

UNIVERSITI TEKNOLOGI MARA

**IoT BASED MOBILE APPLICATION
USING RAIN SENSOR**

SITI NUR SYAKIRAH SULIMAN

**BACHELOR OF INFORMATION
TECHNOLOGY (Hons.)**

JANUARY 2021

ACKNOWLEDGMENT

All praise to Allah SWT for providing me opportunities and skills to perform this final year project who's His everlasting kindness and generosity has given me the strength to complete this final year project in time.

I am thankful to conduct this project under the supervision of Prof. Madya. Dr. Wan Adilah Wan Adnan. Her guidance and time sacrifice from the beginning until the research is completed have undoubtedly enabled me to achieve the objectives of the project. All the advices, guidance's, and ideas during the preparation of this project will never be forgotten.

Next, I would also like to extend my special thanks to Dr. Emma Nuraihan Binti Mior Ibrahim, my CSP600 and CSP650 lecturer, for all the constructive and helpful feedbacks that has helped me in many ways to shape and improve my work. All the effort and time she spends on all of her students under her care is expensive to borrow.

In addition, I would like to express my gratitude to Mrs Zatul Amilah Shaffiei, my examiner, for her time, valuable comments, and suggestions on this project. In addition, my special thanks go also to my beloved parents and family who throughout this project gave me a lot of never-ending emotional support and prayers.

Last but not least, I would like to give my special appreciation to my classmates who struggled night and day together to complete this project. Thank you for the support and the help that has been given.

May Allah SWT bless us with peace and happiness. Amin

ABSTRACT

Water sensor technology is required to detect the existence of water for any occasion including to provide warning and allow prevention of water in time outside or inside of the building. The most obvious disadvantage of water sensor technology in the market is that it is stand-alone product. It does not have the feature where user can monitor the product from far. Thus, this project's purpose is to provide a new unique and innovative way to improve user's experience in using rain sensor application specifically in monitoring and controlling the device by combining rain sensor application and mobile application. IoT Based Mobile Application Using Rain Sensor allows the roof to automatically cover the drying clothes or food outside of the house when the rain sensor detects the presence of water. Mobile application will show the status of the roof for the user to monitor. The mobile application also comes with features of rain data history for the user to see the trend of raining activity for the past few days. The user also can control the roof using the mobile application. This project aims to identify user requirements for IoT Based Mobile Application Using Rain Sensor, designing the rain sensor application that will connect to the mobile phone, designing the mobile application that will connect to the rain sensor application and development and demonstration of the IoT Based Mobile Application Using Rain Sensor. This project used the android platform. The target user of this project would be a general public user from age 45 and above who prefer use conventional way to dry clothes or food under the sun or outside of their house that live in Malaysia. IoT Methodology and Mobile Application Development Lifecycle (MADLC) and are the approaches employed to complete this task. In the future, this project is recommended to include sign up and sign in page that enable the user to see their profile on mobile application followed by weather forecast feature to allow the user to see the weather and push notification to acknowledge the user about raining activity at their house area.

Keywords: Internet of Things, Rain Detector Technology, Android, Mobile Application Development Lifecycle, IoT Methodology

TABLE OF CONTENTS

CONTENT	PAGE
SUPERVISOR APPROVAL	ii
STUDENT DECLARATION	iii
ACKNOWLEDGMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF FIGURES	xi
LIST OF TABLES	xiv
CHAPTER ONE: INTRODUCTION	
1.1 Project Background	1
1.2 Problem Statement	3
1.3 Project Aim	5
1.4 Project Objectives	6
1.5 Project Scope	6
1.6 Project Significance	9
1.7 Chapter Summary	10
CHAPTER TWO: LITERATURE REVIEW	
2.1 Definition Internet of Things	11
2.1.1 Applications	12
2.1.1.1 The Area of Smart City	12
2.1.1.2 Industry	13

CHAPTER 1

INTRODUCTION

An outline of this project is given in this section. This chapter includes background information, problem statements, project priorities, scope, and project significance.

1.1 Project Background

Smart homes are gaining vast popularity as the most promising application of the emerging Internet of Things (IoT) technology. IoT exploits the high level of connectivity present in current electronic devices such as smartphones and tablets, smart homes provide innovative, automated and interactive services for residential customers through distributed and collaborative operations (Lee, 2015). Through ambient intelligence and automated control systems, smart homes have been presented as a key means by which households can optimize their use of energy-consuming appliances in order to save energy and money (Choi, 2015). Smart home technology use devices in a household such as sensors and other appliances that connected via a network, most commonly a local LAN or the internet (Luca, 2015). These appliances can be remotely monitored, controlled or accessed and provide services that respond to the perceived needs of the users.

One example of an application related to sensors in IoT devices is water sensors. A water detection sensor is a device that detects water and signals the