

Wheelchair controlled by human brainwave using brain computer interface system for paralyzed patient

ABSTRACT

Integrated wheelchair controlled by human brainwave using a brain-computer interface (BCI) system was designed to help disabled people. The invention aims to improve the development of integrated wheelchair using a BCI system, depending on the ability individual brain attention level. An electroencephalography (EEG) device called mind wave mobile plus (MW+) has been employed to obtain the attention value for wheelchair movement, eye blink to change the mode of the wheelchair to move forward (F), to the right (R), backward (B) and to the left (L). Stop mode (S) is selected when doing eyebrow movement as the signal quality value of 26 or 51 is produced. The development of the wheelchair controlled by human brainwave using a BCI system for helping a paralyzed patient shows the efficiency of the brainwave integrated wheelchair and improved using human attention value, eye blink detection and eyebrow movement. Also, analysis of the human attention value in different gender and age category also have been done to improve the accuracy of the brainwave integrated wheelchair. The threshold value for male children is 60, male teenager (70), male adult (40) while for female children is 50, female teenager (50) and female adult (30).