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Utilizing a DCDC Converter, examine how well a solar PV array performs when par tially in the shade.

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Abstract

The photovoltaic power generation component is the solar PV module. The solar PV array is discussed in the paper utilizing an incremental conductance method and a dc-dc converter with MPPT technology. The major goal is to keep the grid side load constant. As a guide, use the Sun Power SPR-305-WHT-U solar panel. The boost converter is used to maintain consistent voltage during the occurrence of partial solar panel shadows since during that period we may experience low voltage and output power reductions.While taking into account that the Pmax solar impedance must correspond with the load (or) grid to ensure constant voltage, MPPT is employed in this situation to maintain impedances.The duty ratio is periodically **altered.**

INTRODUCTION

People use a lot of power in their daily lives, which results in a huge demand for electricity in our day and age[1]. Because there aren't enough resources to meet demand, individuals must use renewable energy sources like solar and wind energy[2]. This allows people to meet demand. The main source of renewable energy is solar energy[3]. Solar power is employed as a generating source or as a grid-connected source. If the grid is close to the solar, we can connect directly[4]. Because the grid is far from some urban locations, solar energy can be employed as a generating source. We experience low voltage and low output power as a result of partial shade[5].

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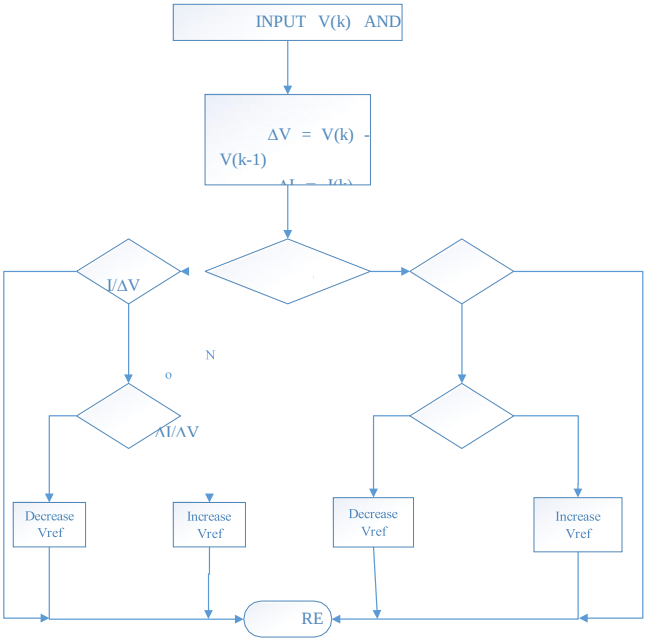
A) INCREMENTAL CONDUCTANCE METHOD

