Abstract

In recent years, hand motion recognition has been widely researched throughout the world, this topic have so many benefits. One of them is to provide natural human and computer interaction. Robust system is needed to predict hand movement and hand posture which has many form accurately. Therefore, it needs an appropriate method for this problem.

In this final project, hidden markov model and support vector machine are implemented to recognize hand motion. In specific time interval, an image is taken from a movement using webcam to form a sequence of images. Then, those images are segemented based on green gloves. The important features of the segmented images are extracted from the result. Then, the features are used for hand recognition with SVM classification. After the sequential images are classified into postures by SVM, they are classified by HMM into specific motion type. This system can recognize 9 types of hand motion that have been tested with 270 video with 83.33% accuracy. SVM model use kernel RBF with $C = 2^{1.25}$ *and* $\gamma = 2^{1}$*, at the same time HMM model uses parallel-left-right with 3 hidden states.*

Keywords*: motion detection, motion recognition, hand detection, HMM, SVM, SVM-HMM.*