

**UNIVERSITI TEKNOLOGI MARA**

**HEARTBEAT AND BODY  
TEMPERATURE MONITORING  
DEVICE USING IOT**

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## **ABSTRACT**

With wide exposure to the Internet of Things (IoT), it has changed the way healthcare workers monitor patients. The elderly citizen going to the healthcare centre for a medical checkup regularly, but this can be reduced by only using smart device at home. This project aims to develop a prototype of a heartbeat and body temperature monitoring device. The projects also construct an IoT-based technology control system using thingSpeak. The designed hardware consists of a heartbeat sensor, temperature sensor, and thingSpeak as its IoT platform. As the outcome, the sensors detect their reading and prompt the value on the screen, then the health status is in normal, dangerous or need to take some rest. This monitoring system allows medical providers to remotely observe their patients who are particularly those with chronic diseases related to the heart. Additionally, the size of this device is compact, user-friendly, and easy to bring anywhere. Moreover, the data will be transmitted to an application. In the future enhancement, the user will be able to retrieve the data stored in the application. Because of that, it reduces the need for repeated trips to the hospital.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the study**

Heart failure is the major cause of fatality in Malaysia. Ischemic heart disease was the second leading cause of death in Malaysia, contributing to 13.9% of all fatalities, according to the Department of Statistics Malaysia. Pneumonia and hypertension were the deadliest illnesses related to the heart and lungs. When the blood circulation to the heart has become limited or blocked, a heart attack occurs. Atherosclerosis is the name for the formation of plaque and other substances on the artery walls. Also, there are people with no sign at all. The most frequent heart attack at a younger age than people in modern nations, according to the findings from the NCVD-ACS (National Cardiovascular Disease Database-Acute Coronary Syndrome). Today's healthcare facilities are better at monitoring patient's health. A portable electro diagram (ECG) called a Holter monitor is an example of technology that is used for tracking heart rate since it can detect the heart rhythms that a normal ECG misses. But the suffering might collapse anytime or even wear during driving. Additionally, having a compact, straightforward device will allow anyone, most particularly the elderly, to use it without the need for child supervision.

### **1.2 Problem statement**

This device becomes wanted during a pandemic. To minimize the risk of infection, people are advised to stay at home. But not everyone has a smartwatch or any smart device at home. So, by having this compact tool, the elderly especially, can use it anytime and anywhere. Also, this would be helpful to ease the burden of the medical assistant that works with lots of people. So, after having this, they are not focusing on low-risk patients anymore because people with mild and severe can detect by using smart devices at home.

### **1.3 Objective**

According to the problems stated, the aim of this project are as follows:

- a) To develop a prototype of a heartbeat and body temperature monitoring device.
- b) To construct the IoT-based technology control system using ThingSpeak.