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Automatic modern garbage system collection / Mohammad  
Roszwan Jamaudin.

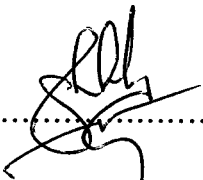
**AUTOMATIC MODERN GARBAGE SYSTEM COLLECTION**

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**BEKC**

**2009/2010**

“I hereby declared that I have read through this report entitle “AUTOMATIC MODERN GARBAGE SYSTEM COLLECTION” and found that is no comply the partial fulfillment for awarding the degree of Bachelor in Electrical Engineering (Control, Instrument and Automation)

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**AUTOMATIC MODERN GARBAGE SYSTEM COLLECTION**

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**A Report Is Partial Fulfillment Of Requirements for the Degree of Bachelor In Electrical  
Engineering (Control, Instrument and Automation)**

**Faculty of Electrical Engineering  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
2009/2010**

“I declared that this report entitle “AUTOMATIC MODERN GARBAGE SYSTEM COLLECTION” is the result of my own research as cited in reference. This report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.”

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## ABSTRACT

This project is about designing and developing a prototype of an automatic modern garbage system collection to make the process of collection garbage is convenience to use, less maintenance and less smell. The project proposed is fully automatic system which can reduce the time and power consumption. The automatic modern garbage system collection is fully automatic using Programmable Logic Controller as the controller for this project .The program is design is by using the CX-programmer and can be simulated based on the design. The automatically process starts from the inserting the garbage bag, then sealing and finally arranges the bag automatically. The development of the hardware for this project is the most important part. The researching, designing and developing for the mechanism for the process need to be done properly so that the process can run as plans.

## ABSTRAK

Projek ini adalah tentang mereka dan membangunkan sebuah prototaip sistem pengumpulan sampah moden secara automatic untuk membuat proses pengumpulan sampah mudah untuk digunakan, mudah diselenggara dan pengurangan bau. Projek yang dicadangkan adalah sebuah sistem automatik sepenuhnya yang dapat menjimatkan masa dan mengurangkan penggunaan tenaga kerja. Pengumpulan sampah automatik sistem moden adalah sepenuhnya automatik dengan menggunakan Programmable Logic Controller sebagai sistem yang mengawal untuk projek ini. Program untuk kawalan ini direka dengan menggunakan perisian CX-programmer dan boleh disimulasikan berdasarkan rekaan process. Proses secara automatik bermula dari memasukkan beg sampah, kemudian menutup dan akhirnya menyusun secara automatik. Pembangunan perkakas untuk projek ini adalah bahagian paling penting. Penyelidikan, rekaan dan membangunkan mekanisme untuk proses perlu dilakukan dengan betul agar proses dapat dijalankan seperti yang dirancang

## CONTENTS

CHAPTER	CONTENT	PAGE
	TITLE	i
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xiii
	LIST OF FIGURES	xiv
	LIST OF APPENDIX	xviii
1	<b>INTRODUCTION</b>	
1.1	Introduction	1
1.2	Project Objective	2
1.3	Scope of the Project	2
1.4	Problem Statement	2



<b>2</b>	<b>LITERATURE REVIEW</b>	
2.1	SWOT Analysis	3
2.2	Programmable Logic Controller	6
2.2.1	Programming	8
2.2.2	Ladder logic	8
2.3	Sensor	10
2.4	Actuators– Solenoids	11
2.4.1	Operation of Solenoids	12
2.4.2	Push and Pull Type Solenoids	13
2.5.5	DC motors	13
2.5.5.1	Current	14
2.5.6	Basic Switches	15
<b>3</b>	<b>METHODOLOGY</b>	
	Methodology	18
3.1	Project flow	18
3.2	Flow chart	20
3.3	Researching about the project/project related	21
3.3.1	Project Related	21
3.4	First designing concept	22

