The Brain Wave Analysis for Robot Movement Using One Electrode

ABSTRACT

Brain-Computer Interface (BCI) is a system that uses a network of communication between the nervous system of the human brain with machines or robots. Through this system, people will move the machine without using a computer or a member of his body. The system is very useful especially for people with disabilities such as paralysis and stroke. The aim of this project is to create a study conducted on brain waves produced by humans according to age category of children (6-12 years), teenagers (18-22 years old) and adult (30 years and over). A device called Neurosky Mindwave Mobile is a single electroencephalogram (EEG) electrode. Each respondent was required to use the device to test the resulting attention when they were thinking of the robot movements. There were five thoughts of robot movement; forward (F), right (R), left (L), backward (B) and stop (S). The extracted levels from Neurosky ThinkGear software were recorded and set as an input command to move a robot. Through the analysis, the age group that has the highest attention level is teenagers and the lowest is women. It can be concluded that the level of attention that resulted in moving the robot varies according to an individual's age and gender category. Major implications in doing this project were to move the robot using only the power of the mind.