
Abstract

Aquaponic is an integration of recirculating cultivation with hydroponics in one production system. Usually in aquaponic plants, especially lettuce (*Lactuca sativa*) there are caterpillar pests. Pests are one of the main pests that attack lettuce plants that can harm aquaponic farmers, increasing the percentage of pest attacks will lower land productivity. This final project aims to detect caterpillars so that lettuce plants can be monitored properly and do not experience crop failure. This final project uses the CNN (Convolutional Neural Network) classification method which can detect the presence of caterpillars or not on lettuce. CNN is an artificial neural network that is used for image data, usually used to detect objects in an image. Taking pictures in this final project uses a Raspberry Pi camera module, then the resulting image is converted to a size of 128x128 pixels, then builds a CNN model and looks for the best parameters. The final result in this final project is to get a model with an accuracy of 89% from 5110 datasets in the form of images.

Keywords: *aquaponic*, CNN, lettuce plant, caterpillar pest