3.5	Researching for the Method to Opening/Cutting/Sealing Plastic Bag	23
3.5.1	Method for placing the plastics bags	23
3.6	Design and drawing	25
3.6.1	Hardware Development Plans	26
3.6.2	Sealing & Cutting Parts	27
3.6.3	Pulling Part	28
3.6.4	Transfer Mechanism	28
3.7	Software Development	29
3.7.1	Introduction for PLC model CJ1GH	29
3.8	CX-One	30
3.9	Getting Start with CX-programmer	31
3.9.1	Opening the CX-Programmer	31
3.9.2	Creating a New File for Programming	32
3.9.3	Editing Tool bar	34
3.9.4	Creating a ladder diagram Program	36
3.9.4.1	Ladder Logic Inputs	36

3.9.5	Ladder diagram instructions	37
3.9.5.1	Ladder Diagram Instruction	37
3.9.5.2	Load - Normally open output	38
3.9.5.3	Load Not - Normally closed input	39
3.9.5.4	And - Logical "AND" with normally open contacts	40
3.9.5.5	And Not - Logical "AND" with Normally closed contacts	40
3.9.5.6	Or - Logical "OR" with normally open contacts	41
3.9.5.7	Or Not - Logical "OR" with normally closed contacts	42
3.9.5.8	Output - Normally open output	43
3.9.5.9	Keep - Changes bit state according to 2 inputs	44
3.9.5.10	Timer	45
3.10	PLC controller working modes	47
3.11	Mnemonic Program Editing	47
3.12	Working On-line	48
3.13	PLC Operating Mode	48
3.14	Programming On-line	49
3.15	Uploading Program/s from the PLC	49
3.16	Downloading Program/s to the PLC	49
3.17	Program Monitoring	50

3.18	Data Trace/Time Chart Monitoring	51
<b>4</b>	<b>RESULTS</b>	
	Result	52
4.1	Introduction	52
4.2	Programming	52
4.3	Ladder Diagram	53
4.3.1	First Process	55
4.3.2	Second Process	58
4.3.3	Final Process	60
4.4	Hardware Development	62
4.4.1	Main Body Structure.	62
4.4.2	Sealing and Cutting mechanism	63
4.4.3	Rotating Mechanism	63
4.4.4	Transfer Mechanism	64
4.4.5	Mechanism to pull plastic bag	63
4.4.6	Forward-Reverse Circuit	65
4.4.7	Plastic bags	66
4.4.8	Power Supply	67
4.4.9	Panel for Interfacing	67
4.4.10	The Automatic Modern Garbage System Collection	68

<b>5</b>	<b>ANALYSIS &amp; DISCUSSION</b>	
5.1	Analysis	69
5.1	Type of PLC	69
5.2	Developing the hardware.	70
5.3	Functional of circuit	70
5.2	Discussion	70
<b>6</b>	<b>CONCLUSION &amp; SUGGESTION</b>	
	Conclusion & Suggestion	71
6.1	Conclusion	71
6.2	Suggestion	72
	<b>REFERENCES</b>	73
	<b>APPENDIX</b>	74

**LIST OF TABLES**

<b>TABLE</b>	<b>TITLE</b>	<b>PAGE</b>
Table 1	SWOT analysis for this project	4

**LIST OF FIGURES**

<b>FIGURE</b>	<b>TITLE</b>	<b>PAGE</b>
Figure 2.1	SWOT analysis method	3
Figure 2.2	PLC Structure	6
Figure 2.3	PLC System Overview	7
Figure 2.4	CQM1H Programmable Controllers	7
Figure 2.5	Proximity sensors	10
Figure 2.6	Solenoids	11
Figure 2.7	Operating of Solenoids	11
Figure 2.8	Operation of Solenoids	12
Figure 2.9	DC motor	13
Figure 2.10	DC motor	13
Figure 2.11	DC motor	14
Figure 2.12	Structure Diagram of Typical Basic Switch	15
Figure 2.13	Components of the Switch	16
Figure 2.14	Example of limit switch	17

