ABSTRACT

In Indonesia there are many different types of mango are spread almost all over the island[10]. Each of species and varieties have the character. Because there are many varieties of mangoes same the name refers to a different types, or otherwise different two names are intended for one type of mango. This will affect the trade and germplasm management[1].

This Final Project to implement the science of Digital Signal Processing (DSP) by building software-based system that can ientify types of mango by detecting mango image into the system. The system is made using a camera as a media for acquiring images offline and Matlab R2009a as software to build an application program from the system are made. The images have been acquired it offline then used as training images and test images which would be extracted it features by *Curvelet* transform, and also recognition of these features by *k-Nearest Neighbor* (*k-NN*) method.

From the results of performance testing system, it is known that the performance of the system reaches the highest accuracy when the feature extraction process using *Curvelet* 5 scale 16 orientation with the parameters set out in the classification of *k-NN* are the value of k = 1, the 'City Block' distance, and the 'Nearest' rule. The accuracy that is obtained by the system is ± 97 % and the computation time of the system is ± 11 seconds.

Keywords**:** mango, Curvelet Transform, k-Nearest Neighbor, digital images.