DEPARTMENT OF ELECTRICAL ENGINEERING UNIVERSITI TEKNOLOGI MARA CAWANGAN PULAU PINANG

FINAL REPORT OF DIPLOMA PROJECT

TITLE: VEHICLE COUNTER

DATE: 9.2.2004

STUDENT 1: MOHD HELMI BIN ABDUL KADIR (2000626091)
EE113
STUDENT 2: MOHD IKHWAN BIN IBRAHIM (2000316823)
EE111

SUPERVISOR: EN ALI BIN OTHMAN

TABLE OF CONTENTS	<u>PAGE</u>
Title	1
Acknowledgement	2
Abstract	3
CHAPTER 1	
1.1 Introduction	3
1.2 Scope of work	4
1.3 objective	5
CHAPTER 2: CIRCUIT DESIGN AND OPERATION	
2.1 Schematic Diagram	6
2.2 List of Component	7
2.3 Circuit Description	8
2.4 Block Diagram	10
2.5 simulation of the circuit	11
CHAPTER 3: HARDWARE CONSTRUCTION	
3.1 Hardware Construction (transformation)	13
3.2 Etching process	16
3.3 Soldering process	17
3.4 Safety caution	18
3.5 Process Flowchart	20
CHAPTER 4 : HARDWARE	
4.1 components description	21
4.2 Technique of conforming components	23
CHAPTER 5: DISCUSSIONS AND RECOMMENDATIONS	
5.1 Future Work	25
5.2 Advantage Project	26
5.3 Project Benefit	27

ACKNOWLEDGEMENTS

In this opportunity that has given to us, first of all we would like to forward our appreciation upon our Project lecturer, Encik Ali Bin Othman for his kindness of giving us the guidance and support in developing the project and providing the report.

We also would like to say thanks to Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN) for giving a loan in our period of studies because the loan has solved our problem about the insufficient fund. From the loan given, we are able to precede our project by purchasing all the components and materials needed for the project.

Besides, we also appreciate for all the facilities and the equipment that are provided by the Electrical Engineering Department of the Mara university of technology. Those things have given us a lot of benefits in our project.

For mama and daddy, thank you for your encouragement. Without it, we might not be able to achieve until this level. Also not to be forgotten to all my fellow friends who have gave some developed criticizes on our project.

Finally, we are really appreciate for all the experiences that we have got during the progress of the project because they are meaningful to us for developing ourselves on the aspect of technical, troubleshooting and software in the future.

ABSTRACT

At the beginning, the idea of creating the project of photoelectric sensor came from our observation in the daily life usage of the incoming vehicles (car and motorcycle) in the parking lot. Our project purpose is to upgrade the system in parking lot by counting the volume of the vehicles that come in a parking lot in order to inform the parking user the volume of the input car. So that the user will be notify that the parking lot is full or not. This will safe time for the user rather than seeking for parking. Despite that also it will reduce the traffic jam in the parking lot due to the existence of this upgrading device (vehicle counter).

Briefly, this project is about to prepare counting device that will indicate the vehicles volume in digital (7 segment display). By creating this project it will upgrade the parking system in parking lot by putting the vehicle counter at the entrance of the parking lot circuit

With a great hope through this project, the upgrading system in parking lot can be handled systematically as a step towards the world of technology.

CHAPTER 1

1.1 INTRODUCTION

Background

In science and technology, business and infect most other fields of endeavor. We are constantly dealing with qualities. Qualities are measured, monitored, recorded, manipulated arithmetically, observed, or in some other way utilized in most physical system. It is important when dealing with various quantity that we able to represent the value of efficiency and accurately. There are basically two ways to representing thee numerical values of quantities analog and digital.

In our project paper, we tried to represent the numerical values in digital system. In digital representation, the quantities are represented not by proportional quantities but by symbol called digits. Our project paper is 'vehicle counter'. Its described here counts up every time that shining of lights on a photo resister is interrupted. We are classes into three sections of circuitry. The section is called input transducer, where the lights energy input convert into electricity. The second section is a placed that the vehicle counter circuits counts up every time lights shining on a photo resistor is interrupted. The last section is an output transducer, where that placed is consist a LED displays which convert back electricity energy into lights energy. We can apply this project to our life. There are many occasions when various object, parts, product and even people must be counted. In a factory as unit most part on a conveyer belt there is need to keep a count. When people enter a room or a store, it is often desirable to know how many present at a certain time.