ABSTRACT

In this research, a monitoring of the potential of solar energy and sunlight in the citeureup village based on IoT has been carried out. Solar panel monitoring is carried out using two monitoring tools, namely a solar light intensity monitoring tool consisting of a NodeMCU microcontroller and a TSL2561 sensor and a solar panel voltage and current monitoring tool consisting of an Arduino Uno WiFi R3 microcontroller, an acs712 sensor and a 40V voltage sensor. Measurement data is sent and stored into the Antares platform. Measurements were carried out for seven days (August 31 – September 7), the highest data were obtained from measurements of intensity and solar radiation on August 31 at 149485 lux and 1354 W/m2 (clear weather), the lowest data were measurements of intensity and solar radiation on September 3 at 132556 lux and 1201 W/m2 (cloudy weather) with a tool error of 6.62% for monitoring intensity and 6.33% for monitoring solar radiation. Also obtained data on the energy potential of solar panels and energy consumption of the highest load of 4 kWh and 0.78 kWh on August 31 (the weather tends to be sunny), the lowest data is 2.2 kWh and 1.3 kWh on September 6 (the weather tends to be cloudy and rainy) with an error value respectively, the voltage and current sensors after calibration are 0.26% and 2.31%.

Keywords: Solar Panels, Intensity, Radiation, Energy Potential, Sensors, IoT.