

DEVELOPMENT OF IOT BASED SOLAR POWERED  
MUSHROOM HOUSE CONTROL AND MONITORING  
SYSTEM USING IOT APPLICATION



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2020



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**DEVELOPMENT OF IOT BASED SOLAR POWERED  
MUSHROOM HOUSE CONTROL AND MONITORING  
SYSTEM USING IOT APPLICATION**

This report is submitted in accordance with the requirement of the Universiti  
Teknikal Malaysia Melaka (UTeM) for the Bachelor of Electronics Engineering  
Technology (Industrial Electronics) with Honours

By  
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2020

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Tajuk: DEVELOPMENT OF IOT BASED SOLAR POWERED MUSHROOM  
HOUSE CONTROL AND MONITORING SYSTEM USING IOT APPLICATION

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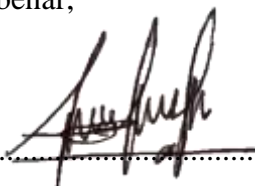
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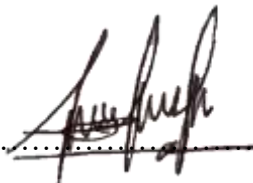
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## APPROVAL

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## ABSTRAK

Penggunaan cendawan telah diangkat dalam beberapa tahun kebelakangan ini di dalam dunia. Pemasaran cendawan yang mahal dan luar biasa adalah kekurangan dalam Showcase. Dalam had itu, kematangan adalah perkara yang harus dipulihkan. Apabila diceritakan tentang cendawan, kaedah dan persekitaran terbaik mesti dilakukan dalam prosesnya. Suhu dan kelembapan ideal telah dikaji oleh pakar bahawa suhu ideal berada di bawah 30 °C dan kelembapan ideal di atas 60%. Pada masa sekarang, kemajuan cendawan hanya dilakukan dengan cara yang tidak teratur. Sehubungan dengan itu, adalah penting untuk mereka bentuk semula prosedur umum untuk menunjukkan tanda pulangan hasil peningkatan dengan aset yang ideal. Salah satu sistem adalah dengan mengawal alam sekitar untuk mempercepatkan dan merangsang peningkatan dalam pembangunan cendawan. Rumah cendawan untuk cendawan adalah untuk membangunkan salah satu jawapan untuk kenaikan barangan mahal ini. Sistem yang dibuat adalah untuk menguruskan “communication” antara alat, sebagai contoh, antara sensor dan laluan. Struktur ini menggunakan Internet daripada perkara kemajuan yang mengandungi pembangunan sensor dengan sistem input untuk mengawal persekitaran di rumah cendawan. Kawalan yang sewajarnya terhadap persekitaran akan menghasilkan hasil yang lebih baik.

## ABSTRACT

Utilization of mushrooms has been on ascend in recent years on the planet. Expensive and extraordinary market mushroom are deficient in showcase. In that limit, age of such thing ought to be revived. At the present time, the mushroom advancement is just being done in an uncommonly unrefined way. Accordingly, it is imperative to redesign the general procedures to show signs of improvement yields with ideal assets. When it come to the mushroom, the best method and environment must take place in the process. The ideal temperature and humidity have been study by the expert that is the ideal temperature is below 30°C and ideal humidity is above 60%. Part of the systems is by supervising the environment to accelerate and stimulate the improvement in mushroom development. Green House for mushroom developing is the accomplishment for increment this costly item. The system made is to manage the correspondence between gadgets, for example, among sensors and passage. The structure utilizes Internet of Things advancement that contains sensor development with input system to control the surrounding in the green house (mushroom). Appropriate lead of the surrounding will create better yields.



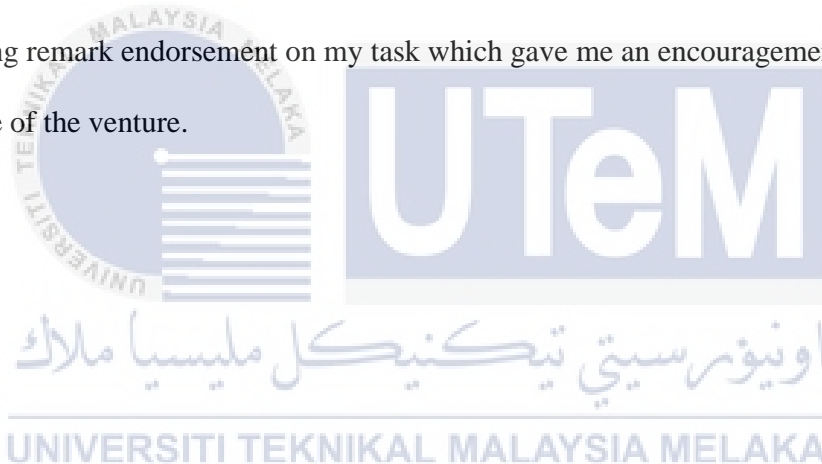
## DEDICATION

I would like to dedicate my work to my beloved parents, Jailani Bin Sulaiman and Arpah Binti Judin, my siblings and my friends.



