

Paper ID:	1571072711
Paper Title:	SSVEP-based Brain-Computer Interface via Checkerboard Pattern with Flickering Circles
Authors:	Benyapa Tanomjai, Sirawit Juthong, Panita Bunprom, Natjamee Tohkhwan, Nannaphat Siribunyaphat and Yunyong Punsawad (Walailak University, Thailand)
Email:	benyapa.tn@mail.wu.ac.th

Abstract

In this study, a modified checkerboard pattern using flickering circles was proposed for a steady-state visual evoked potential (SSVEP)-based brain-computer interface system. We conducted experiments to observe the SSVEP response. Using the conventional SSVEP detection method, we found that six commands can be generated from three flickering frequencies using a single frequency or a mixture of flickering frequencies. The results showed that the checkerboard pattern with flickering circles achieved an average classification accuracy of 72.6% and 75.6% for flickering single and double circles, respectively. The modified checkerboard pattern can be used as an alternative SSVEP stimulus for individual users. However, for practical use, the feasibility of employing the proposed BCI system for control application in an actual scenario should be verified with more participants.
