

## Arduino-based Buck Boost Converter for PV Solar System

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### ABSTRACT

Recently, photovoltaic systems (PV) have gained tremendous attention as one of the most promising technology for harnessing renewable energy sources. However, the fluctuation of output voltage with time due to due irradiance variation is one of the major drawback of PV solar system. Thus, in this paper, we propose a buck-boost converter based on Arduino microcontroller to maintain the output voltage of PV system at a desired value by controlling the duty cycle of the converter using pulse width modulator (PWM). The proposed system has been tested using both simulation and prototype to prove effectiveness of our design and obtain a fixed voltage at the output of solar panel regardless of irradiation conditions. The obtained results show that the developed converter performed well and attained 12 V constant output voltage in both modes (buck and boost)..

**KEYWORDS:** PV system; buck-boost converter; Arduino; PWM

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