

SISTEM MONITORING PENGGUNAAN LISTRIK MENGGUNAKAN SENSOR PZEM – 004T BERBASIS INTERNET OF THINGS (IoT) (*ELECTRICITY USE MONITORING SYSTEM USING PZEM-004T SENSOR BASED ON INTERNET OF THINGS (IoT)*)

IRFAN OKKI SETIAWAN
Fakultas Teknologi Informasi dan Komunikasi
Universitas Semarang
Irfanokks98@gmail.com

ABSTRACT

Monitoring electricity usage is very useful to minimize overloads that cause electricity payments to swell. In the era of globalization where all activities using smartphones still monitor electricity usage manually, this becomes a problem when travelling. From these problems, a monitoring system for electricity usage was made using the PZEM 004T sensor based on the Internet of Things (IoT). The system development method uses the prototype method. This tool can monitor electricity usage remotely in real-time. The use of electricity that can be monitored such as voltage, current, frequency, power factor, energy, kWh and estimated electricity costs. Remote electricity usage monitoring can work by connecting a microcontroller to a wifi network so that data from the PZEM -004T sensor is sent to the IoT platform so that electricity usage monitoring can be accessed through the blynk application. This study tested the use of electricity for 12 days monitoring how many kWh, power, voltage, current, frequency, and electricity costs were used and tested the accuracy by comparing the Sanwa brand multimeter and the monitoring system that was created and produced an error value of 0.00% voltage, 0 current .17% and 0.00% frequency.

Keywords: Monitoring, microcontroller, blynk, IoT, PZEM -004T sensor, prototype

ABSTRAK

Memonitor penggunaan listrik sangat bermanfaat untuk meminimalisir kelebihan beban yang menyebabkan membengkaknya pembayaran listrik. Di zaman globalisasi yang segala aktivitasnya menggunakan smartphone masih banyak memonitor penggunaan listrik secara manual, hal ini menjadi masalah ketika dalam keadaan bepergian. Dari permasalahan tersebut dibuatlah sistem monitoring penggunaan listrik menggunakan sensor PZEM -004T berbasis Internet of Things (IoT). Metode pengembangan sistem menggunakan metode prototype. Alat ini dapat memonitoring penggunaan listrik dari jarak jauh secara realtime. Penggunaan listrik yang dapat di monitoring seperti tegangan, arus, frekuensi, power faktor, energi, kWh dan perkiraan biaya listrik. Pemantauan penggunaan listrik dari jarak jauh dapat bekerja dengan menghubungkan mikrokontroler ke jaringan wifi, sehingga data dari sensor PZEM -004T dikirim ke platform IoT agar monitoring penggunaan listrik dapat diakses melalui aplikasi blynk. Penelitian ini menguji penggunaan listrik selama 12 hari memonitoring berapa kwh, daya, tegangan, arus, frekuensi, dan biaya listrik yang digunakan dan menguji keakuratan dengan membandingkan multimeter merk sanwa dan sistem monitoring yang dibuat dan menghasilkan nilai error tegangan 0,00%, arus 0,17% dan frekuensi 0,00%.

Kata Kunci: Monitoring, mikrokontroler, blynk, IoT, Sensor PZEM -004T, prototype