

ABSTRACT

The issuance of ESDM regulation number 49 of 2018 concerning the use of a rooftop solar power generation system by consumers of PT PLN (Persero). It is encouraging to conduct research on one method of generating electricity using solar panels. The voltage generated in the generation process using solar panels is direct voltage (DC) and requires an inverter as a voltage converter to be alternating voltage (AC) which is the daily consumption of Indonesian people.

This final project aims to develop the use of renewable energy using an inverter. This inverter uses batteries as a source of voltage, Arduino as a source of SPWM waves, and MOSFETs are arranged in a full-bridge configuration to convert 12V DC electricity into 12VAC which will then be filtered using a low-pass filter to pass a 50 Hz frequency and then increase the voltage using a transformer to 220V_{max} / 155 V_{rms}.

The result of designing this final project is that the inverter is able to produce a sinusoidal wave output 220 V_{max} with a frequency of 50 Hz. With the output signal approaching the sinusoidal signal purely from the filter output, the power loss from the use of the transformer causes the power output from the inverter to be not optimal.

Keywords: Inverter, SPWM, Full bridge, Microcontroller, Pure Sine Wave