ABSTRACT

Nutritional Problems such as obesity and stunting among in Indonesia remain a serious concern due to their long-term health impacts. One method to detect nutritional conditions is by measuring Body Mass Indeks (BMI), which is calculated based on the rasio of body weight to height. This Study aims to design and develop a BMI measuring device using the ESP32 microcontroller integrated with web system. The system uses load cell sensors to measure body weight and an ultrasonic HC-SR04 sensor to measure height. The ESP32 automatically calculates BMI, displays the results on an LCD, and sends the data to a web server. Testing was conducted on 10 adolescents with a total of 30 measurements. The results showed an average BMI diffference of 0.369 and an average error of 1.51%, which are still within acceptable tolerance limits. This device in considered accurate and efficient, and can be used to support early detection of obesity or stunting risks.

Keywords: *Body Mass Indeks, ESP32, Load Cell, Ultrasonic Sensor, Web.*