ABSTRACT

Indonesia has a big income from palm oil producers. Palm oil can be processed into many benefits, sucs as being cooking oil. Palm oil quality is devided by maturity of palm fruit processed. The quality of palm oil will be better if the processed palm fruit is ripe. In general, the determination of maturity was done by sighting an experienced person, but human still has an imperfect tim. So that the system is created that serves to classify the level of maturity of palm oil fruit.

In this final project aims to create a program that can be used to detect maturity of palm fruit through fractal method for feature extraction and K-Means for classification. The maturity of palm fruit is devided into three classes, namely unripe, almost ripe and ripe. The palm fruit data images used as many as 900 images is devided into unripe, almost ripe and ripe. The data images will be used as 70% training images and 30% test images. So, the number of training images used is 630 images. While the number of test images used is 270 images. Image processing consists of 4 stages, namely image acquisition, preprocessing, feature extraction and classification.

The best parameter used in this sistem for identification maturity of palm fruit system include using a distance 15 centimeter with fractal dimensions 16. The test result show that the system can identify maturity of palm fruit with accuracy rate of 97,78% and an average computing time of 0,4587 second.

Keywords: *Palm Fruit, Fractal, K-Means.*