Figure 3.1	Process Flow	20
Figure 3.2	First Design Concept	22
Figure 3.3	Printing/Photocopy method	23
Figure 3.4	Rice packaging method	24
Figure 3.5	Drawing prototype	25
Figure 3.6	Layout sections	26
Figure 3.7	Overall Process Mechanism	27
Figure 3.8	Sealing and Cutting Part	27
Figure 3.9	Pulling Part	28
Figure 3.10	Transfer Mechanism	28
Figure 3.11	PLC model CJ1GH	29
Figure 3.12	FA Integrated Tool Package	30
Figure 3.13	Opening the CX-Programmer	31
Figure 3.14	CX-programmer window	32
Figure 3.15	Creating a New File for Programming	32
Figure 3.16	The setting for CPU type is based on the PLC models	33
Figure 3.17	Window for starting designing	33
Figure 3.18	A simpler Relay control	36
Figure 3.19	Diagram Workspace	47
Figure 4.1	Automated Garbage Ladder Diagram Programs	54
Figure 4.2	Motor 1 Forward (Pull Plastic bags Mechanism)	55



Figure 4.3	Motor 1 Forward (Pull Plastic bags Mechanism)	55
Figure 4.4	Vacuum (Pull Plastic bags Mechanism)	56
Figure 4.5	Motor 1 Reverse (Pull Plastic bags Mechanism)	56
Figure 4.6	Motor 1 Forward (Pull Plastic bags Mechanism)	57
Figure 4.7	Motor Rotations and Timer Rung	58
Figure 4.8	Motor Rotations, Timer and Sealing Rung	58
Figure 4.9	Motor 3 Reverse Sealing	59
Figure 4.10	Motor 3 Reverse Sealing Stop	59
Figure 4.11	Motor 4 Conveyor Forward	60
Figure 4.12	Motor 4 Conveyor Reverse Stop	60
Figure 4.13	Continuous Sequence	61
Figure 4.14	Main Body Structure	62
Figure 4.15	Sealing and Cutting mechanism	63
Figure 4.16	Rotating Mechanism	63
Figure 4.17	Transfer Mechanism	64
Figure 4.18	Vacuum and Plastic hose	64
Figure 4.19	Plastic hose head	65
Figure 4.20	Forward-Reverse Circuit	65
Figure 4.21	Forward-Reverse Circuit	66
Figure 4.22	Plastic bags	66

Figure 4.23	Power Supply 12V/3A	67
Figure 4.24	Panels for Interfacing	67
Figure 4.25	Automatic Modern Garbage System Collection	68

**LIST OF APPENDIX**

<b>TITLE</b>	<b>PAGE</b>
APPENDIX A	74
APPENDIX B	75
APPENDIX C	76
APPENDIX D	77
APPENDIX E	78
APPENDIX F	79

## CHAPTER 1

### INTRODUCTION

#### 1.1 Introduction

The automatic modern garbage system collection is designed to make the process of collection to be made so it convenience to use, less maintenance, less smell, and less power consumption.

Nowadays the process and system for garbage are done normally. This may cost a lot of waste from every aspect such as time and man power. From the problem, came an idea to design this project that can be useful to people. The project proposed is fully automatic system which can reduce the time and power consumption.

The system collection is fully automatic using PLC .The program is design is by using the CX-programmer and can be simulated based on the design. The automatically process starts from the inserting the garbage bag, then sealing and finally arranges the bag automatically.

## **1.2 Project Objectives**

The objective is to design and develop an automatic modern garbage system collection and make all the process of the system is fully automatic by using PLC.

## **1.3 Scope of the Project**

The scope of this project will cover on:

- i. The development the programs using CX-programmer
- ii. The automatic system is controlled by PLC
- iii. Proper interfacing between hardware and PLC

## **1.4 Problem Statement**

Now day the process of collection garbage is operated manually. This process is normally needs to be done daily such as changing the plastic, transferring to larger container and tie up the bag normally. This process consumes more energy to be completed. This project proposed is designed to processes, which operate automatically. This includes the process of transferring and collecting the garbage once per week and could reduce the smell of the garbage.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 SWOT Analysis

SWOT Analysis is a strategic planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project. It involves specifying the objective of the project and identifying the internal and external factors that are favorable and unfavorable to achieving that objective.

