

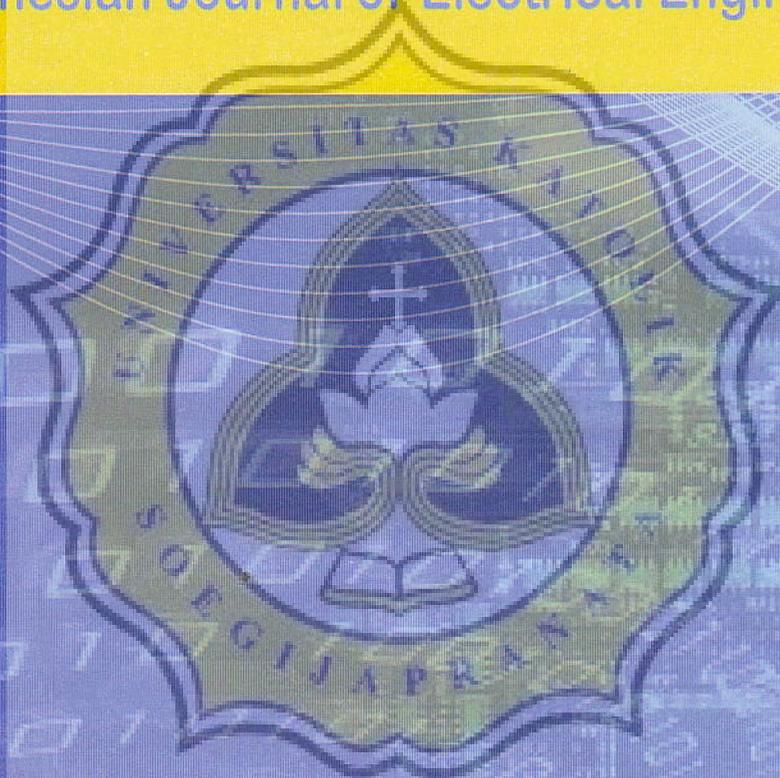
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## **Abstract**

*The use of solar energy is very important due to the fossil based energy crisis. Rapid progress in PV technologies has contributed to its applications. There are many PV based power plants built around the world. Maximum Power Point Trackers (MPPT) take significant role in operating PV modules to produce their maximum power. They are implemented by using choppers to match the load resistance and the PV resistance. Recently, integration between PV modules and grids is more popular due to their advantages. The PV-Grid system can be single stages, two stages or any other types and all of them use PWM (pulse width modulation) converters as their cores. In this paper, a PV-Grid System using buck-boost chopper as MPPT is analyzed. Power generated by PV modules is transferred to the grid by using an inverter that operated as a controlled current source so the complexity can be reduced. Finally, the dsPIC33 based control scheme for such a PV-Grid System was made as a laboratory scaled-prototype to verify the analysis and simulations.*

**Keywords:** *buck-boost chopper, PV-Grid, inverter, dsPIC*