

Abstract

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Improved Performance State-Flow Based Photovoltaic Maximum Power Point Tracking Technique

The non-linearity of the Power-Voltage characteristics of a photovoltaic (PV) array that depends on the panel temperature and irradiance condition tends to inevitability of using Maximum Power Point Tracking (MPPT) technique for continuously tracking the maximum power at each ambient condition. PV MPPT can be considered as event driven problem. In addition to that, State-Flow is commonly used as a graphical design and development tool which can be utilized in logic problems' solving and complex control systems. This paper presents an enhanced performance PV MPPT technique based on State-Flow design. A detailed analysis along with simulation and experimental results confirm the feasibility of the proposed technique in comparison with conventional Perturb and Observe (P&O) MPPT technique.