ABSTRACT

Body Mass Index (BMI) is a index used to determine the ideal or not ideal human body category. BMI uses human weight and height. BMI is very important as a measure of nutritional adequacy and human lifestyle. However, there are still many Indonesians who do not know how to calculate BMI. Many tools are made for height and weight, but it is still not practical because the dimensions are quite large.

In this Final Project, the author designs a BMI measurement tool based on Arduino Uno. A total of 64 samples are needed to get the equation of foot length and body height. The measurement of the foot length is used an ultrasonic sensor and the weight measurement is used by modification of the digital scales with a load cell connected to the HX711 module as an amplifier. Height calculation using the height calculation of the foot. BMI values were obtained from height calculation data and weight measurements. The measurement results of the sensor will be processed on the Arduino UNO microcontroller. Data processing results on the microcontroller will be processed on a 20×4 LCD screen. Measurement results will be compared with manual measurements to obtain accuracy, precision, and evaluation values.

In this study produced a BMI measurement system with an accuracy value of 91.751% with an average error of 8.088%. The precision value of the BMI calculation is 87,233% with a standard deviation of 3,148. BMI calculation value is 7.62%.

Keywords : Body Mass Index (BMI), Microcontroller, Arduino Uno, Load Cell, Ultrasonic Sensor.