

Brain computer interface design and applications: challenges and future

ABSTRACT

For many decades, instrument control by just thinking, using brain waves, has been accepted in science fiction. However, it is only in the last ten years that these systems have been shown to be feasible in laboratories. Successful Brain Computer Interface (BCI) systems have many potential applications, especially for patients who are paralyzed. Although extensive research has been done in this area, to date, BCI systems have not been implemented successfully outside of laboratories. The problems that impede transferring the successful research results to the outside world are highlighted in this paper. The main problems can be classified into two distinct parts, first, the sensory interfacing problems and, second, the reliability of the different classification algorithms for the ElectroEncephaloGraphic patterns. Potential future applications for this technology have been addressed.

Keyword: Brain computer interface; BCI; EEG