

***Off-Grid PLTS Monitoring System at SMPN 4 Tempurejo, Jember Regency  
Using a 150 Wp PV System***

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**ABSTRACT**

*Fossil fuels are a source of electrical energy in Indonesia. As technology develops, the use of fossil fuels begins to slowly decrease, being replaced by new, renewable energy. One use of new renewable energy is the use of solar energy. This is in accordance with the innovation of a solar power plant monitoring system based on the Internet of Things (IoT). Off-Grid PLTS monitoring system design is an IoT system design process starting from system components and wiring that are adjusted to the electrical load at SMPN 04 Tempurejo. Components used include ESP 32, PZEM-017, PZEM-004T, and TFT LCD. The solar panel output monitoring system uses the PZEM-017 module to measure voltage, current and power. The PLTS system output uses the PZEM-004T module to measure voltage, current, power, energy and frequency. The IoT monitoring system for off-Grid PLTS at SMPN 4 Tempurejo has the main function of monitoring the PLTS system which is designed to use internet connectivity to make it easier to use. This monitoring system is very suitable for use in small and medium scale PLTS because the energy consumption is only 14.4Wh.*

***Keywords:*** *Internet of Things, Monitoring, PZEM-004T, PZEM-017. Off-Grid Solar Power Plant*