ABSTRACT

In making decisions, emotions influence the outcome of the decision. For example, when feels happy, evaluating something can be tend to be good, on the contrary when feels sad, the assessment of something can be tend to be bad. In previous studies, emotions were assessed from physiological sources is Electroencephalographic (EEG) signals from the brain. EEGs get signals that come from neurons that work in the brain. EEG footage appears when electrical activity occurs in the brain. Data is obtained through video media given to participants to find out the emotions that occur in participants.

In this study EEG signals were taken from the DEAP study: Database for Emotion Analysis using physiological signals and processed by Independent Component Analysis (ICA). The data used has been pre-processing originating from the database. Data from the database has several levels of arousal, valence, likes, domination, and familiarity. The level taken is only from valence. By using ICA to get the matrix of each experiment, then the feature extraction is taken from the matrix which is then used as training data and test data. The results of the features obtained are classified by Support Vector Machine (SVM) and Genetic Algorithm (GA) in order to obtain the accuracy and emotional conditions experienced when happy or sad.

In the research conducted, the classification results using only SVM obtained an accuracy of 56.25% and the classification using SVM optimized by GA obtained an accuracy of 77.2727%. This shows that SVM classification optimized by GA provides better accuracy results than classification only using SVM. The accuracy results obtained show the classification of emotions between happy and sad.

Keyword : EEG, DEAP, ICA, GA, SVM