

## **Abstract**

Facial expression is one kind of non-verbal communication is the most expressive of man to show his emotions. Facial expressions provide information about the condition of affective, that emotion and perception. Mehrebian [1] found that when a person is communicating through feelings and attitudes, 55% of the message has been conveyed through facial expression itself, vocal cues provide 38% and 7% through verbal cues.

Human is very good to recognizing full facial expression which provides rich information about a person's affective [2]. However, psychological research has shown that the affective aspects may arise in the form of micro-expressions. Where the micro-expression is a short glimpse of facial expressions that appear when someone tries to hide their real emotions, especially in a difficult situation.

In this thesis designed and implemented a micro-expression recognition system to determine the emotions being felt by someone. Stages in this system include pre-processing, feature extraction using Local Binary Pattern (LBP) and Principal Component Analysis (PCA) and classifying Action Units obtained from FACS list, using the classification k-Nearest Neighbor (kNN). Results Action Units acquired emotion that has been categorized as previously defined.

**Keywords:** micro-expression, action unit, LBP, PCA.