ELECTRICITY LOAD MONITORING AND CONTROL SYSTEM BASED ON INTERNET OF THINGS (IOT)

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ABSTRACT

All work and human needs are highly dependent on the presence of electrical energy, especially on household needs. Human negligence in the use of electrical energy will cause waste which also has an impact on increasing the cost of using electrical energy. Therefore, a tool is needed that is able to monitor the use of electrical energy and is able to limit the current use of the load, even though the user of electrical energy is not at home. To make this tool, it takes a voltage sensor, a current sensor, a relay, and a NodeMCU. The voltage sensor uses ZMPT101B which functions to read the voltage value, the current sensor uses ACS712 which functions to read the current value, the relay serves to limit the current value by means of the current sensor reading the current value on the load and then the author adjusts the program by limiting the current that may enter by 2 A and if it exceeds the current limit this monitoring tool will turn off, Arduino UNO functions to process data read from voltage and current sensors, and NodeMCU as a WIFI module that functions to send data to Blynk so that it can be viewed with the internet network. The results of the tests carried out by measuring for 2 hours on the load of the iron, fan, television, soldering iron, dispenser, HP laptop charger, incandescent lamp, and refrigerator using ZMPT101B and ACS712 resulted in an error of 0.3% and 0.28%, respectively.

Keywords: ZMPT101B, ACS712, NodeMCU