a web-based system that can detect strawberry plant diseases using the Convolutional Neural Networks (CNN) method, Residual Networks-50 architecture (ResNet-50) and Densely Connected Convolutional Networks-121 (DenseNet-121). The dataset used is 500 images in the form of leaf spots, rotten fruit, powdery mildew leaves, powdery mildew fruit, and healthy. The dataset will undergo a training process and will then be tested on each model made, namely the pooling layer (max pooling and average pooling) with each batch size (16 and 24). The test results were carried out to obtain the highest accuracy of 87% on the Residual Network-50 architecture (ResNet-50) with average pooling layers and a batch size of 16 epoch 20. DenseNet-121 architecture obtained the highest accuracy value of 40% using a max pooling layer with a batch size size 16 epoch 20, while the custom CNN gets an accuracy value of 50% at epoch 20 with average pooling layer and batch size 16.

Keywords: ***CNN, ResNet-50, strawberry plants, strawberry disease***