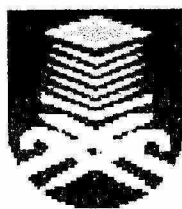


**SINGLE-PHASE MATRIX CONVERTER USING SINUSOIDAL
PULSE WIDTH MODULATION (SPWM)**

**This is presented in partial fulfillment for the award of the Bachelor of
Engineering (Honours) in Electrical
MARA UNIVERSITY OF TECHNOLOGY**



**MOHD AINOR BIN YAHYA
FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
40450 SHAH ALAM, SELANGOR.**

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ABSTRACT

A power converters incorporates an array of power switching devices that helps to convert and control electrical energy transformations under the guidance of control electronics. The general classification of converters on functional basic includes; AC – DC converters (rectifier), DC – DC converter (Chopper), DC – AC converter (inverter) and AC – AC converter at the same frequency (AC controller) or different frequency (Cyclo – converter) also known as matrix converter. Often a practical power electronic system may combine one or more forms of circuit to achieve the final conversion process.

This paper is concerned on the modelling and simulation of the single-phase matrix converter using sinusoidal pulse width modulation (SPWM) technique. The simulations of the circuit were done with one powerful software simulation package named MATLAB/ SIMULINK. Using IGBT and four diodes, the basic bi-directional switch was constructed. The circuit is fed from 50V (rms), 50Hz supplying a passive R load. The result obtained using this simulation tool are as presented..

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