

ABSTRACT

Temperature, height, and body mass measurements are common procedures in healthcare that are still performed manually with various limitations. Thermometers are used in direct contact with the body to measure temperature, body mass is measured using heavy and less precise manual scales, and height measurements are conducted with inefficient and error-prone stadiometers. With technological advancement, automation systems can be implemented using microcontrollers. This research automates temperature, height, and mass measurements using the Wemos D1 R32 microcontroller, which is equipped with Wi-Fi to support wireless connectivity from the measuring device module to a laptop. This research utilizes HY-SRF05 ultrasonic, MLX90614 infrared temperature, and loadcell pressure sensors, integrated with an LCD display interface.

The implemented device is equipped with an online Google Sheets database, enabling the acquisition of all three parameters in a single measurement. Furthermore, this device features real-time analysis of body temperature conditions and Body Mass Index calculations. The database system that utilized in this device enables instant storage, access, and display of measurement data. Based on testing results, this device demonstrates good accuracy with minimal error rates for each sensor: 0,572% for temperature measurement, 0,026% for height measurement, and 0,13% for mass measurement.

Keyword : *Measurement, Wemos D1 R32, MLX90614 Sensor, HY-SRF05 Sensor, Loadcell Sensor, Google Sheets.*