ABSTRACT

Coffee is a very important plantation product and is one of the largest foreign exchange earners in the Indonesian economy. However, the level of quality and quantity of coffee production in Indonesia is still low. One of the influencing factors is the death of coffee plants due to infection with certain diseases, so it is necessary to do early prevention by identifying diseases in coffee plants. Identification of the disease can be done by looking at the changes in color and physical shape of the coffee leaves. However, due to the large area of coffee plantations with a large number of plants, it is difficult for farmers to identify the disease correctly. Therefore, special methods are needed to identify diseases in coffee leaves so that they can assist farmers in increasing the quality and quantity of coffee production.

In this final project, a digital image processing system has been designed that can identify diseases in coffee leaves. Coffee leaf disease was identified into 3 types of disease, Leaf Blight, Leaf Miner, and Leaf Rust. The digital image processing uses the Local Binary Pattern feature extraction method and the Random Forest classification method. The dataset used is 240 images, divided into 192 training data images and 48 test data images.

From the test results, the best accuracy value is 93.75% using the image size parameter of 128x128 pixels, the Local Binary Pattern parameter with radius = 1, and the Random Fores parameter with n-estimators = 100. So it can be concluded that the system built can run with good in identifying diseases in coffee leaves.

***Keyword**: Coffee, Leaf Disease, Local Binary Pattern, Random Forest.*