

ABSTRACT

Boarding houses or also known as boarding houses are one of the basic needs for students, students, workers or anyone who is on the move away from home or the area for temporary shelter. Boarding houses are very affordable and easy to find because now many people make their houses as boarding houses. At this time, it is common to see or even face situations where boarding tenants are charged extra for electricity usage. This happens because boarding house owners are worried about losses due to excessive use of electronic devices by tenants. Often there are also situations where the tenant does not stay in the boarding room for several days or weeks, but the electricity bill remains the same as usual. Without realizing it, this can be detrimental to boarding tenants. This study proposes a power reading monitoring system and electricity cost estimation in internet of things-based boarding rooms using the PZEM-004T multifunction sensor that can measure current, voltage, power and energy. ESP32 microcontroller that can connect to the internet and also relay as an automatic power breaker. The purpose of the system is to find out the daily use of electricity and also the estimated electricity costs incurred in boarding rooms so that boarding tenants and boarding house owners can monitor in real time through a database that can be viewed via the internet so that when paying electricity bills no one feels disadvantaged. In this study, the design of the tool that functions as desired was obtained with error values in current and voltage parameters of 2.38% and 0.25% respectively so that the accuracy values of current and voltage parameters were obtained respectively 97.62% and 99.75% and the average delivery delay value of 453.9 ms.

Keywords: *power usage, cost estimation, boarding room, PZEM-004T, internet of things.*