MICROCONTROLLER BASED DELTA MODULATED PWM FOR 3-PHASE INVERTER

AYU ANNUR FETRAH BT YUSOFF

This thesis is submitted as partial fulfilment of the requirement for the award of the Bachelor Electrical Engineering (Power System)

Faculty of Electrical & Electronic Engineering
Universiti Malaysia Pahang

JUNE, 2012

"I declare that this thesis entitled "*Microcontroller Based Delta Modulated PWM for 3-phase Inverter*" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree."

Signature : _____

Author : AYU ANNUR FETRAH BT YUSOFF

Date : 21ST JUNE 2012

"I hereby acknowledge that the scope and quality of this thesis is qualified for the award of the Bachelor Degree of Electrical Engineering (Electronics)"

Signature : _____

Name : RAMDAN BIN RAZALI

Date : 21ST JUNE 2012

TABLE OF CONTENTS

LIST OF FIGURES

List of Symbols

dv	=	Window width in delta modulator in volts.
f_m	=	Modulation frequency.
S	=	Slope of the triangular estimated wave.
S_F	=	Falling slope of carrier/estimated wave.
S_R	=	Rising slope of carrier/estimated wave.
t_i	=	Terminating position of i-th pulse.
t_{i-1}	=	Starting position of i-th pulse.
V_F	=	Estimated wave (Carrier wave).
V_I	=	Modulated signal.
V_L	=	Lower boundary of estimated wave of DM.
V_m	=	Magnitude of sine wave.
V_R	=	Reference sine wave (Modulating sinewave).
V_S	=	Magnitude of DC supply to electronic circuit.
V_U	=	Upper boundary of estimated wave of DM.
ω	=	Fundamental frequency in rad/sec.
ω_R	=	frequency of input sine reference wave in rad/sec.
ΔV	=	Window width in delta modulation.

List of Abbreviation

CPU	Central Processing Unit.
dc	Direct Current.
DM	Delta Modulation.
I/O	Input Output.
PWM	Pulse Width Modulation.
RAM	Random Access Memory.
ROM	Read Only Memory.
RWDM	Rectangular Wave Delta Modulation.
SPWM	Sinusoidal Pulse Width Modulation.