ABSTRACT

Nowadays computer-vision-based gesture recognition is an important part of Human-Computer Interaction (HCI). However, the recognition process still has several issues, i.e. the image brightness, recognition time, and the accuracy level.

This research goal is to create a hand gesture recognition system that has a good performances with RGB (Red Green Blue) color models. The first process is image pre-processsing that will resizing the image to 76×66 pixels and 128×128 pixels, next process is skin detection. The second process is feature extraction using the *Discrete Wavelet Transform* (DWT) method, where will perform a feature-searching from the images. The result from previous actions will be a feature value in the form of the characteristic matrix value from the hand gesture image. The final process is gesture classification using the *Hidden Markov Models* (HMM) in which functions is to calculate the highest probability class of the feature matrix obtained from the feature extraction process.

From this research it is a hand gesture recognition system would obtain an highest accuracy rate of 58% for dataset A and highest accuracy rate of 72% for dataset B using the DWT method and HMM classification. The amount of training data and test data used are 150 training data images and 100 test data images consisting of five gestures.

Keywords : Accuracy, *Dataset*, *Discrete Wavelet Transform,* Hand Gesture, *Hidden Markov Models*