

Maximum Power Point Tracking of Photovoltaic Array using APPSO

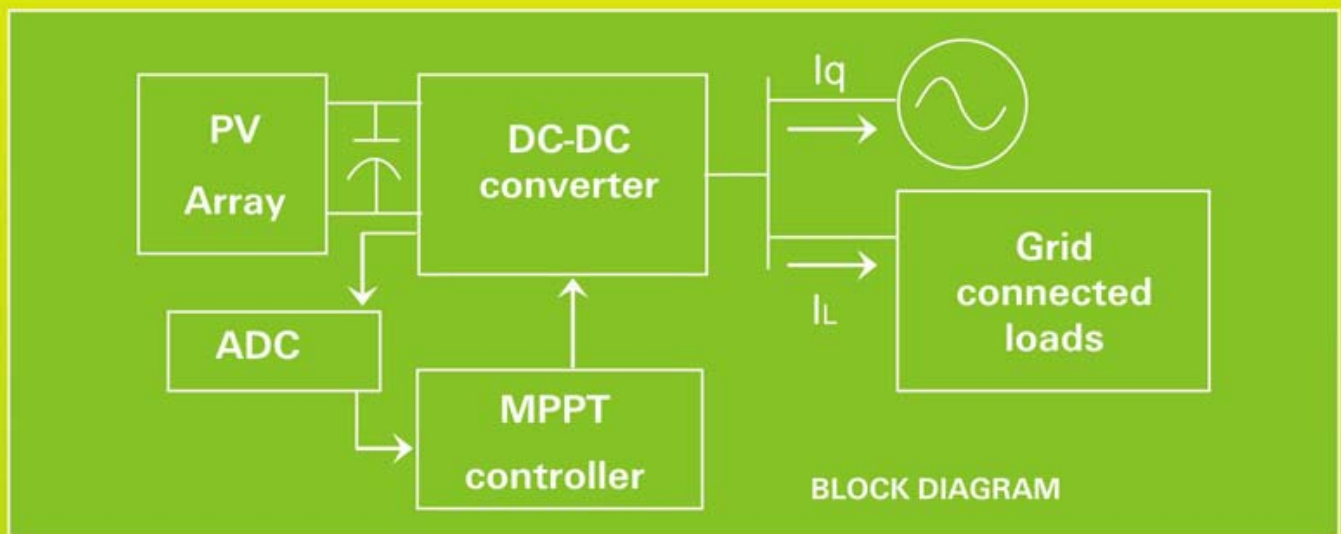
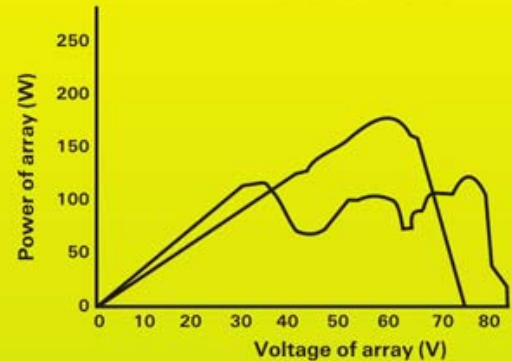


Introduction

Major challenge in using a PV source in Solar photovoltaic systems (SPV) is to tackle its nonlinear output characteristics resulting in multiple peaks in the P-V characteristics.

It reduces the effectiveness of the existing MPPT schemes.

Here we propose a new variant of PSO called APPSO which perform excellently in finding the global maximum power point even under changing illumination condition like passing by clouds, nearby building etc.



APPSO ALGORITHM

Step 1: Randomly initialize the points in the search space.
Step 2: For all points explore the neighbouring points & check the error at those points. If error is less in the neighbouring points then go to Step3 otherwise go to step 5

Step 3: Go to those points. If error is tolerable go to step 4 otherwise go to step2.
Step 4: Stop.
Step 5: If error is tolerable go to step 4 otherwise go to step 6
Step 6: Reinitialize the points

Various Components used

- >> MSP430FG4168(microcontroller)
- >> TL2575HV-05(DC/DC Converter)
- >> ADS1204-1(ADC)

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TI India Analog Design Contest

