

**AC CHOPPER USING SINUSOIDAL PULSE WIDTH
MODULATION (SPWM) TECHNIQUE**

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ABSTRACT

This project is concerned on the development of AC to AC converter using Sinusoidal Pulse Width Modulation (SPWM) switching technique. In this project, the IGBTs are used as a switching device for the inverter while diodes are use for rectifier. The Power System Block set with MATLAB/Simulink environment is used to study the behavior of the propose converter. The switching frequency of the converter is being varied which are 5kHz, 7kHz and also 9kHz and is being fed to the R load circuit of the proposed converter. The modulation index also is being varied from 0.1 to 1 to do variation on the output voltage and output current. The effect of varying the modulation index and also the switching frequency are also investigated on this work.

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

In recent years, AC-AC converters or commonly known as AC Chopper is widely used in many application such as in heating industry, lighting control, AC motors controller, starting of induction motor and also to control the speed of the fan and pump. The only disadvantage of a single AC-AC converter is that the amplitude of certain harmonic frequencies becomes abnormally high. This converter can convert from a fixed AC input voltage into a variable output voltage. To convert from AC to AC signal basically undergoes AC-DC-AC conversion as shown in Figure 1.1.

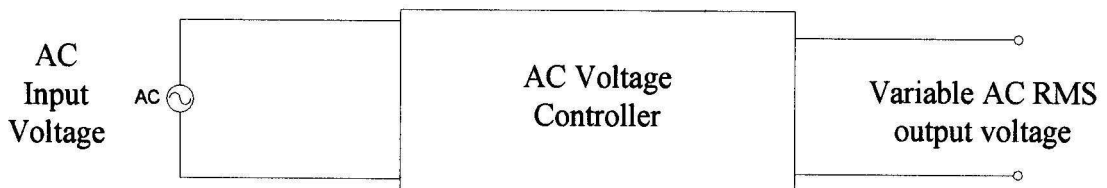


Figure 1.1: AC Chopper Concept

AC voltage controllers are working to vary the RMS value of the alternating voltage applied to a load circuit by introducing MOSFET, Thyristor, IGBT and BJT between the load and a constant voltage AC source. An AC voltage controller is a converter