

**FACULTY OF ELECTRICAL ENGINEERING  
UNIVERSITI TEKNOLOGI MARA  
PULAU PINANG**

**FINAL REPORT:**

*DAYLIGHT SENSOR SWITCH USING LIGHT SENSOR CONTROLLED BY  
LM7809 IC*

**MUHAMMAD FAIZ BIN ABDUL RAHIM**

**2014462586**

**MUHAMMAD NAQIB BIN MAD SIAM**

**2014473056**

**SUPERVISOR:**

**MDM. NORHASNELLY ANUAR**

**This report is submitted to the Faculty of Electrical Engineering,  
Universiti Teknologi MARA (UiTM).**

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS	
ABSTRACT	
LIST OF FIGURES.....	06
LIST OF ABBREVIATIONS.....	07
<b>CHAPTER 1 INTRODUCTION .....</b>	<b>08</b>
1.1 Background of Study .....	08
1.2 Problem Statement .....	09
1.3 Objective of Research .....	10
<b>CHAPTER 2 MATERIALS AND METHODS .....</b>	<b>12</b>
2.1 Methodology .....	12
2.1.1 Design Flow Chart .....	12
2.2 Experimental Setup .....	18
<b>CHAPTER 3 CIRCUIT DESIGN AND OPERATIONS .....</b>	<b>29</b>
3.1 Schematic Diagram .....	29
3.2 Circuit Operation .....	32
3.3 PCB Design .....	33
<b>CHAPTER 4 RESULT AND DISCUSSION .....</b>	<b>40</b>
4.1 Hardware/Software Implementation Result .....	40
4.2 Circuit Testing and Troubleshooting .....	42
<b>CHAPTER 5 CONCLUSION AND DISCUSSION .....</b>	<b>43</b>
5.1 Conclusion .....	43
5.2 Recommendation .....	44
REFERENCES .....	45

## **ACKNOWLEDGEMENTS**

First and foremost, I offer my sincerest gratitude to Allah SWT as completing this report. Not to mention other party as our supervisor for guiding us how to write this report and consulting on any problem arises on our projects. Let us not forget our parents for the massive support to finalize this report either financially or moral support to us. Lastly, I offer my regards and blessings to all my friends and all of those who supported me in any respect during the completion of the project.

## **ABSTRACT**

This project is mainly based on LDR that actuate based on light for switching purposes. There is a load connected at the end of the LDR-switch circuit where it controls 2 motor. The motors will be applied to a curtain to make an automated curtain that is controlled by the LDR.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of Study

Inefficient energy usage of electricity has become a major problem in most part of the world every day. Massive energy amount had been wasted every day. By not turning off the TV off when you are not watching or not switching off the light when you leave the room, energy is wasted. One of the reason people did not use energy efficiently is because they took the availability of energy for granted. People should realize that the fuel used to generate the energy is limited and hence everyone should start conserving energy. With energy price is on the rise, efficient usage of electricity could help to reduce the electricity bills.

There has been a lot of projects on automatic sensor/switch been developed in the past decades. Some of the widely used system is by using motion sensor, the sensor is activated and completes the circuit when movement is detected [1]. Time switch, after certain programmed time, the sensor is activated and completes the circuit [2]. Light sensor, the sensor completes the circuit by using light as variables, to react with surrounding lights around the Light Dependent Resistor [3]. All of this project have one objective which is to automatically turn on or off the appliance on our preferences. This project proposes an automated switching based on Light Dependent Resistor on IC 7809.

This project basically controls the switching of the load connected to it, by using light as variables. This daylight sensor works when it receive light (exposure more than 10 Lux from the surrounding). When in dark (less than 10 Lux), exposure of the light received at the Light Dependent Resistor, the Light Dependent Resistor will increase its resistance and prevent power from being supplied to the load. Regardless day or night, the circuit will also activated when it receive light (more than 10 Lux) exposure to it.