

ABSTRACT

The demand for electricity continues to increase in line with population growth and technological advances. This situation affects the residential sector, including boarding houses that rely on electrical systems. Gang Saleh boarding house is a boarding house with 11 rooms that uses a postpaid electrical system. There are challenges such as power outages due to unbalanced electrical load distribution in each room. Additionally, the boarding house owner resides outside the city, and the residents have limited ability to address electrical issues.

In response to the problem that arose, a solution was devised to address the issue by creating a device that could monitor and control electricity usage in each room. The system was designed to track consumption in each room, identify excessive electricity usage, and prevent sudden power outages caused by the MCB (Miniature Circuit Breaker).

Based on the results obtained, this system successfully monitored electrical energy for three days. The three PZEM-004T sensors integrated into the system had average accuracy percentages of 98.03 %, 97.95 %, and 97.94 %. These values indicate that the system's accuracy in reading electrical energy parameters is quite high. Additionally, the microcontroller operates within a temperature range of 50.2 °C to 53.8 °C. The measurement accuracy and device durability demonstrate that the system can operate stably.

Keywords: Boarding house, Electrical energy, Electrical monitoring, Microcontroller, PZEM-004T