## ACKNOWLEDGEMENTS

I might want to communicate my most profound thankfulness to each one of the individuals who gave me the likelihood to finish this report. A unique appreciation I provide for my final year project supervisor, IR. TS. MOHD SYHRIN AMRI BIN MOHD NOH, whose pledge in exhilarating endorsement and consolation, helped me to organize my undertaking exceptionally recorded as a hard copy this report. I might likewise want to extend my appreciation to each one of the individuals who have honestly and in a collateral way guided me all through the excursion, particularly my course mates that have offered compelling remark endorsement on my task which gave me an encouragement to improve the nature of the venture.



## TABLE OF CONTENTS

	<b>PAGE</b>
<b>TABLE OF CONTENTS</b>	<b>x</b>
<b>LIST OF TABLES</b>	<b>xiv</b>
<b>LIST OF FIGURES</b>	<b>xv</b>
<b>LIST OF APPENDICES</b>	<b>xviii</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xix</b>
<b>CHAPTER 1 INTRODUCTION</b>	<b>1</b>
1.1 Background	1
1.1.1 Deep Learning on Using IoT	1
1.1.2 Solar Powered	2
1.1.3 Green House or Mushroom House	3
1.2 Problem Statement	4
1.3 Objective	5
1.4 Scope of Project	5
<b>CHAPTER 2 LITERATURE REVIEW</b>	<b>6</b>
2.1 Introduction	6
2.2 Work Related	7
2.3 Comparison	12

2.4	Summary	14
<b>CHAPTER 3      METHODOLOGY</b>		<b>15</b>
3.1	Phase 1: Development of Project	16
3.2	Hardware Development	18
3.3	Phase 2: Monitoring and Control	21
3.3.1	Hardware Development	22
3.4	Phase 3: Analyse the performance	23
3.4.1	Testing and Analysing	25
3.5	Flowchart	25
3.6	Conclusion	26
<b>CHAPTER 4      RESULT AND ANALYSIS</b>		<b>27</b>
4.1	Introduction	27
4.2	Project Implement Stages	27
4.2.1	Development tools	27
4.2.2	Creation of application	28
4.3	How Does the Project Works?	29
4.4	Project coding	32
4.5	Project Testing	33
4.6	ANALYSIS PLAN	34

4.6.1	RUN 1	38
4.6.2	RUN 2	39
4.6.3	RUN 3	40
4.6.4	RUN 4	41
4.6.5	RUN 5	42
4.6.6	RUN 6	43
4.6.7	RUN 7	44
4.6.8	RUN 8	45
4.6.9	OVERALL RUN	46
4.7	PROJECT LIMITATION	47
4.7.1	Cooling Pad	47
4.7.2	Water distribution (piping system)	48
4.7.3	Number of Exhaust Fan	48
4.7.4	Flow Rate of the Pump	49
4.8	Future Research for this Project	50
4.8.1	Cooling Pad	50
4.8.2	Piping System	51
4.8.3	Number of Exhaust Fan	51
<b>CHAPTER 5</b>	<b>CONCLUSION</b>	<b>53</b>
5.1	Introduction	53

