Abstract

This final project explains about analysis of Principal Component Analysis (PCA) method and Radial Basis Function Neural Network to recognize six nature of facial expression (Happy, Sad, Anger, Fear, Surprised, Disgust).The data used in this work has been extracted from Asian Emotion Database. The recognition test from seven classes of facial expression (Netral, Happy, Sad, Anger, Fear, Surprise, Disgust) with feature extraction in mouth area manually got accurateness better than feature extraction in eyes area manually, it obtained accurateness round 45.71% with feature extraction in mouth area.

However, with reduction of expression into three classes (Netral, Happy, Surprise) the accuration become 80% with feature extraction in the entire countenance. It is because the different feature between one class to another class in case of classifying with three expression is bigger than classifying with seven expression. a half of facial expression can be recognized easily, for example smile or happy, yet there is some facial expression that difficult to recognized because the compotition of facial muscle that can make a certain expression not as far as another expression like Sadness and Anger, or Fearness and Surprise.

Keyword **:** *Facial Expression Recognition, Radial Basis Function Neural Network, PCA.*