

## **Standby mode minimization and periodic controlling for efficient building energy management system using fuzzy logic and image processing tool**

### **ABSTRACT**

In regards of smart and efficient energy management, many think that standby mode is purely the solution in reducing the electrical usage. However, the standby mode of electrical appliances is also among one of the main factors that contributes to the electrical wastage as the appliances still consume electrical energy during the standby operation. This research mainly focuses on creating a Fuzzy Expert System (FES) with a combination of image processing that minimizes the standby mode or phantom load and to evaluate the performance of the created dummy load system based Prototype. Applying the results of this research, the standby mode of the electrical appliances can be controlled automatically and manually and also minimized based on the desired fuzzy rules set. Hence it can be concluded that minimal use of electrical energy in standby mode or phantom load in electronic appliances can be achieved by using techniques of image processing and fuzzy controls which will can ensure minimum wastage of electricity.

**Keyword:** BMS building management system, GDP gross domestic product, EMS energy management system, KWH kilowatt hour, GUI graphic user interface, EEE electrical and electronic equipment, CCTV close circuit television, DAQ data acquisition