LEFT-HANDEDNESS DETECTION

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Abstract - In this paper, a new left-handedness sensing and detection module, has been developed to classify the handedness of a person. Handedness of the person can be determined from the EEG data captured and further confirmed using a simple game as testing module. EEG signals were obtained from three locations namely A1, O1 and O2. The signals were then classified into four different frequency bands: Alpha, Beta, Delta and Theta before they were used to determine the Mean EEG Coherence. Generally the left handed person has higher Mean EEG Coherence which means that there are more connections between the left and right hemisphere of cerebrums through the corpus callosum. Based on research, personal non-right handedness has been associated with both increased corpus callosum size and increased functional interaction between cerebral hemispheres. To relate the former to the later, it is suggested that the increased size of corpus callosum, which somehow passes information between the two sides of the brain, allows greater inter-hemispheric communication. Handedness is determined based on this criterion. At the end of the research, the module developed enables the determination of handedness personnel.

Keywords: left-handedness, Electroencephalogram (EEG), detection, coherence, decomposition