

# MEDICINE REMINDER BOX WITH SECURITY



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021



**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**MEDICINE REMINDER BOX WITH SECURITY**

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.

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Tajuk: Medicine Reminder Box with Security

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## DECLARATION

I hereby, declared this report entitled Medicine Reminder Box with Security is the results of my own research except as cited in references.



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## APPROVAL

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## ABSTRAK

*Kotak Peringatan Perubatan Berasaskan IoT yang dicadangkan dengan alat Keselamatan yang direka untuk pesakit tua, pesakit demensia, dan pesakit mental yang bertujuan untuk menyelesaikan masalah yang dihadapi oleh pesakit setiap hari, terutamanya dengan penggunaan ubat tersebut. Peranti ini memberikan pembunyi isyarat dan mesej pemberitahuan untuk memberi tahu pengguna apabila ubat perlu diminum pada waktu yang tepat. Selain itu, ia juga memberikan pesan pemberitahuan jika ubat tersebut perlu mengisi semula dan menerima pemberitahuan janji temu dengan doktor sebelum tarikh janji temu. Peranti ini adalah mekanisme peringatan yang berkesan untuk temu janji pesakit yang lebih baik dan pematuhan terhadap rawatan.*

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## ABSTRACT

The proposed IoT-Based Medicine Reminder Box with a Security device designed for an elderly, dementia patient, and mental disorder patient who are aimed to solve the issues faced by the patient daily, especially with consumption of the medicine. The device provides buzzer and notification to alert the user when a medicine is being taken at the right time. Furthermore, it also provides a notification message if the medicine needs to refill and receive an appointment notification with the doctor before the appointment date. This device is an effective reminder mechanism for improved patient appointments and compliance with treatments.





## DEDICATION

This thesis is dedicated to my beloved parents to provide all the support, constant love, and encouragement to my supervisor TS. Tg Mohd Faisal Bin Tengku Wook is also my academic advisor who is always taught and guided me. You are indeed an outstanding person and an able educator. I thank you from the bottom of my heart, also to my partner, Muhammad Ashraf Bin Ghazali, who has been a constant source of support and encouragement during my university and life challenges. I am genuinely thankful for having you in my life. Lastly, to all my friend's thanks for their advice, motivation, and support and taught me to work hard for the things that I aspire to achieve. You know who you are.



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## LIST OF SYMBOLS

<b>V</b>	-	Voltage
<b>MHz</b>	-	Mega Hertz
<b>GHz</b>	-	Giga Hertz



## LIST OF ABBREVIATIONS

<b>IoT</b>	Internet of Thing
<b>IDE</b>	Integrated Development Environment
<b>LCD</b>	Liquid-Crystal Display
<b>RTC</b>	Real Time Clock
<b>LED</b>	Light-Emitting Diode
<b>CMOS</b>	Complementary Metal-Oxide-Semiconductor
<b>PC</b>	Personal Computer
<b>Sd</b>	Secure Digital
<b>GSM</b>	Global System for Mobile
<b>Apps</b>	Applications
<b>Gpio</b>	General Purpose Input/output
<b>Raspi</b>	Raspberry pi
<b>USART</b>	Universal Synchronous/Asynchronous Receiver/Transmitter
<b>HIV</b>	Human Immunodeficiency Virus
<b>QoC</b>	Quality of Care
<b>iOS</b>	Internetwork Operating System
<b>SMS</b>	Short Message Service
<b>GPU</b>	Graphics Processing Unit
<b>I/O</b>	Input and Output
<b>ATCS</b>	Automated Telephone Communications Systems

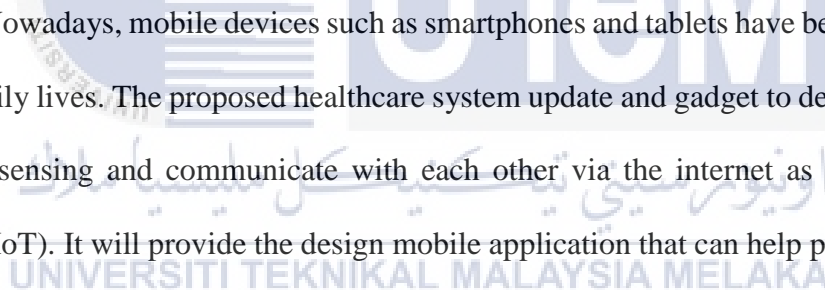
# CHAPTER 1

## INTRODUCTION

### 1.1 Overview

This section discusses the overview of the project. The contents of this chapter are Introduction, Problem Statement, Objective, and Scope. By going through this chapter, the reader will understand the core concept of the project.

### 1.2 Introduction



Nowadays, mobile devices such as smartphones and tablets have become essential in our daily lives. The proposed healthcare system update and gadget to develop low-cost medical sensing and communicate with each other via the internet as the Internet of Things (IoT). It will provide the design mobile application that can help patients take the proper medicines in proper proportion and adequate time according to a doctor's prescription and manage their upcoming appointments to follow up the patient's symptoms.

This project introduces a mobile application whose objective is to remind the patients of their dosage timings and manage their upcoming appointments. Therefore, I proposed this project called 'Medicine Reminder Box with Security'. This device is intended to lock pill dispenser in one compartment for each of the pills since this is a crucial aspect of significantly reducing medication errors. Next, will need the Stepper

motor to control the 14-slot carousel so the mechanism can work equally. The Servo motor is to push out each pillbox to the dispensing hole, and sensors are to sense detecting the pillbox in the dispensing hole. The buzzer will make a sound. RTC module to keep track of time and hours are shown in an LCD screen, and messages are created when the time comes to, alongside LED flickering.

Moreover, with the application, it will send a notification to patients can get a message reminder that reminds the patient to take medicine and scheduled an appointment with the doctor. This system helps outpatients make correct decisions about their medication's timing and dosage and prevent drug overdose in medication and side effects. It can also help the healthcare field and medical emergencies (suicides) potentially and improve awareness of health protection. It is a life-saving, time-saving, and money-saving device that is easy to use and has useful functionality for users.

### **1.3 Problem Statement**

In the market, there are various types of medicine boxes that are sold to facilitate the customers. All manufacturers strive and work hard to make changes to their products to get attention and profit. But it's still not enough to meet consumer satisfaction and has some weaknesses that need to be addressed. Mobile technology is a form of technology that is mostly used in cellular communication and other related aspects. A mobile health intervention could benefit health care delivery processes by using mobile notification to save a cost-effective and time-efficient strategy. Moreover, the benefit of using a portable reminder could help improve patient medication compliance and medical appointments.