SMARTHOME DESIGN AND ENERGY MONITORING USING BLYNK IOT APP

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ABSTRACT

Recent technological developments have had a major influence on the ease with which humans can carry out activities. Currently, humans can carry out activities more effectively and efficiently, for example, to communicate now they can use the internet which allows two or more people to connect in real time. Likewise, many human jobs are made easier thanks to the Internet of Things (IoT) for example device control and state monitoring that can be done elsewhere. The concept of controlling devices and monitoring remotely can be implemented in a smarthome. This smarthome system can be useful for busy people, sick people, old people and others. The purpose of this system is to make it easier for users to control devices and monitor energy through their smartphones. To create a smarthome system and energy monitoring in this study the author uses ESP32 as a microcontroller, the blynk application as a relay control medium and displays monitoring results, the relay module as an automatic switch, the PZEM-004T sensor module as a sensor for reading current, voltage, power, energy, power factor, and frequency. The results obtained in this study were successful in controlling the relay connected to 3 lights and 3 outlets which were controlled at a distance of 1m, 6km, 10km, 41km, 147km with a 100% success rate. For energy monitoring, the results read by the PZEM-004T sensor and displayed on the BLYNK application will be compared with the readings with the Sanxing brand PLN kWh and the average error for 5 readings is ; voltage 1.37%, current 3.64%, power 4.97%, power factor 0.52%, and energy measurement 7.4%.

Keywords*: Smarthome, BLYNK, Monitoring*