5.2 Conclusion

53

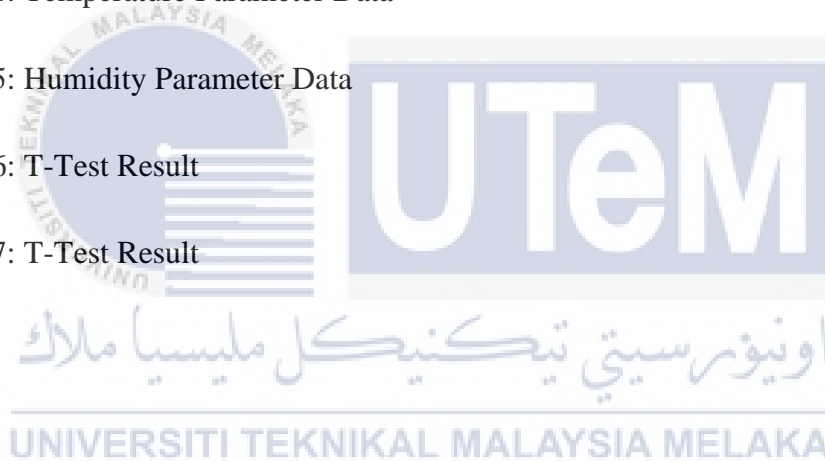
REFERENCES 55

APPENDIX 56



## LIST OF TABLES

TABLE	TITLE	PAGE
Table 2-1	Comparison Table	12
Table 4-1:	System Operations	34
<b>Table 4-2:</b>	<b>Condition and Parameter of The Factor</b>	34
Table 4-3:	Design of Experiment (DOE)	35
Table 4-4:	Temperature Parameter Data	35
Table 4-5:	Humidity Parameter Data	36
Table 4-6:	T-Test Result	36
Table 4-7:	T-Test Result	36



## LIST OF FIGURES

FIGURE	TITLE	PAGE
Figure 2-1	Test and configuration from Akkas, M.A	9
Figure 2-2	Solar panel by L. R. Lokesh Babu	10
<b>Figure 2-3</b>	<b>overall system by Amri <i>et al</i></b>	11
Figure 3-1	Major step of methodology	15
Figure 3-2	The flowchart of phase 1 of the projects	16
Figure 3-3	Block diagram of the system	17
Figure 3-4	DHT22 Sensor	18
Figure 3-5	NodeMCU	19
Figure 3-6	NodeMCU Pinout	20
Figure 3-7	Blynk Application	20
Figure 3-8	Phase 2 process	21
Figure 3-9	Block diagram phase 2	22
Figure 3-10	Water Pump	22
Figure 3-11	Exhaust Fan	23
Figure 3-12	Phase 3 process	24
Figure 3-13	Program flowchart	26



Figure 4-1 overall project with output hardware	30
Figure 4-2 project with PCB and casing	30
Figure 4-3 Blynk widgets	32
Figure 4-4 overall project	33
Figure 4-5 Temperature Run 1	38
Figure 4-6 Humidity Run 1	38
Figure 4-7 Temperature Run 2	39
Figure 4-8 Humidity Run 2	39
Figure 4-9 Temperature Run 3	40
Figure 4-10 Humidity Run 3	40
Figure 4-11 Temperature Run 4	41
Figure 4-12 Humidity Run 4	41
Figure 4-13 Temperature Run 5	42
Figure 4-14 Humidity Run 5	42
Figure 4-15 Temperature Run 6	43
Figure 4-16 Humidity Run 6	43
Figure 4-17 Temperature Run 7	44
Figure 4-18 Humidity Run 7	44
Figure 4-19 Temperature Run 8	45
Figure 4-20 Humidity Run 8	45
Figure 4-21 Overall temperature runs	46

Figure 4-22 Overall humidity runs	46
Figure 4-23 Cooling Pad	47
Figure 4-24 Piping System	48
Figure 4-25 Exhaust Fan System	49
Figure 4-26 water pump with 3000 L/H flow rate	49
Figure 4-27 Aluminium Bubble Wrap	50
Figure 4-28 Water Misting	51
Figure 4-29 Bottom Exhaust Fan (cool air in)	52
Figure 4-30 Industrial Exhaust Fan System	52
Figure 4-31 Upper Exhaust Fan (hot air out)	52



## LIST OF APPENDICES

APPENDIX	TITLE	PAGE
	Figure 0-1 SINAR SYUKRAWIE ENTERPRISE Site Visit	56
	Figure 0-2 Sir Syukor of SINAR SYUKRAWIE ENTERPRISE	56



## LIST OF ABBREVIATIONS

**IoT** Internet of Things



# CHAPTER 1

## INTRODUCTION

### 1.1 Background

#### 1.1.1 Deep Learning on Using IoT

The web of things, or IoT, is a briefing of affect processing gadgets, mechanical and electronic machines, articles, and living things that are supplied with novel identifiers (UIDs) and therefore the capability to manoeuvre input over a framework without anticipating that man to man or man-to-PC participation. A thing within the snare of things is often someone with a heart screen introduce, a tamed creatures with a biochip transponder, a vehicle that has worked in sensors to alert the thought process power when tire pressure is low or high or unnatural article which is able to be allotted an online Protocol (IP) address and might move information over a system. Reasonably, relationship in an exceedingly blend of endeavours are using IoT to figure altogether more beneficially, better handle customers to leave this world refreshed client care, improve aggressively and development the favour of the business.

