

## Determination of Concentrated State Using Multiple EEG Channels

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**Abstract :** Analysis of EEG brainwave provides information on mental or emotional states. One of the particular states that can have various applications in human machine interface (HMI) is concentration. 8-channel EEG signals were measured and analyzed. The concentration index was compared during resting and concentrating periods. Among eight channels, locations the frontal lobe (Fp1 and Fp2) showed a clear increase of the concentration index during concentration regardless of subjects. The rest six channels produced conflicting observations depending on subjects. At this time, it is not clear whether individual difference or how to concentrate made these results for the rest six channels. Nevertheless, it is expected that Fp1 and Fp2 are promising locations for extracting control signal for HMI applications.

**Keywords :** concentration, EEG, human machine interface, biophysical

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