Development of IoT based monitoring and fault detection technique of Hybrid PVT System

Md Tofael Ahmed[1,2], Masud R. Rashel[1,2], Md Suruj Ali[1,2], Md Jubair Ahmed[2], Fernando M. Janeiro[1,3] and Mouhaydine Tlemçani[1,2]

[1]University of Évora, Mechatronics Engineering Department, Portugal
[2]Instrumentation and Control Laboratory, Instrumentation and Control Laboratory, Portugal
[3]Instituto Superior Tecnico, Institute of Telecommunications (IST), Portugal

Corresponding/Presenting author: ahmed@uevora.pt

Talk Abstract

The evolved monitoring and fault detection technic of hybrid PVT systems is playing a crucial role in the modern energy management system. The number of PV plants are exponentially increasing and to ensure optimal performance, require continuous observation and maintenance. Unpredictive weather characteristics results uncertainty of the output monitoring system and the non-linearity of the solar cells characteristics result in complicated faults detection using conventional methods [1]. The main purpose of this study is to monitor the PVT system output and identify the faults in real time using IoT. In order to solve these problems, integrating Artificial Intelligence (AI) has become increasingly a common choice [2,3]. The existing monitoring and fault detection systems are expensive, complex and requires high energy investment. An automatic low-cost virtual monitoring data acquisition system with fault detection of hybrid PVT will be developed in this work. The proposed system is able to store, monitor, and display both collected data of the environmental variables including other relevant electrical output parameters. Additionally, it will detect the faults in the panel by analyzing the obtained current-voltage (I-V) and power-voltage (P-V) curve with stored data. It is found relevant to do such experimentation as the monitoring and fault detection helps to improve the PVT system's performance. Additionally, the proposed system will be put in the grid simulator to evaluate its robustness and effectiveness.

Keywords: PVT System, monitoring, fault detection, IoT, MPPT.

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