Electroencephalograph Recording with Ten-Twenty Electrode System Based on Arduino Mega 2560

Publisher: IEEE

Titis Bagus Kurnianadi ; Florentinus Budi Setiawan **All Authors**

Abstract:

Improved Technology until now started to help many aspects of human works, including medical facilities. One of them is Electroencephalography (EEG) which records electrical activities of the brain. This technology is used to diagnose any brain disease that makes an abnormality at EEG signal recording. EEG usually has non-invasive methods, where electrodes placed on the scalp that easy and reusable. This technology itself has been started in 1924 by Hans Berger. This paper discusses the basic construction of EEG, focused on simulation, device construction, and results from devices. It will further mention how Arduino Mega 2560 record analog signals, circuit diagrams that will be used, and final results that showed and processed on SCILAB application. The final result would use Ten-Twenty Electrode System which can be compared with any result from any different recording and be displayed in SCILAB with graph form that has been filtered with Fast Fourier Transform (FFT) results.

Published in: 2019 4th International Conference on Information Technology, Information Systems and Electrical Engineering (ICITISEE)

Date of Conference: 20-21 November 2019

INSPEC Accession Number: 19550872

Date Added to IEEE *Xplore*: 02 April 2020

DOI: 10.1109/ICITISEE48480.2019.9003819

ISBN Information:

Publisher: IEEE

Conference Location: Yogyakarta, Indonesia

I. Introduction

Technologies now have roles in many fields to support mankind, including in the medical field. Medical technologies applicating principles and design for medical needs. One of them is Electroencephalography (EEG) that recording brainwave signals activities. [1] EEG technology is used in medical fi e that causes abnormalities at EEG recording. [2], [3] EEG method is commonly used since EEG using non-invasive methods and accessible, where electrodes are placed at the scalp. [4] The main reason for EEG usage is to obtain and observe Event-Related Potentials (ERP) that can be achieved from the averages of EEG signals in a specific stimulus at a specific time. [5]

Authors

Figures

References

Keywords

Metrics