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AN IMPROVED CONTROLLER BASED ON MPPT CONTROL STRATEGY FOR PHOTOVOLTAIC SYSTEMS

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ABSTRACT

Improvement in the conversion of solar energy into electrical energy and also the cost reduction has helped increaseits growth. Maximum Power Point Trackingplays a vital role in photovoltaic (PV) system because they increase the efficiency of the solar photovoltaic system by increasing the power output. In this paper, two different controllers which are the Conventional (CVN) and the modified Maximum Power Point Tracker (MPPT) were considered. Different MPPT techniques were also considered and the best among the techniques was discovered. A modified algorithm was then developed using the known and efficient algorithms reported such as the P&O, OV and SC. The two controllers were constructed and their performance was evaluated by analyzing the electrical parameters gotten from them in various seasons. The modified algorithm which can be referred to as the modified P&O was compared with the convectional algorithm and a MATLAB program was used to implement all the algorithms. It was then deduced from the results of the performance of the two algorithms that the efficiency of modified MPPT is 45% more than that of convectional system.

KEYWORDS: Maximum Power Point Tracking (MPPT), Photovoltaic (PV), Constant Voltage (CV), Open Voltage (OV), Short Circuit Current (SC), Performance,

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