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Paper Title:	Investigation of Event-Related Potential Responses in a 30-class ASME-speller Task
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Abstract

The auditory BCI speller is an effective communication tool for patients who are blind or have severe neurological diseases with unreliable eye movement control. To realize BCI speller using auditory domain, two hierarchical selections to determine row and column of the key position were needed, and intuitive mapping between letter and auditory stimuli is requested to improve accuracy. We have proposed an ASMEspeller, an auditory BCI speller that utilizes an auditory illusion in which a sequence of sound stimuli is segregated into multiple sound streams. Each row of a QWERTY keyboard layout is assigned to segregated tone stream, and the mapping between stimuli and letters is intuitive. The target letter can be detected in a single trial, and it works with monaural audio systems. It was shown that it can realize high accuracy and ITR; however, it was tested only with 15 letters. In this study, we investigated the feasibility of the ASME-speller with 26 alphabet letters (A to Z) and four other symbols by evaluating the event-related potential responses.