ABSTRACT

Muscle and joint weakness due to stroke can be cured by the consumption of medicines and rehabilitation. ROM exercises are one form of exercise in the rehabilitation process that is considered still effective enough to prevent the occurrence of disability in patients with stroke. The purpose of this study is that patients can do self-rehabilitation at home with support and motivation from the family, and therapists can monitor directly the patient's condition while carrying out self-rehabilitation. The main design consists of the GY-521 sensor, ESP32, and IoT platform. Input is obtained from the movement of the patient's arm flexion-extension. Flexion-extension movement is processed on the microcontroller and stored first. When the rehabilitation is completed, the data will be sent entirely to the IoT platform and displayed in the form of a graph of rom rehabilitation results. Data that has been sent to the IoT platform will be compared to the data before it is sent to the IoT platform. From the testing tool using baudrate 19200 has an error of 0.50 %. Testing with flexion-extension movement speed differences, at metronome speeds of 10 bpm and 18 bpm had errors of 0%. Testing of the delivery of 1000 data with differences baudrate, at baudrate 9600 has an error of 1.3 %, on baudrate 115200 has an error of 1.7 %. The results of this tool can be used to monitor the results of rehabilitation of post-stroke patients remotely.

Keywords: ROM, Flexion, Extention, Rehabilitation, IOT.