

BRAIN CONTROLLED WHEELCHAIR FOR DISABLED

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ABSTRACT

Every physical move we make is triggered by neural processes in the brain. With the right equipment and recent developments in both brain imaging technologies and cognitive neuroscience, it is possible to read and record these processes. This has led to the rapidly growing field of brain computer interfaces (BCI). The Brain Computer Interface (BCI) helps unbletted people to make use of the devices and applications through their mental activities. So people believe that BCI technology is a blessing for the unbletted persons who may be suffering from severe neuromuscular disorders. So in this paper, we develop a cost effective Brain Computer Interface device to control the wheel chair for physically disabled people. The EEG analysis concept has been utilized to drive an electric wheelchair system automatically for quadriplegics or immobile persons. The EEG signals are captured from user's brain activity using "Neuro-sky Mind wave" EEG sensor which is placed on the user's forehead. The EEG signals that are generated at different level of concentration, also the eye movement artifacts in the EEG are processed using Lab VIEW software by means of FFT algorithms. The direction on which wheel-chair has to move is decided based on the processed EEG signal. Microcontroller MSP430G2231 controls the motor circuitry to drive the wheel chair in a Non-jerky manner.

KEYWORDS: BCI, EEG, FFT, Lab VIEW –Laboratory Virtual Instrument, Microcontroller