Contribution ID: **214** Contribution code: **S1 Physics Innovation** Type: **Poster Presentation**

Design and implementation of a low-cost real-time photovoltaic panel monitoring and recording system using LabVIEW for rural areas

Solar power generation from photovoltaic panels is likely to increase in the future, especially in rural areas where the power grid is inaccessible. Over time, such systems are subject to deteriorate due to environmental conditions, as well as the current and voltage systems. If not properly maintained, the photovoltaic panel may deteriorate faster than normal. This research aims to design and operate a low-cost and easy-to-use real-time photovoltaic panel measurement and data recording system for rural areas using labVIEW program on Arduino Nano, ACS712-20A, FZ0430 and DHT11. The sensor system sends data to the Arduino Nano board for processing which then sends the data to the LabVIEW program to display and record the electricity production. The results show that the sensors used are able to measure accurately. The measurement and data recording of the system can be performed completely and continuously without any errors. Therefore, it can be said that this measurement and data acquisition system can accurately and efficiently measure various parameters, is easy to use, suitable for small solar power generation system in rural areas where WIFI signal is not stable and can detect initial malfunctions of photovoltaic panels. It can also be further developed for use in solar power generation measurement and prediction systems or to check the reliability. Failure of the photovoltaic systems in rural areas in the future is possible. In addition, this research can also be developed for future measurement and prediction of solar photovoltaic systems in rural areas, bringing many benefits to improving the quality of life for local people.

Author: Mr CHAIJUM, Natawee (Bansomdejchaopraya Rajabhat University)

Co-authors: Mr POOTHONGPENG, Panuwat (Bansomdejchaopraya Rajabhat University); Mr NINTHUK, Sorawit (Bansomdejchaopraya Rajabhat University)

Presenter: Mr CHAIJUM, Natawee (Bansomdejchaopraya Rajabhat University)

Session Classification: Poster: S1 Physics innovation

Track Classification: Physics Innovation