

A STUDY ON SIMULATION OF VOLTAGE SOURCED INVERTER BY USING SPWM TECHNIQUE

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ABSTRACT

This paper presents a study on simulation of Sinusoidal Pulse Width Modulation (SPWM) technique which is employed in three phase Voltage Sourced Inverter (VSI) to get the sinusoidal output waveform. The simulation method is established by using the software Powersim (PSIM). The simulation results are valuable to analyze the output produced in Alternating Current (AC) side with variable frequency and modulation index hence the generated harmonic can be observed.

TABLE OF CONTENTS

DECLARATION	i
ACKNOWLEDGMENT	ii
ABSTRACT	iii
TABLE OF CONTENTS	iv
LIST OF FIGURES	vi
LIST OF TABLES	ix
LIST OF SYMBOLS AND ABBREVIATION	x
INTRODUCTION	1
1.1 Background of Study	1
1.2 Significance of the Project	3
1.3 Objectives of the Project	4
1.4 Scope of the Project	5
1.5 Thesis Organization	5
LITERATURE REVIEW	7
2.1 Introduction	7
2.2 Literature Review	7
2.3 Main Task of Power Electronic	10
2.4 Power Quality	11
2.5 Total Harmonic Distortion	13

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Power electronic devices grant voltage supply variable in both magnitude and frequency to be used to activate Alternating Current (AC) motors at frequencies other than the supply frequency. Due to the rigorous space requirements, less high power devices and unaffordable cost of electronic devices, a techno-economical solution could not be found even the growth in this direction have taken consign long ago.

Variable AC inverter drives are becoming progressively more well-known in nowadays' motor drives for the reason of speedy developments in the field of power electronics. Besides, as well as economically viable, inverter assemblies weight and space constraints at the present.

Nowadays, in numerous applications for power electronic circuits are utilized such as power electronic converters which they convert the voltage from one kind to another. The converters change Direct Current (DC) to AC or vice versa. These devices are called as Voltage Sourced Converter (VSC) and the type of converter used in this study is inverter as shown in Figure 1.1.1 which converts DC input to AC output [1].

Ordinarily, Voltage Sourced Inverter (VSI) and Current Sourced Inverter (CSI) are the fundamental two types of inverter can be presented. It is said that VSI provides work for a DC link capacitor and a switch voltage waveform meanwhile CSI uses a DC link inductance and a switch current waveform at the motor terminals. Due to the insensitivity to short circuit and noisy environment, CSI is a reliable and robust device. In the meantime, VSI is more ordinary compared to CSI by reason of the