RINGKASAN

Telah dilakukan penelitian rancang bangun sistem monitoring suhu udara dan kecepatan angin menggunakan sensor LM35 dan sensor anemometer berbasis *Internet of Things*. Tujuannya yaitu untuk menghasilkan sistem monitoring yang bisa mengukur secara *real time* serta memiliki karakteristik pengukuran. Metode yang digunakan dimulai dari analisa peermasalahan, perancangan, perakitan alat, uji Karakteristik dan analisis data hasil pengujian. Karakteristik berupa akurasi, presisi dan pengujian secara keselurhan. Sistem monitoring yang dihasilkan terdiri dari alat monitoring dan platform blynk pada PC. Perancangan sistem monitoring memanfaatkan sesor LM35 dan sensor anemometer dan NodeMCU ESP8266 sebagai mikrokontroller yang dapat bertukar data melalui jaringan internet. Informasi suhu udara dan kecepatan angin dapat dilihat melalui platform blynk. Dimana pada sensor LM35 error yang dihasilkan yaitu 1.18%, tingkat akurasi sebesar 98.82% dan nilai presisinya sebesar 93.31% pada pembacaan sensor LM35 dengan sampel api pada 1 lilin. Pada sampel api 2 lilin dihasilkan nilai error yaitu 1.03%, tingkat akurasinya 98.97% dan presisinya sebesar 99.29%. Pada sampel api 3 lilin dihasilkan nilai error yaitu 2.08%, tingkat akurasinya 97.92% dan presisinya sebesar 99.10%. Sensor anemometer error yang dihasilkan yaitu sebesar 0.66%, tingkat akurasi sebesar 99.34% dan nilai presisinya sebesar 95,58%. Pada pengujian keseluruhan selama 1 jam dari pembakaran batok kelapa didapatkan error 0.64% dan akurasi 99.36% pada sensor LM35. Pada sensor anemometer error sebesar 6.65% dan akurasi sebesar 93.35%. Secara keseluruhan sistem telah berhasil dijalankan. Pada implementasinya sistem dapat memonitoring suhu udara dan kecepatan angin. Saat dilakukan uji coba keseluruhan dimulai dari keadaan normal hingga ada api dan sampai proses pendinginan selesai dapat dilihat bahwa ciri awal dari kebakaran hutan yaitu saat terjadinya kenaikan suhu. Suhu meningkat >40^{0}C secara terus menerus hingga melebihi suhu normal pada hari biasa.

SUMMARY

Research on the design of air temperature and wind speed monitoring systems has been carried out using the LM35 sensor and anemometer sensor based on the Internet of Things. The goal is to produce a monitoring system that can measure in real time and has measurement features. The method used starts from problem analysis, design, tool assembly, characteristic test and data analysis of test results. Its characteristics are accuracy, precision and overall testing. The resulting monitoring system consists of a monitoring tool and a blynk platform on a PC. The monitoring system design utilizes the LM35 sensor and anemometer sensor and NodeMCU ESP8266 as a microcontroller that can exchange data via the internet network. Information on air temperature and wind speed can be seen via the blynk platform. Where on the LM35 sensor the resulting error is 1.18%, the accuracy rate is 98.82% and the precision value is 93.31% on the LM35 sensor reading with a sample of fire on 1 candle. The 2 candle flame samples produced an error value of 1.03%, an accuracy rate of 98.97% and a precision of 99.29%. The 3 candle flame samples produced an error value of 2.08%, an accuracy rate of 97.92% and a precision of 99.10%. The resulting anemometer sensor error is 0.66%, the accuracy rate is 99.34% and the precision value is 95.58%. In the overall test for 1 hour from burning coconut shells, an error of 0.64% and an accuracy of 99.36% was obtained on the LM35 sensor. The anemometer sensor has an error of 6.65% and an accuracy of 93.35%. Overall the system has been successfully run. In its implementation the system can monitor air temperature and wind speed. When the trials are carried out as a whole, starting from normal until there is a fire and until the cooling process is complete, it can be seen that the initial characteristic of a forest fire is when the temperature rises. The temperature increased > 40 0C continuously until it exceeded the normal temperature on a normal day.