ABSTRACT

Demand for vegetable commodities in Indonesia continues to increase, but this is not supported by the growth in the amount of agricultural land. The hydroponic system can be one of the solutions, because this system uses water as a nutrient medium which will support plant growth so that it requires little land. The success rate of crop harvest with a hydroponic system can be seen from the right age of harvest. One way to determine the right age for harvest is by looking at the physical characteristics. In this study a system was created to identify the age of Pakcoy plants from data in the form of images using the Convolutional Neural Network algorithm. The CNN architecture that was built was able to identify the age of Pakcoy plants with 99% average accuracy of testing data for 360 images in 5 times of testing. After being tested using 45 new plant images, the resulting CNN architecture gave an accuracy performance of 84.2% in 5 times of testing.

Keywords: Hydroponic, Convolutional Neural Network, CNN