

Emotiv EPOC BCI Matrix Speller Based on Single Emokey

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Abstract : Human Computer Interaction (HCI) is an excellent area for the researchers to make daily life more simple and fast. Necessary hardware equipments for any BCI are generally expensive and not affordable for most of the people. Emotiv is one of the solutions for this problem, which can provide electroencephalograph (EEG) signal and explain the brain activities. BCI virtual speller was one of the important applications for the people who have lost their hand or speaking ability because of diseases or unexpected accident. In this paper, a matrix speller has been designed for the first time for Bengali speaking people around the world. Bengali is one of the most commonly spoken languages. Among them, a lot of disabled person will be able to express their desire in their mother tongue. This application is also usable for the social networks and daily life communications. For this virtual keyboard, the well-known matrix speller method with column flashing is applied and controlled by single Emokey only. Emokey is a great feature which translates emotional state for application inputs. In this paper, it is presented that the ITR (Information Transfer Rate) were 29.4 bits/min and typing speed achieved up to 7.43 char/per min.

Keywords : brain computer interface, Emotiv EPOC, EEG, virtual keyboard, matrix speller

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