DESIGN AND IMPLEMENTATION OF MULTI-INPUT DC-DC CONVERTER FOR HYBRID PV/WIND POWER SYSTEM

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ABSTRACT

Application of power system using solar energy (photovoltaic) and wind energy (wind turbine) has increased significantly due to the growth of a variety of techniques in power electronics. In general, solar energy and wind energy are complementary because of the abundant amount of solar energy during sunny weather or during the day and the wind usually blows hard on a cloudy day or at night.

In this final project there will be designed a multi-input DC-DC converter for hybrid PV/Wind power system. The purpose of this project is to produce a stable voltage which capable of supplying the load on a hybrid PV/Wind power system. Multi-input DC-DC converter requires an adjustment to the process of switching the input voltage. This setting is done by changing the duty cycle on the PWM pulse which is used to control the switching. It is expected that the hybrid PV/Wind power system can work either at the source of energy working together as well as working separately as a sources for converter.

Keywords: Multi-input DC-DC converter, hybrid power system, photovoltaic, wind turbine, buck converter, buck-boost converter.