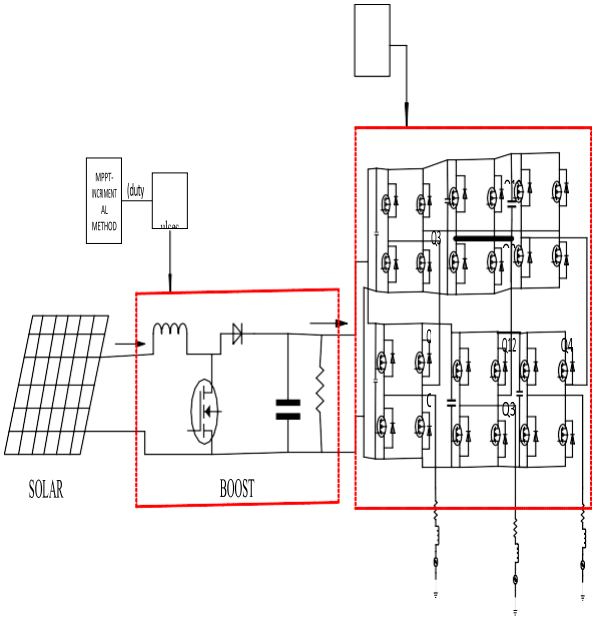


PROPOSED METHODOLOGY

BOOST CONVERTER

$$Vout = \frac{Vin}{1 - D}$$

SCHEMATIC DIAGRAM



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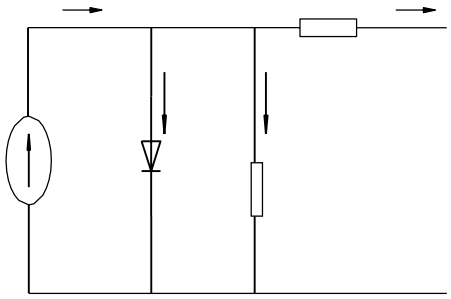
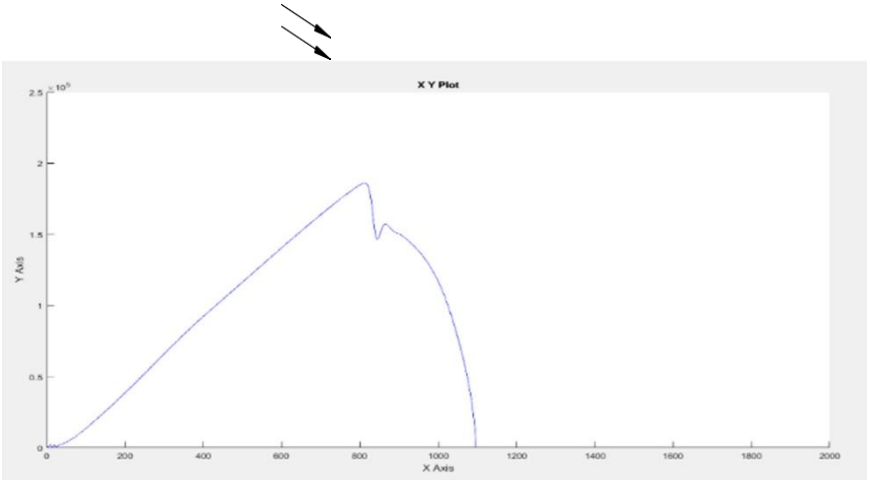
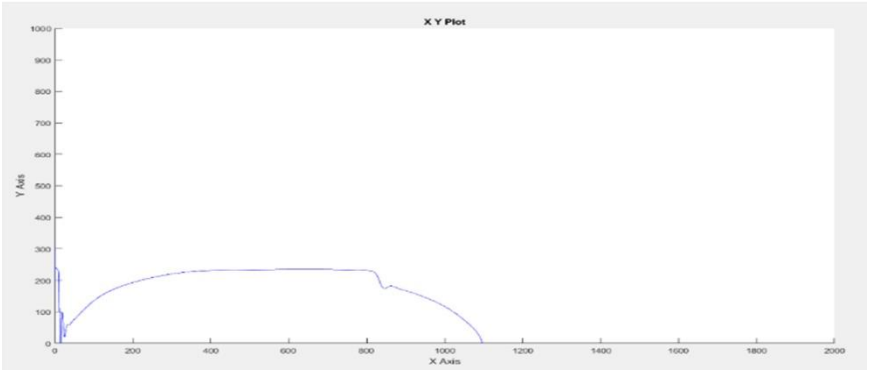


THREE LEVEL INVERTER

IV curve



:- PV curves



IV and PV curves of solar cell

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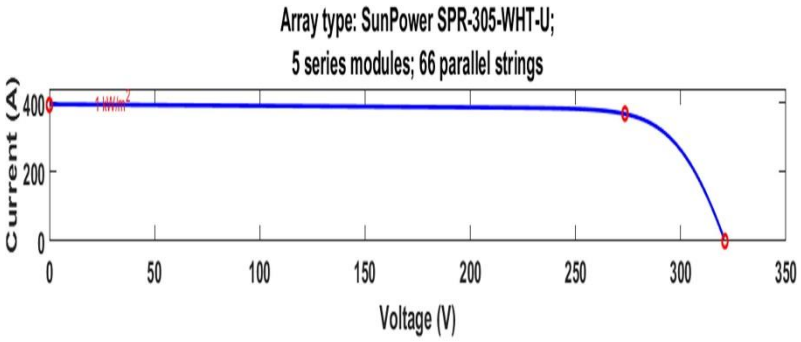

