Brainwave Analysis for Robot Movement Depending on Age and Sex Differences

ABSTRACT

A Brain-Computer Interface (BCI) is a direct communication pathway between a human and external device. This system is very useful especially for disabled people as their brainwave still can emit electrical activity and can move the machine even with severe motor im-pairments. This research aims to investigate the brain waves produced by humans in terms of attention level for robot movement based on sex and age category of children (6-12 years), teenagers (18-25 years old) and adult (30 years and over). An Electroencephalography (EEG) device called Neurosky Mindwave Mobile has been used to obtain brainwave signals produced by humans. There were five as-pects of robot movement namely forward (F), right (R), left (L), backward (B) and stop (S). From the analysis, the subject is less focus when doing the backward movement compared to another aspect of movements. Based on sex difference, the male has a higher attention level than female in every aspect of movement except for the left movement. The age group that has the highest attention level is teenag-er and the lowest is adult. It can be concluded that the attention level produced by human varies depending on age and sex difference of the individual itself.