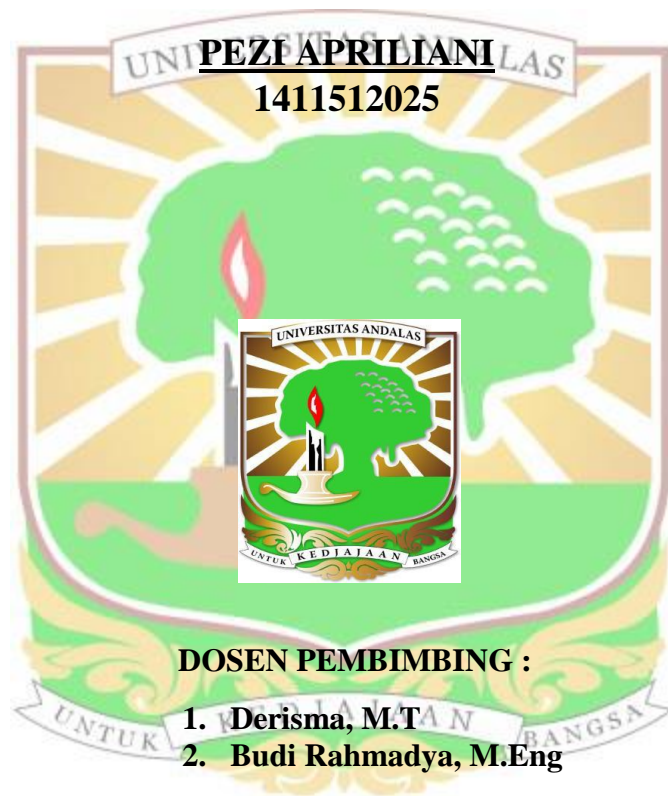


**SISTEM MONITORING DAYA LISTRIK DENGAN
MENGIMPLEMENTASIKAN *BLUETOOTH LOW ENERGY***

LAPORAN TUGAS AKHIR SISTEM KOMPUTER



**JURUSAN SISTEM KOMPUTER
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*Sebagai Salah Satu Syarat Untuk Menyelesaikan Program Sarjana
Pada Jurusan Sistem Komputer Universitas Andalas*



**JURUSAN SISTEM KOMPUTER
FAKULTAS TEKNOLOGI INFORMASI
UNIVERSITAS ANDALAS
PADANG
2019**

Sistem Monitoring Daya Listrik Dengan Mengimplementasikan *Bluetooth Low Energy*

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ABSTRAK

Listrik menjadi kebutuhan pokok bagi manusia pada saat sekarang ini. Sistem pembayaran listrik PLN yang ada pada perumahan masyarakat terbagi atas dua macam, yaitu listrik pascabayar dan listrik Prabayar. Pada listrik Prabayar menggunakan kWh meter digital yang dapat menampilkan penggunaan arus, daya listrik, dan lain-lain pada lcd. Penggunaan arus dan daya listrik dapat dimonitoring menggunakan aplikasi android dengan menggunakan Bluetooth Low Energy (BLE) sebagai media komunikasi. Modul BLE memiliki banyak kelebihan dibandingkan dengan classic bluetooth, seperti memiliki jangkauan lebih luas, kecepatan transfer data 1 Mbps, dan konsumsi daya yang rendah. Oleh karena itu, penulis melakukan penelitian dengan mengimplementasikan Bluetooth Low Energy pada sistem monitoring daya listrik. Hasil penelitian menunjukkan bahwa sistem monitoring daya listrik berhasil bekerja dan modul BLE dapat mengirimkan hasil pengukuran sensor ke aplikasi android. Dari pengujian yang telah dilakukan menunjukkan bahwa modul BLE dapat mengirimkan data hingga jarak 25 meter untuk kondisi tanpa halangan dan 8 meter untuk kondisi ada halangan. Dan konsumsi energi modul BLE lebih hemat dibandingkan dengan konsumsi energi modul HC-05 dengan perbandingan modul BLE 5,728 mW dan modul HC-05 13,47 mW.

Kata Kunci : Kwh Meter Prabayar, Sensor Arus SCT 013, *Bluetooth Low Energy*, Daya Listrik.

ELECTRICAL POWER MONITORING SYSTEM WITH BLUETOOTH LOW ENERGY IMPLEMENTATION

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ABSTRACT

Electricity becomes a major need for human in this era. PLN's electricity payment system in residential areas is divided into two ways, postpaid electricity and prepaid electricity. Prepaid electricity using digital kWh meter that shows the use of current, electric power, etc on LCD. The usage of current and electric power can be monitored using Android application using Bluetooth Low Energy (BLE) as communication media. BLE has many advantages module compared to classic bluetooth, for example having a wider range, data transfer speeds up to 1 Mbps, and low power consumption. Therefore the writer researched by implementing Bluetooth Low Energy in the electric power monitoring system. The results of this research showed that the electric power monitoring system and the BLE module could send the result of sensor measurement to android applications. From the testing that has been done showed that the BLE send module can be up to 25 meters distance for unhindered conditions and 8 meters with hindered conditions. And the BLE module energy consumption is more efficient than HC-05 energy comparison BLE module 5,728 mW and the HC-05 module 13.47 mW.

Keywords: Prepaid KWH Meter, Current Sensor SCT 013, Bluetooth Low Energy, Electrical Power.