Abstract

This paper presents a fuzzy logic controller for maximum power point tracking (MPPT) in photovoltaic system. An easy and accurate method of modeling photovoltaic arrays is proposed. The model and fuzzy based control strategies are combined to form intelligent controllers that are more accurate and robust. The model based controller is designed such that the reference signal for PWM generator of the converter can be adjusted to achieve maximum power generation from the photovoltaic system. The proposed fuzzy logic controller shows better performances compared to the P&O and PI MPPT based approach. A MATLAB based modeling and simulation scheme along with MPPT and fuzzy logic controller is proposed which are suitable for studying the I-V and P-V characteristics of a PV array under a non-uniform irradiation and different temperature. The model has been experimentally validated.

References

Fuzzy logic controller for the maximum power point tracking in photovoltaic system


Index Terms

Computer Science
Control Systems

Keywords

Mppt Converter Non-linear Approach Chopper Photovoltaic Characteristics