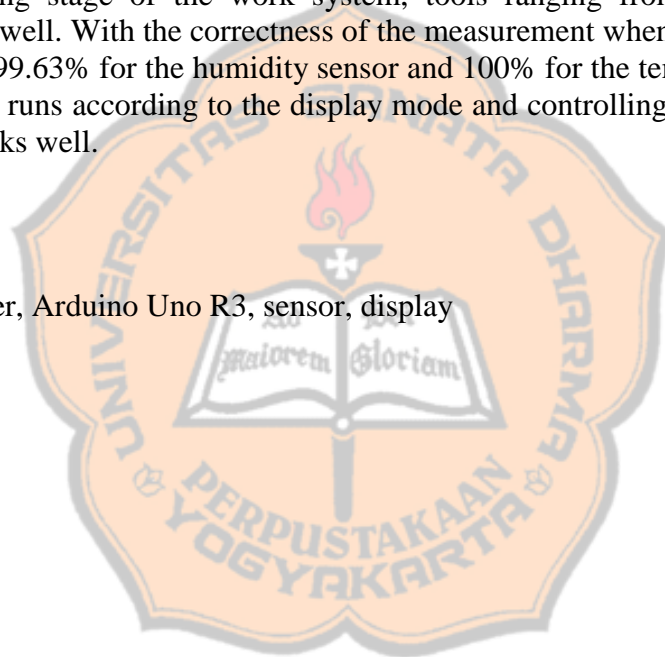# ABSTRACT

Soil tester is a tool for measuring 3 parameter values contained in the soil are moisture, temperature, and soil pH. This tool is used to help work in the fields so that it can help to monitor the soil that will be used as a planting medium. Tests that have been carried out at different locations show that soil moisture will affect the pH level of the soil so that the more air content is contained in it, so the soil will be better used as a planting medium.

This soil tester uses Arduino Uno R3 as a microcontroller to process and process data. For data input on the microcontroller, there are 3 main sensors that function to measure parameters are YL-69 as a humidity meter, LM35 as a measure of soil temperature and a soil pH sensor to determine the value of the measured parameter. The output data display will be displayed on the LCD with a push button to set the display mode you want to display.

At the testing stage of the work system, tools ranging from data processing to appearance can run well. With the correctness of the measurement when testing is 98.63% for the soil pH sensor, 99.63% for the humidity sensor and 100% for the temperature sensor. The display on the LCD runs according to the display mode and controlling the appearance using the push button works well.

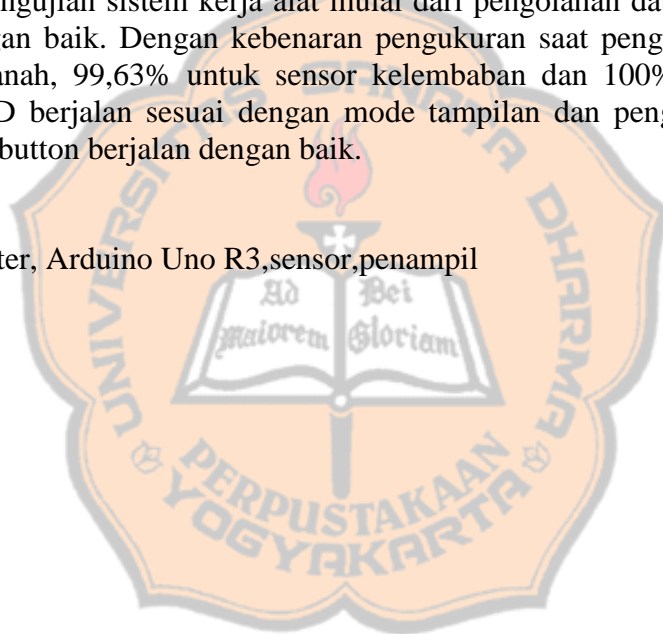Keywords: soil tester, Arduino Uno R3, sensor, display

INTISARI

Soil tester merupakan alat untuk mengukur 3 nilai parameter yang terdapat dalam tanah yaitu kelembaban, suhu, dan pH tanah. Alat ini digunakan untuk membantu pekerjaan diladang sehingga dapat membantu untuk memonitoring tanah yang akan dijadikan sebagai media tanam. Pengujian yang telah dilakukan pada lokasi yang berbeda menunjukan bahwa kelembaban tanah akan mempengaruhi tingkat pH tanah jadi semakin banyak kadar air yang terkandung didalam tanah maka akan membuat tanah menjadi semakin bagus untuk dijadikan sebagai media tanam.

Alat soil tester ini menggunakan Arduino Uno R3 sebagai mikrokontroler untuk mengolah dan memproses data. Untuk inputan data pada mikrokontroler terdapat 3 sensor utama yang berfungsi untuk mengukur parameter yaitu YL-69 sebagai pengukur kelembaban, LM35 sebagai pengukur suhu tanah dan Sensor pH tanah untuk mengetahui nilai parameter yang diukur. Tampilan output data akan ditampilkan pada LCD dengan push button untuk mengatur mode tampilan yang ingin ditampilkan

Pada tahap pengujian sistem kerja alat mulai dari pengolahan data sampai penampilan dapat berjalan dengan baik. Dengan kebenaran pengukuran saat pengujian sebesar 98,63% untuk sensor pH tanah, 99,63% untuk sensor kelembaban dan 100% untuk sensor suhu. Tampilan pada LCD berjalan sesuai dengan mode tampilan dan pengontrolan penampilan menggunakan push button berjalan dengan baik.

Kata kunci : soil tester, Arduino Uno R3,sensor,penampil

ABSTRACT

Soil tester is a tool for measuring 3 parameter values contained in the soil are moisture, temperature, and soil pH. This tool is used to help work in the fields so that it can help to monitor the soil that will be used as a planting medium. Tests that have been carried out at different locations show that soil moisture will affect the pH level of the soil so that the more air content is contained in it, so the soil will be better used as a planting medium.

This soil tester uses Arduino Uno R3 as a microcontroller to process and process data. For data input on the microcontroller, there are 3 main sensors that function to measure parameters are YL-69 as a humidity meter, LM35 as a measure of soil temperature and a soil pH sensor to determine the value of the measured parameter. The output data display will be displayed on the LCD with a push button to set the display mode you want to display.

At the testing stage of the work system, tools ranging from data processing to appearance can run well. With the correctness of the measurement when testing is 98.63% for the soil pH sensor, 99.63% for the humidity sensor and 100% for the temperature sensor. The display on the LCD runs according to the display mode and controlling the appearance using the push button works well.

Keywords: soil tester, Arduino Uno R3, sensor, display