ABSTRACT

Coffee is one of the agricultural products that has high economic value as a source of foreign exchange. Identifying the quality of roasted coffee beans is very important, especially for coffee roasters to determine the quality, taste, and selling price of coffee beans. Currently, the process of classifying coffee beans still uses traditional methods by utilizing human labor which is prone to error factors. So there is a need for technology that can help the classification process of coffee beans by utilizing digital image processing. The classification process is carried out using the Deep Learning method with Convolutional Neural Network (CNN) architecture. This method allows automatic feature extraction so that the classification process can be conducted faster and with higher accuracy. The research object uses Arabica Coffee beans which are divided into four classes namely green, light, medium, and dark. The total dataset is 1600 digital images which are divided into 1200 training data images and 400 testing data images. This research produces a model that can help the classification process to be more effective and accurate. Based on the test results, the accuracy increases with the addition of epoch value. The final test results show accuracy at an epoch value of 25 of 89%, then increased to 97% at epoch 50, and reached the highest accuracy of 100% at epoch 75 used as a model in website development.

Keywords : *Convolutional Neural Network (CNN), Deep Learning, Digital Image Processing,*