

Universiti Teknologi MARA

Inventory System for Smart Refrigerator

MOHD SYAFIQ AFIFI BIN MD SHAKARI

Thesis submitted in fulfilment of the requirements for Bachelor of Computer
Science(Hons) Data Communication and Networking Faculty of Computer
and Mathematical Science

JUNE 2018

ACKNOWLEDGEMENT

In the name of Allah The Most Beneficent and Most Merciful. Alhamdulillah, praises and thanks to Allah The Most Merciful for giving us the courage to complete this project. I would like to give our highest appreciation to my supervisor, Dr. Suzana Ahmad for his diligent and motivation for me to complete this project.

Special appreciation also goes to my beloved parents, for giving me such worthwhile, motivation, financial support and love throughout my think and thin. I also further thanks to my friend, relative and classmates for their indirect contribution and helping me in completing this project

Last but not least, their valuable contribution and sincerely are highly appreciated. May Allah bless all of you. Thank you so much.

ABSTRACT

Nowadays, the food experts especially nutrition experts have run a study of the interests of the healthy food style in spite of problems of obesity and excessive weight in the world community. Food poisoning is one of the factors and indicators that are highly emphasized by nutrition experts in maintaining the quality of food produced. Furthermore, food that is past or damaged can be used as an alternative to the agricultural sector.

Internet of Thing (IoT) is a technology that allows an object to communicate between each other. With the application of IoT, we can perpetuate the quality of food by monitoring the state of food within a certain period. This is because, some kind of food has a limited and different expiry date. With perfect food monitoring, we can curb food poisoning at minimal rate plus guarantee the quality of health among food consumer.

TABLE OF CONTENTS

CONTENT	PAGE
SUPERVISOR APPROVAL	ii
STUDENT DECLARATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vi-viii
LIST OF FIGURES	ix-x
LIST OF TABLES	xi

CHAPTER ONE: INTRODUCTION

1.1 Introduction.....	1
1.2 Background of the problem.....	1
1.3 Problem statement.....	2
1.4 Project Aims and Objective.....	3
1.5 Project Scope.....	3
1.6 Significant of Project.....	4
1.7 Summary.....	4

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction.....	5
2.1.1 Internet of Things.....	5
2.1.1.1 Medical Field of Application.....	6
2.1.1.2 Infrastructure Management.....	6
2.1.1.3 Transportation.....	7
2.1.1.4 Home Automation.....	7
2.2 Existing Smart Fridge Technology.....	7
2.3 Technology.....	8
2.3.1 Type of Sensor.....	8
2.3.1.1 Magnetic Sensor.....	8
2.3.1.2 Buzzer (Notification Sensor).....	9
2.3.1.3 DHT11 and BMP 180.....	9

2.3.1.4	Gas sensor.....	10
2.3.1.5	Piezoelectric Vibration sensor.....	10
2.3.1.6	BH1750 Light sensor.....	11
2.3.2	Type of Platform.....	11
2.3.2.1	ESP8266 12E(NodeMCU).....	11
2.3.2.2	Arduino.....	12
2.3.2.3	Raspberry Pi 3 Model-B.....	13
2.4	Database.....	13
2.4.1	MySQL Database.....	14
2.4.2	Oracle Database.....	14
2.4.3	Teradata.....	15
2.5	Related Research.....	15
2.5.1	Low-Cost Smart Refrigerator.....	15-16
2.5.2	Smart Refrigerator.....	16-17
2.5.3	Capacitive Humidity Sensor Tag Smart Refrigerator System using the Capacitive to Voltage Converter(CVC).....	17-18
2.5.4	A RFID/NFC Fusion based Smart Refrigerator for Wellness Service.....	18-19
2.6	Comparison.....	20-21
2.7	Summary.....	21

CHAPTER THREE: METHODOLOGY

3.1	Introduction.....	22
3.2	Project Methodology.....	22-23
3.3	Research Activities.....	24
3.3.1	Requirement Analysis.....	24
3.3.2	Design.....	24-26
3.3.3	Development.....	26
3.3.4	Implementation.....	27
3.3.5	Evaluate.....	27
3.4	Summary.....	28

CHAPTER FOUR: DEVELOPMENT

4.1	Introduction.....	29
4.2	System Architecture.....	29
4.3	Design Flow.....	30-33