

ABSTRACT

The brain is one of the most important organs in the human body since it is the center of human equilibrium and the place of human balance. Human brain activity examination is highly suggested as the examination enhances a person's physical and mental state, such as by monitoring brain and mental health, early identification of sickness, and testing cognitive and emotional problems.

With the high probability of increasing, especially in Indonesia, the number of people who experience decreased brain function, such as reduced focus ability, until disrupted psychological conditions, it can be concluded that a system solution that can be proposed for this problem is by designing an EEG (electroencephalogram) tool, which is one of the most effective methods for checking brain activity. Besides that, the use of Neurosky as an EEG is also very helpful where the tool has a Neurosky eSense, which can read a person's level of focus to meditation.

The results of our research using NeuroSky Mindwave, which is connected to the Arduino UNO microcontroller, can produce brain activity data in the form of "attention" and "meditation" with a range of 0–100% and EEG signals of the beta wave type (β) with an average value of 50–200 V. The results of application testing show that the average time to initialize the required initial display is 1s 223 ms. With the help of heart rate and neurosky sensors, it can be seen and analyzed by the authorities in medical studies regarding the user's brain activity.

Keyword : Brain, NeuroSky, ESP32, EEG, Arduino