ABSTRACT

Concentration is the ability to focus on a specific object. Every people have a different concentration level based on some factors. Therefore, a stimulus is needed to maximize the concentration in a form of condition. Such as listening to classic music and smoking cigarettes.

The purpose of this research is to understand the maximization of brain concentration while listening to classic music and smoking cigarettes who using in alpha (8-13) and beta (14 – 30) frequency of brain waves. The measurement of concentration is measured from bio-electric signals of EEG from the surface of human skin. The method that is used in this research is Principal Component Analysis (PCA) as the feature extraction by extracting the signal to alpha and beta waves to obtain a feature which is needed on the next step. Which is classification step using K-Nearest Neighbor (K-NN).

This research's used amount of 18 data with 9 training data and 9 testing data for both 2 different stimulus . The accuracy result is shown based on testing with TP9 channel while listening music is 77.78% for alpha signal and 88.89% for beta signal, then based on testing with AF7 channel while inhaling cigarettes is 88.89% for alpha signal and 77.78 for beta signal.

Keywords: EEG, alpha, beta, Principal Component Analysis, KNN