DESIGN OF HOUSEHOLD ELECTRICAL ENERGY USAGE MONITORING SYSTEM USING ESP 32 AND BYLNK

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ABSTRACT

Modern households often have many electronic devices that contribute to electricity consumption. Uncontrolled use of electricity can cause significant energy waste and increase electricity bills. Kwh meters only display electricity usage. This study aims to design and build a household electricity usage monitoring system using ESP32 and Blynk. This study allows measurement and monitoring of electricity consumption. ESP32 is used as a Wi-Fi microcontroller to connect devices to the internet network and send data to the Blynk application, while the PZEM004T sensor is used to read current, voltage and energy. The test results show that this system has a high level of accuracy, with a voltage measurement accuracy of 99.4% and a current of 97.8%. This system also successfully displays data on usage costs and remaining electricity tokens and is able to control electrical devices using relays and RTCs.

Keywords: Electrical Energy Monitoring, ESP 32, BLYNK, relay, RTC