FINAL YEAR PROJECT REPORT

SPEED CONTROL OF DC MOTOR BY SWITCH MODE POWER SUPPLY (SMPS)

A PROJECT REPORT

Submitted by

Muhammad Naeem

Aamar Sharif

In partial fulfillment of the requirements for the award of degree of

BACHELOROF SCIENCE

IN

ELECTRICAL ENGINEERING

APPROVED

Project Advisor:_____ Director Projects: _____

DEPARTMENT OF ELECTRICAL ENGINEERING

SCHOOL OF ENGINEERING

UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

June 2015

FINAL YEAR PROJECT REPORT

SPEED CONTROL OF DC MOTOR BY SWITCH MODE POWER SUPPLY (SMPS)

Submitted by

Muhammad Naeem

Aamir Sharif

DEPARTMENT OF ELECTRICAL ENGINEERING

SCHOOL OF ENGINEERING

UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

June 2015

Estimated Project Timeline

TASK	WEEK																									
	11/1	11/8	11/15	11/22	11/29	12/6	12/13	12/20	12/27	1/3	1/10	1/17	1/24	1/31	2/7	2/14	2/21	2/28	3/7	3/14	3/21	3/28	4/4	4/11	4/18	4/25
Study of PWM & DC-DC Converter																										
Designing of DC-DC Converter																										
Simulating DC-DC Converter																										
DC-DC Converter Hardware																										
Report writing of FP 1																										
Preparation of presentation																										
Presentation																										
Study of P&O (MPPT)																										
Programming the micro controller																										
Simulation of micro controller																										
Assembling the project																										

Finalizing of project																										
Report writing (Drafting)																										
Create final test data																										
Final Test and Error Analysis																										
Final report writing & submission																										
Presentation																										

Work Distribution:

Joint Effort

ID: 070920052

ID:091320073

ID: 070920052

ID:091320073

Signature:

DECLARATION

We hereby declare officially that our project work entitled, "Speed **Control of DC Motor by Switch Mode Power Supply (SMPS)**", submitted to the "Department Of Electrical Engineering" under School Of Engineering at University Of Management And Technology, is a record and written evidence of our work performance under the guidance of Mr.Nauman Ahmad (Lecturer at EE Department). This document along with its project work is submitted in the partial fulfillment of the requirements of the award of the degree of *Bachelor Of Science in Electrical Engineering*. The results embedded in this document and performance done is not done or submitted to any other University or Institute for the award of any degree or diploma.

Muhammad Naeem Signature: _____

Aamir Sharif Signature: _____

ACKNOWLEDGMENT

With the help of ALLAH ALMIGHTY, we all are able to complete our project. We would like to pay gratitude to ALLAH and then thanks to our parents for putting up their confidence in us and getting us here. We would like to express my deepest appreciation to all of the people who have helped us to complete our task. A special thanks to our Sir Nauman Ahmad, whose guidance was a role model for us and added to our skills and co-ordination.

Furthermore, we would like acknowledge with much appreciation the role of our Institute whose name brings us together to complete this crucial task of “Speed Control of DC Motor by Switch Mode Power Supply (SMPS)”.A heartiest congratulation to team members who work so well to complete the goal. Lastly we really appreciate the efforts of other staff members and teachers who have helped us in our presentation and tend us to develop a successful project. Their advices will really lead us to the road of success.

Thank you

ABSTRACT

This thesis gives the whole idea and theme of the "*Speed Control of DC Motor by SMPS*" to the reader.An efficient and commonly use power converter nowadays is 10 Switch Mode Power Converter (SMPS), Switch Mode Supply (SMPS) and liner power supply are two types of DC power supply available in market. Due to the same power rating, customer prefers SMPS than linear power supply. SMPS is smaller, cheaper and lighter than linear power supply. SMPS also have better efficiency than linear power supply. In this thesis an AC to DC converter SMPS circuit, having a BJT's for switching operation and a PWM based feedback circuit for driving the switching of the BJT's.The ideal switch is when all power is absorbed by the load and there is hundred percent energy efficiency, there is no current when the switch is open and there is no voltage when the switch is closed. For this project, PWM (Pulse Width Modulation) is being used to drive the switches.This project is focusing on developing SMPS using fly-back converter topology. In this design the line voltage at 220V/50Hz is taken as input. An Isolation Transformer is used to isolate the DC output from input supply. The transformer output is rectified by the high frequency Diode bridge rectifier and is filtered using a capacitor to give the regulated DC output. A Voltage regulator is connected to give the precise voltage output. This regulated voltage is driven by PWM feedback signal, to control the output voltage level. The dc voltage at the output depends on the width of the switching pulse. The on and off of the switch is important because the duty cycles of the PWM is used to regulate the DC output voltage. So the desire output voltage can be produced by generate various duty cycle.

Table of Contents

List of Figures