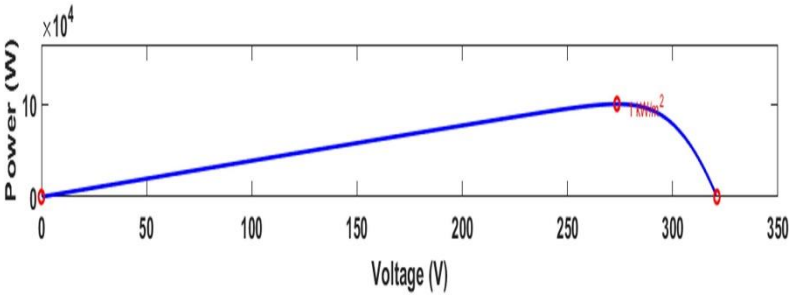

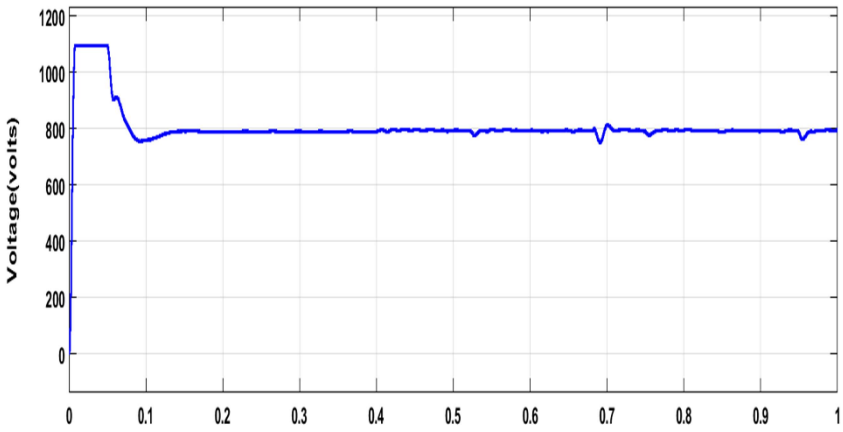

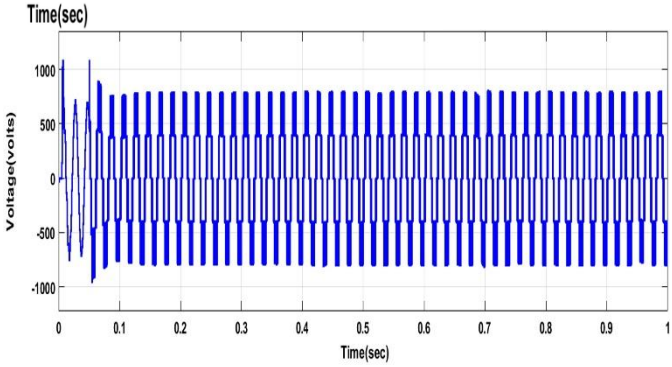

boost converter 3-level inverter graph

:- output voltage and current graphs with time

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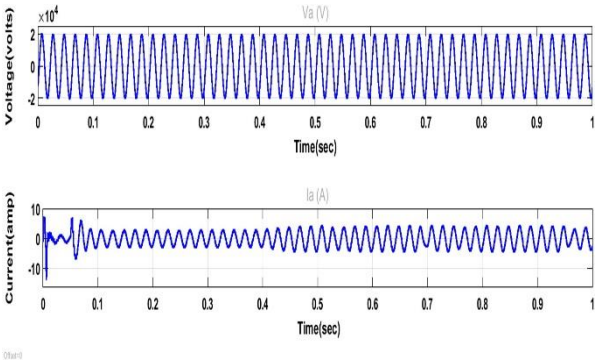

CONCLUSION

A boost converter with MPPT approach, a unique algorithm, and a model for solar PV cells in MATLAB/Simulink to reduce the effect of voltage fluctuations owing to partial shadow have all been effectively removed. That would continuously check the PV panel's output. Inverter H bridge output is therefore sent as a sinusoidal waveform that may be converted to the grid, lessening the impact of the partial shadow effect of older solar systems. The Simulink model's output is constant voltage, with a minor bit of transient noticed at the beginning that lasts less than 0.1 seconds until it becomes steady state. For the more, this model would offer a fantastic, powerful instrument to reduce the

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