

UNIVERSITI TEKNOLOGI MARA

AUTOMATED AGRICULTURE SYSTEM WITH IOT

MUHAMMAD ADNILL BIN YAZET

Thesis submitted in fulfillment
of the requirements for the degree of
Diploma of Electrical Engineering

Centre for Electrical Engineering Studies
College of Engineering

FEB 2024

ABSTRACT

Automated agriculture systems with IoT enable farmers to optimize their operations, leading to increased productivity. Therefore, this project providing added value to its users, especially farmers today in obtaining more accurate agricultural values. Basically, this project consists of three inputs and four output. The inputs are sunlight sensor, soil moisture sensor, rain sensor. For the output used are the water pump, LCD, LED and the wi-fi module which provides the convenience of users to observe this system through the THINGSPEAK website through the laptop. This project is an example of the internet of think (IOT) being used as a facility because the system can observe certain values through a mobile phone such as the presence of water, soil moisture and the presence of enough light so that plants can live fresh. Through continuous monitoring and analysis, the system optimizes resource usage, mitigates environmental impact, and enhances overall crop yield. Real-time data accessibility empowers farmers with valuable insights, enabling them to make informed decisions and respond promptly to changing conditions.

ACKNOWLEDGEMENT

In the Name of Allah, the Most Gracious and Merciful. All praises to Allah SWT upon His Blessings, we have finally completed this Final Year Project (YP) report. First and foremost, we would like to address our utmost gratitude and appreciation to our supervisor, , Dr. Nurul Nadia Binti Mohamad, for all her contributions, ideas, motivations, and support throughout completing this project. We hereby grab the opportunity to thank everybody who has helped us either directly or indirectly from the very beginning of this project until the end of this project completion.

We owed so much appreciation to our parents and all family members for their love, care and support throughout the wonderful journey as a student in Faculty of Electrical Engineering. Also, we would like to give our credit to our beloved lecturers and all faculty members because without their guidance, support and attention, this valuable project would not be able to come in one piece.

Last but not least, lots of love and gratitude to our classmates, friends, and colleagues for your help, support and good teamwork; really appreciate all the good times together UiTM Pasir Gudang.

TABLE OF CONTENT

	Page
AUTHOR’S DECLARATION	ii
APPROVAL	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENT	vi-vii
CHAPTER ONE: INTRODUCTION 1	
1.1 Research Background	1
1.2 Motivation	2
1.3 Problem Statement	3
1.4 Objectives	4
CHAPTER TWO: LITERATURE REVIEW	
2. Introduction	5
CHAPTER THREE: METHODOLOGY	
3.1 Flowchart	7
3.2 Block Diagram	8
3.3 Components	9
3.3.1 Hardware	9-19
3.3.2 Software	20-21
3.4 Schematics	22

CHAPTER ONE

INTRODUCTION

1.1 Research Background

Automated agriculture systems with Internet of Things (IoT) technology are revolutionizing the way modern agriculture is practiced. These systems combine the power of automation and connectivity to enhance agricultural processes, optimize resource utilization, and increase overall productivity. With the integration of IoT devices and sensors in agricultural operations, farmers can monitor and manage their farms remotely, gather real-time data, and make informed decisions based on data-driven insights. The benefits of an automated agriculture system with IoT are numerous, including increased productivity, improved resource management, reduced costs, enhanced sustainability, and greater profitability.

Automated agriculture systems with IoT enable farmers to optimize their operations, leading to increased productivity. By averaging real-time data collected from sensors and devices, farmers can make data-driven decisions to improve the level of the ph water ,the humidity of the soil and the amount of the rain.. Efficient utilization of resources such as water, fertilizers, and energy is crucial in agriculture. By optimizing resource usage and reducing waste, automated agriculture systems can contribute to more sustainable and eco-friendly farming practices. IoT-enabled agriculture systems generate a vast amount of data from various sensors and devices. However, there are also challenges to consider, such as the initial investment cost, data privacy and security, and the need for adequate technical skills to operate and manage the system effectively.