An IoT typical groundwork contains web-locked in astute devices that use embedded systems, as an example, processors, sensors, and symmetry gear, to assemble, commit and catch up to speed data they capture from their environmental factors. IoT contraptions receive the sensor data they assemble by accommodate with an IoT section or other edge device where data is either dispatched to the cloud to be bankrupt down or analysed narrowly. Variety of the stage, these gimmicks communicate with other related gadgets and follow up to speed the information they draw from each other. The gadgets do the

greater a component of the work without human intervention, although individuals can articulate with the gadgets. For example, to line them up, give them guidelines or entry the knowledge. The convenience, structure organization and analogy show used with these online contraptions, as it were, rely on the IoT utilization information. IoT can likewise exploit computerized reasoning (AI) and AI to assist in process operation forms smooth and increasingly compelling.

### **1.1.2 Solar Powered**

Sunlight based force is usable endurance formed from the sun as electric or heat strength. Sun based intensity is caught in an array of ways, the most outstanding of which is with photovoltaic sun-panel that modify the sun's glare into applicable energy. Beside utilizing photovoltaics to create solar energy, sun-oriented vitality is ordinarily applying in warm function to warm indoor capacity or liquids. Landlord or business land can propose sunlight based high temp-water structure considering inactive sun-oriented warming to absolutely exploit the sun's endurance with sun energy innovation.

A sun powered board (otherwise called a sunlight-based module) comprises of a stack of silicon cells, a metal edge, a glass packaging unit, and wiring to move electric flow from the silicon. Silicon (nuclear #14 on the periodic table) is a nonmetal with conductive goods that permit it to ingest and convert daylight into convenient energy. At the point when light hits a silicon cell, the light makes electrons in the silicon be gotten under way, starting a progression of electric flow. This is common, the "photovoltaic impact," and it illustrate the regular versatility of sunlight-based board tech.

The photovoltaic procedure works through the accompanying expansive advances:

- 1 The silicon photovoltaic sun powered cell assimilates sunlight-based radiation

- 2 At the point when the sun's beams interface with the silicon cell, electrons start to move, making a progression of electric flow
- 3 Wires capture and feed this immediate flow (DC) power to a sun-based inverter to be converted to rotating flow (AC) power

### **1.1.3 Green House or Mushroom House**

A nursery (additionally called a glasshouse, or, if with adequate warming, a nursery) may well be a architecture with cubical walls and ceiling made essentially of simple material, for example, glass, during which organism demanding controlled climate are develop. These designs reach out in size from little sheds to present day evaluated structures. A little than expected nursery is believed as a pandemic draft. The within of a nursery exposed to sunlight seems to be altogether hotter than the outer temperature, securing its substance in breezy climate. Numerous glass nurseries or nurseries are innovative invention place for vegetables, blossoms, or organic products. The glass nurseries are equipped with gear along with screening foundations, warming, cooling, lighting, and may be compelled by a PC to spice up conditions for plant development. Various approach is then accustomed assess optimality-degrees and consolation capacity of greenhouse ate (i.e., air temperature, humidity, and fume pressure shortfall) to decline the creation chance before development of a yield.

## 1.2 Problem Statement

There is no denying that mushroom cultivating has tremendous possibilities and ready to produce pay or benefits to the client or ranchers. In any case, there will consistently be issues with regards to the way toward delivering mushroom. The principal issue originates from the climate. To deliver the consistent development of mushroom, the mugginess and the temperature are the significant components that should be handle effectively which the ideal worth would be around 26°C and 83% separately. In light of understanding, when the mushroom cultivating house need all the more observing from human or as it were should be physically checking, there will come issues. As said in past sentences, the difficult that originates from climate is the point at which the temperature came to above room temperature around 30°C to 36°C which thus drop the dampness level to 40-50%. Along these lines, the strategy for temperature and mugginess control is finished by different ways, for example, utilizing water sprinkler so as to beat the issue. The issue after that will be that the human need to check the temperature and the mugginess in the mushroom house to ensure that the temperature and the dampness consistently in steady.

To tackle this issue, the temperature and the dampness observing will be applied with IoT to make the consistent checking on the mushroom house but rarely go to the mushroom house to check the temperature and the mugginess.