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Title	Multicommand Auditory ERP-based BCI System
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Abstract

This paper proposes an auditory modality-based brain-computer interface (BCI) using electroencephalogram (EEG) signals. The objective is an alternative BCI method for control and communication. The N200 and P300 responses from vowel sound stimuli were observed in a preliminary study to repeat and verify an auditory stimulus method. By using a single speaker and the proposed paradigm, a simple classification method can produce four commands. The results showed that the proposed auditory stimulation of a vowel sound duration of 250 ms with 20 trials of stream stimuli achieved a high average accuracy; the average accuracy of combining the ERP features produced from the Fz, Cz, Pz, P3, and P4 channels was 78.13%. We will employ the proposed auditory modality for a real-time BCI system to serve paralyzed patients with visual impairments.