

## **ABSTRACT**

Concern about saving electricity becomes the basis for build an electric energy monitoring and management system. Electricity monitoring system have become an important subject to inform users of the amount of energy they have consumed. With the rapid development of technology, real-time surveillance has made it possible to implement it using a system known as the Internet of Things (IoT). In this study, an energy consumption monitoring and management system on an IoT based lamp has been developed. Real-time information about the amount of energy that has been used is obtained by utilizing current and voltage values measured by the sensors and utilizing the IoT system. In this research, an automation system is also applied to make the electronic devices under study only turn on when needed to optimize energy savings. This automation system is executed using Passive Infrared Sensor (PIR). This system is applied at certain hours where lighting is needed. The accuracy of the energy measurements using this system reaches 95,45% and the saving that can be made reach 74,45% base on data tested at the test location.

**Keywords :** Passive Infrared (PIR), Internet of Things (IoT), Smart Building, Electrical Energy.