ABSTRACT

Brain computer interface (BCI). BCI is a system that can translate, manage and recognize human brain activity. One device from BCI for recording brain signals is the Electroencephalogram (EEG). EEG records the activity of electrons in the human brain. Brain signals recorded with EEG have various information signals, one of which is the imagination signal of motion. Research on EEG motion imagination signals was carried out in 3 scenarios and used two different data sets. The first data set consists of 3 subjects recorded using a 7 channel EEG. The second data set consists of 5 subjects recorded using EEG 118 channels.

EEG signal analysis of the motion imagination consists of several stages. The first stage is the conversion of EEG signal data sets into image form using a system that has been made. Then, the EEG signal image enters the next stage, namely feature extraction with the Gray Level Co-Ocurrence Matrix (GLCM). The image of the feature extraction enters the next stage, namely the classification with K-Nearest Neigbors (K-NN).

In the results of the motion imagination signal research, it is obtained that the imagination of the motion produces good performance. In testing the system using data set 1, the signal filtering process succeeded in increasing system performance by 2% accuracy. While testing the system using data set 2, an accuracy increase of 9% is produced compared to conventional EEG signal processing.

Keywords: **Brain Computer Interface (BCI), Electroencephalograph (EEG), Common Spatial Selection (CSP).**