

ABSTRACT

Wind power plants are a potential energy source for generating electricity in a sustainable and environmentally friendly manner. The process of monitoring and measuring the resulting electrical parameters is generally carried out manually using an analog or digital multimeter and is carried out at the location where the device is located. So it is felt to be less efficient because it takes quite a long time and data cannot be obtained at any time. In this research, the author designed a monitoring prototype of a mini wind power plant based on the Internet of Things which is designed to monitor and collect data from the mini wind power plant prototype in real-time. This prototype consists of a wind turbine, generator, INA 219 sensor, and DC voltage sensor connected to the NodeMCU ESP32 as the main data processing device. The sensor is used to measure current and voltage parameters. The data collected by the sensor module is sent to the thingspeak platform via the Wi-Fi network and displayed on the LCD. The IoT-based mini wind power plant monitoring system can work well, with test monitoring results showing positive success, where all data was successfully sent to the ThingSpeak platform. The average difference in delivery time of 23.2 second shows consistency and accuracy in sending data to the ThingSpeak platform.

Keywords: *Internet of Things, Sensor INA 219, Voltage Sensor, NodeMCU ESP32, Thingspeak*