ABSTRACT

Manually recording food stock is often time-consuming, inefficient, and has huge risk of error. Innovative solution is needed to solve this problem, one of the solutions that could be used is implementing object recognition using Convolutional Neural Network (CNN) algorithm on household food ingredients. This CNN model could recognize food ingredients, to optimize food stock recording. This study compares two model architectures with different numbers of filters in the convolutional layer to find the best model. In the two tested CNN models, model 1 showed performance with an accuracy of 0.942, recall of 0.942, precision of 0.944, and f1-score of 0.942, while model 2 had an accuracy of 0.943, recall of 0.943, and f1-score of 0.942. model 2 has higher accuracy and recall compared to model 1. This indicates that model 2 is more effective in correctly classifying food types and detecting all the ingredients that are actually present in the images, resulting in fewer missed food items.

*Keywords—**object recognition, convolutional neural network, image classification, food detection***