

UNIVERSITI TEKNOLOGI MARA

**AUTOMATIC WATERING PLANT
SYSTEM**

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ABSTRACT

The automatic watering plant system is designed to address the challenge of maintaining optimal soil moisture levels for plant health in a convenient and efficient manner. Traditional methods of manual watering are often inefficient, leading to either overwatering or underwatering, which can harm plant growth and sustainability. The objective of this project is to develop an automated system that ensures plants receive the right amount of water based on real-time soil moisture data.

To achieve this, the system integrates a series of sensors, microcontrollers, and actuators. Soil moisture sensors are deployed to continuously monitor the moisture content in the soil. These sensors relay data to a microcontroller, which processes the information and determines when watering is necessary. An irrigation system, controlled by the microcontroller, is activated to deliver water to the plants when the soil moisture falls below a pre-defined threshold. Additionally, environmental sensors such as temperature and humidity sensors may be used to further refine the watering schedule.

The methodology involves designing the sensor network, programming the microcontroller for data processing and control logic, and implementing the irrigation system. The project includes phases of prototyping, testing, and iterative refinement to ensure reliability and efficiency.

The expected result is a fully functional automatic watering system that minimizes water wastage, reduces the need for manual intervention, and promotes healthier plant growth. By maintaining optimal soil moisture levels, the system aims to enhance the sustainability of plant care practices and contribute to water conservation efforts.

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TABLE OF CONTENTS

	Page
CONFIRMATION BY SUPERVISOR	2
AUTHOR'S DECLARATION	3
ABSTRACT	4
ACKNOWLEDGEMENT	5
TABLE OF CONTENTS	6
LIST OF TABLES	8
LIST OF FIGURES	9
LIST OF ABBREVIATIONS	10
CHAPTER ONE : INTRODUCTION	11
1.1 Background of Study	11
1.2 Problem Statement	11
1.3 Objectives	11
1.4 Scope of Study	11
1.5 Significance of Study	12
CHAPTER TWO : LITERATURE REVIEW	13
2.1 Benchmarking/Comparison with Available Products	13
2.2 Review of Related Manufacturing Process	15
2.3 Patent and Intellectual Properties	16
2.4 Summary of Literature	20
CHAPTER THREE : METHODOLOGY	21
3.1 Overall Process Flow	21
3.2 Detail Drawing	22
3.3 Engineering Calculation and Analysis	25
3.4 Bill of Materials and Costing	26
3.5 Fabrication Process	27
3.6 Functionality of Prototype	29

CHAPTER 1

INTRODUCTION

1.1 Background of study

Automatic Plant Watering System is not usually used in Malaysia but it is already used by other professional farmer in other country. Technology that will use in this project is pump to pump to water plants by using water sprinklers at the set time that has been set on timer. Purposed of this project is to save time and energy by using automatic plant watering system besides can control from far and can water plants on large scale in the same time.

1.2 Problem statement

This project basically are especially to help farmers in Malaysia and also all farmers around the world, the problem is village farmers do not know how to use the technology so from that this project is to make them easier to watering plants without using manual ways to water plants and make a convenient technology with a low budget to support them on watering plants. The problem of this existing technology are difficult to use and not friendly use. This project are designed to make it more simple and easier to use with a low budget. Other than that, there are not many manufactures of this technology in this country so I think this is one way to be a manufacture of this technology.

1.3 The main objective of this project are:

1. This project is to design Automatic Plant Watering System by using Solidworks
2. This project is to fabricates a small scale of Automatic Plant Watering System
3. This project is to analyse proof of concept of water pressure in Automatic Watering Plant System

1.4 Scope of project

1. The technical drawing is done by using Solidworks
2. The fabrication processes are done using machines available in UiTM Pasir Gudang
3. Materials for product are chosen based on the availability in the market
4. The selected electrical pump is submersible pump
5. The main electrical supply is DC
6. The prototype for this project is scaled down project