DESIGN OF ELECTRICITY USE PROTECTION AND MONITORING SYSTEM ON LOADING SCALE ROOM BASED ON THE INTERNET OF THINGS

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ABSTRACT

The use of electrical energy has become an absolute thing along with the development of electronic devices. The use of electric power often causes fatal disasters such as fires in buildings and also along with the continued increase in the cost of using electricity, the use of electricity must be paid more attention so that electricity costs do not increase. This problem is often experienced in places that are used by more than one family or called boarding houses or boarding houses whose residents consume different power but by dividing the total cost equally. This often causes protests for those who do not use too much electricity. Therefore it is necessary to have a system or tool that can provide protection and monitoring in the use of electrical power can be controlled properly. These problems are the basis for making a prototype in the form of a Protection System Design and Monitoring of Electric Power Usage at a Boarding Room Scale Load Based on the Internet of Things. There are 3 parameters displayed in this monitoring, namely current, voltage, and power. In carrying out its functions, the system uses an on-off control action to perform protection with a relay module as an actuator, while for monitoring parameters it takes ACS712 sensor to read current and ZMPT101B to read voltage. This system uses NodeMCU ESP8266 as a system and processing data obtained from reading and sending it to the IoT platform. To display the data results from sensor readings using a 16x2 LCD and Blynk. Overall the system has been able to provide protection by disconnecting the electric current when there is an overload. From the test results, the average current error is 3%, the average voltage error is 1.26% and the average power is 0.03%, for the cost rate can display the cost of a day, a week, and a month of use. From the Blynk test with the serial monitor, it has been successfully read well and can display the reading results in real time, and can send notifications if there is an excess of power.

Keywords: Monitoring, Protection, Internet of Things, Blynk