

FINAL YEAR PROJECT REPORT

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



A PROJECT REPORT

Submitted by

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

BACHELOR OF SCIENCE

IN

ELECTRICAL ENGINEERING

APPROVED

Project Advisor: _____

Director Projects: _____

DEPARTMENT OF ELECTRICAL ENGINEERING

SCHOOL OF ENGINEERING

UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

June 2015

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Estimated Project Timeline

TASK	WEEK																										
	11	11	11	11	11	12	12	12	12	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	
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	1	8	15	22	29	6	13	20	27	3	10	17	24	31	7	14	21	28	7	14	21	28	4	11	18	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																											

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 used power converter nowadays is the Switch Mode Power Converter (SMPS), Switch Mode Supply (SMPS) and linear 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 desired output voltage can be produced by generate various duty cycle.

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