

## **ABSTRAK**

### **MONITORING SISTEM KELISTRIKAN DAN TINGKAT KENYAMANAN PADA GEDUNG BERBASIS WEBPAGE**

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Konsumsi energi listrik berpengaruh pada biaya energi listrik. Sistem *monitoring* konsumsi energi listrik pada Gedung A Fakultas Teknik Universitas Lampung sangat diperlukan karena belum ada sistem *monitoring* pada panel distribusi Gedung tersebut. Tugas akhir ini membuat *prototipe* sistem *monitoring* besaran listrik dan tingkat kenyamanan berbasis *webpage* dengan metode audit untuk mendapatkan nilai aktual dan peluang dalam proses penghematan energi. Sistem *monitoring* tata udara dan tata pencahayaan diperlukan juga karena sistem tata udara dan pencahayaan yang tidak sesuai standar merupakan salah satu faktor pemborosan. Berdasarkan hasil *monitoring* beban antar fasa tidak seimbang sehingga pada saat kondisi beban puncak salah satu fasa mengalami *voltagedrop* yaitu fasa S dan T. Berdasarkan SNI 03-6197-2000 pada kondisi tata pencahayaan didapatkan hasil 53% ruangan sesuai standar dan 47% ruangan tidak sesuai standar. Berdasarkan SNI 03-6572-2001 pada kondisi tata udara didapatkan hasil 77% ruangan sesuai standar dan 23% ruangan tidak sesuai standar pada Gedung A Fakultas Teknik Unila. Berdasarkan hasil *monitoring* pada Gedung A Fakultas Teknik Unila direkomendasikan mengganti lampu yang ada menjadi lampu hemat energi pada ruangan yang tidak memenuhi standar tata pencahayaan, dan menyesuaikan kebutuhan sistem pendingin pada ruangan.

Kata Kunci: Monitoring, Audit Energi, Sistem Tata Udara, Sistem Tata Pencahayaan, Ketidakseimbangan Beban, Drop Tegangan.

## **ABSTRACT**

### **MONITORING OF ELECTRICAL SYSTEMS AND COMFORT LEVEL IN BUILDING BASED ON WEBPAGE**

By

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Consumption of electrical energy have affects to the cost of electrical energy. The electrical energy monitoring system in the Faculty of Engineering, University of Lampung is very necessary because there is not monitoring system on the distribution panel of the building. In this research, make a prototype of a webpage-based monitoring system for electricity and comfort level with an audit method to get the actual value and opportunities for energy-saving. The monitoring system for air conditioning and lighting is also needed because a non-standard air and lighting system is one of the loss factors. Based on the results of monitoring the load distribution the phases were not balanced so that when the peak load conditions one of the phases decrease a voltage drop, the S and T phases. Based on SNI 03-6197-2000 on lighting conditions, the results obtained are 53% of the room accord to the standard and 47% of the room was not accord to the standard. Based on SNI 03-6572-2001 on air conditions, the results obtained are 77% of the rooms accord to standards and 23% of rooms was not accord to standards in the Faculty of Engineering building. From the results of monitoring at the Engineering Faculty Building, recommendations are needed, to replace low watt lamps in rooms that do not accord with lighting standards, and adjust the needs of the cooling system in rooms.

**Keywords:** Monitoring, Energy Audit, Air Conditioning System, Lighting System, Load Unbalance, Voltage Drop.