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Development and Analysis the Performance of E-Wakaf Solar System FKEE Monitoring using IoT Approach

Abstract

Today, renewable energy systems are becoming the best way to generate electricity. Solar energy is one of the most attractive sources of renewable energy used for electrification. Harnessing solar energy needs a photovoltaic (PV) system that converts light energy from sunlight to direct electricity. Therefore, to evaluate its performance, real-time monitoring system is needed. This study briefs about using the Internet of Things (IoT) to performance monitoring and manage PV systems in real time. Thus, the project discusses the development of E-Wakaf Solar System Monitoring Using IoT developers using Arduino Uno as main controller of the system. For develop of project, voltage sensor, current sensor and waterproof temperature sensor to monitor the performance of Solar panel system. Next, a NodeMCU ESP8266 device is used as an intermediary between device and ThingSpeak platform. The ThingSpeak platform is a website that functions to store data and this system is called as the Internet of the (IOT). The functionality of this system has been tested and compared with reading data manually and through ThingSpeak platform. Therefore, the data more accurate is reading through ThingSpeak platform in which the probability of human error when reading data manually is higher. Using IoT increases knowledge of the operating parameters in real time. This allows to gain control over PV systems installed in remote areas, easily and rapidly to analyze fault diagnosis, maintenance, generation recording and quality data.