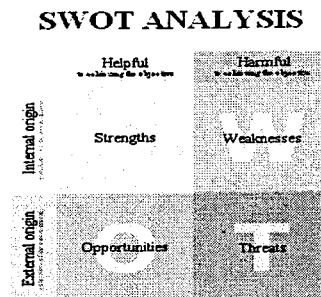





Figure 2.1 : Swot analysis method

Before starting do this project. Some researching about related programs and information need to be done. This analysis is to comparing other project with this project that want to be build using this method of SWOT analysis as shown in Figure 2.1. By using this method it easy to determine the value of this project (Automatic Modern Garbage).Table 1 show the SWOT analysis for this project.

Table 1: SWOT analysis for this project

SWOT / Product	Automatic Modern Garbage System Collection	Automatic dustbin, electric sensor 	The Trash Robot Series 4000 	Heavy-Duty Garbage Disposer 
Strength	<ul style="list-style-type: none"> <li>-The project is design to make the life easier.</li> <li>-Fully operates automatically by using PLC</li> <li>- Design to make the process of collection to be made so it convenience to use, more convenience to maintain, less smell, and less using main power.</li> <li>-Can store a certain amount of garbage bag</li> </ul>	<ul style="list-style-type: none"> <li>- The cover will automatically open and close.</li> <li>-This trashcan creates a germ free, odor free, automated environment. It keeps your hands clean while you are cooking or playing with your children.</li> <li>-It also helps prevent contamination, which reduces the threat of certain illnesses and infections.</li> </ul>	<ul style="list-style-type: none"> <li>-The 4-Can Trash Robot cart, which holds up to four 32-gallon trash containers and up to 4 recycling bins.</li> <li>-Features:</li> <li>4-Wheel Drive (All-Terrain)</li> <li>-Battery-Powered</li> <li>-Motor Intelligent Guidance Module</li> <li>Collision Detector</li> <li>Solar Panel or AC Battery Charging</li> <li>-Optional Strobe Light or Lighted Fiber Ring Audible Alarm</li> </ul>	<ul style="list-style-type: none"> <li>-Ultra-practical recycling container, helps user to easily sort out garbage without taking too much space</li> <li>-Color-coded in order to divide all recyclable and non-recyclable materials conveniently</li> <li>-Made of polypropylene</li> <li>-Eco-friendly</li> <li>•Available in three sizes</li> </ul>

Weaknesses	<ul style="list-style-type: none"> <li>- Suitable in office user</li> <li>- the designing of the product is complicated</li> <li>-The material that it use basically heavy.</li> <li>-Required a big area to place it</li> </ul>	<ul style="list-style-type: none"> <li>-The system collection is still manually.</li> <li>-Need a daily routine to change the garbage bag and throwing it.</li> </ul>	<ul style="list-style-type: none"> <li>-The system collection is still manually.</li> <li>-Need a daily routine to change the garbage bag and throwing it.</li> <li>-Required a large area to place it.</li> </ul>	<ul style="list-style-type: none"> <li>-same with the normal rubbish container such as dustbin or garbage can</li> </ul>
Opportunities	<ul style="list-style-type: none"> <li>- This project is having a large opportunity in office user.</li> </ul>	<ul style="list-style-type: none"> <li>-Because the trashcan turns an ordinary chore into something fun, your kids will have fun throwing the trash away for you</li> </ul>	<ul style="list-style-type: none"> <li>-suitable for small industrial user</li> </ul>	<ul style="list-style-type: none"> <li>-suitable for houses and office user</li> </ul>
Threat	<ul style="list-style-type: none"> <li>-The price may be large because it using PLC compare to the other system.</li> </ul>	<ul style="list-style-type: none"> <li>-There is a lot similar design such as this product</li> </ul>	<ul style="list-style-type: none"> <li>- Still need to be control by a remote</li> </ul>	<ul style="list-style-type: none"> <li>-There is a lot similar design such as this product</li> </ul>

This is the SWOT analysis which had been done after several researches on the information related with FYP project. This analysis still could determine and show the value of this project. It also can show the weakness and the threat of this project. From this analysis this project can be improve and re-adjusted to make it the best product and different from another product. From this analysis also make the project seem valuable to create.