

FACULTY OF ELECTRICAL ENGINEERING

UNIVERSITI TEKNOLOGI MARA

PULAU PINANG

FINAL REPORT :

AUTOMATIC PLANT IRRIGATION SYSTEM BY USING SOLAR POWER

SITI NUR AFIFA BINTI HAMIDI

SYAANATULBASARIAH BINTI SHA'ABAN

SUPERVISOR :

PUAN LINDA BINTI MOHD KASIM

This report is submitted to the Faculty of Electrical Engineering,

Universiti Teknologi MARA (UiTM).

In partial fulfillment of the requirement for the award of Diploma in Electrical Engineering.

This report is approved by :

.....

Puan Linda Binti Mohd Kasim

(SUPERVISOR)

Date : 6/10/2016

ACTNOWLEDGEMENT

First of all, I would express my gratitude to Almighty Allah for enabling me to complete my Final Year Project I and II that had been held in past last semester in this semester. As for my supervisor, Puan Linda Mohd Kasim I would thank you for all guidance that had given in Final Year Project I and II. I also would to thankful to my parents for all their moral values. It turns out the training in this field, which has given me a lot of experiences to carry out the project and report well. The advantages and benefits that I had gained from this Final Year Project will be applied for my studies and also in future. Lastly, I offer my regards and blessing to my colleagues and all of those that supported me in any respect during the completion of the project.

TABLE OF CONTENTS

ACKNOWLEDGMENT

ABSTRACT

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1 INTRODUCTION 1

 1.1 Background of Study..... 1

 1.2 Problem Statement 1

 1.3 Objective of Research 2

 1.4 Scope of Study 2

CHAPTER 2 MATERIALS AND METHODS..... 3

 2.1 Methodology 3

 2.1.1 System Diagram 3

 2.1.2 Block Diagram 5

 2.1.3 System Operation 6

CHAPTER 3 CIRCUIT DESIGN AND OPERATIONS 7

 3.1 Schematic Diagram 7

 3.1.1 Software developement 11

 3.1.2 Hardware Development..... 12

 3.2 Printed Circuit Board Layout 13

 3.3 PCB Process 14

 3.3.1 PCB Process Diagram 16

CHAPTER 4 RESULT AND DISCUSSION 20

 4.1 Software Simulation Result..... 20

 4.2 Hardware Implementation Result..... 22

 4.3 Circuit Testing and Troubleshooting..... 25

 4.4 Data Analysis and Discussion 26

CHAPTER 5 CONCLUSION AND RECOMMENDATION..... 27

 5.1 Conclusion..... 27

 5.2 Recommendation..... 27

REFERENCES..... 28

APPENDICES 29

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Solar power source are come from the sun either directly as thermal energy or through the use of photovoltaic cells in solar panels and transparent photovoltaic glass to generate electricity. Solar battery charger is a natural energy that can save money of paying electricity bill for a long term of benefit. The irrigation system is defined as a system that distributes water to targeted area. The efficiency of the irrigation is based on the system used. Since antiquity, the human life is based on agriculture and the irrigation system is one of the tools that boost agriculture.

Plant irrigation system also known as a watering plant system that is use to watering plant at home. Automatic plant irrigation system using solar power is a project that can make gardener life's easier. Automatic irrigation system provides the solution for watering the plant at home automatically even in the absence of human. People does not need to watering their plant anymore when its need water. The main purpose of plant irrigation system is to ensure that the plants are grown in the fertile condition. The system of plant irrigation system was controlled by using the soil moisture measuring sensor which controls the flow of water so that it can save water use in the house.

1.2 Problem Statement

Most people nowadays are very keen to grow plants. In recent times, everyone was busy with daily schedule. By using automatic plant irrigation system it can give benefits to all gardener out there. The plant will have enough of water and it is always in good condition. With this automatic plant irrigation system, gardener does not need to waste their time to watering plant. They can spend more time with their family. Besides, this project is using natural energy which is solar panel. Lastly, for long term of benefit it can save money of paying electricity bill.