HEART RATE USING IOT

WITH SMS NOTIFY

AHMAD SOLEHIN BIN SHARUDDIN

A thesis submitted in fulfilment of the requirements

for the award of the degree of

Bachelor of Computer Science (Software Engineering)

Faculty of Computer System & Software Engineering

UNIVERSITI MALAYSIA PAHANG

DECEMBER 2017

**STUDENT DECLARATION**

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

Signature :

Name : Ahmad Solehin Bin Sharuddin

ID Number : CB15003

Date : 4 December 2017

**STUDENT DECLARATION**

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of the degree of Bachelor of Computer Science Software Engineering

Signature :

Supervisor’s Name : Dr. Rohani Binti Abu Bakar

Date : 4 December 2017

**ABSTRACT**

In this fast pace of life, it is difficult for people to be constantly available for their near ones

who might need them while they are suffering from a disease or physical disorder. So also

constant monitoring of the patient’s body parameters such as temperature, pulse rate, sugar

level etc. becomes difficult. Hence to remove human error and to lessen the burden of

monitoring patient’s health from doctor’s head, this paper presents the methodology for

monitoring patients remotely using Internet of Things technology. Patient monitoring systems

measure physiological characteristics either continuously or at regular intervals of time.

The heart is one of the most vital organs within the human body. It acts as a pump that

circulates oxygen and nutrient carrying blood around the body in order to keep it functioning.

The circulated blood also removes waste products generated from the body to the kidneys.

When the body is exerted the rate at which the heart beats will vary proportional to the

amount of effort being exerted. By detecting the voltage created by the beating of the heart,

its rate can be easily observed and used for a number of health purposes.

**TABLE OF CONTENTS**

**CONTENT**

**STUDENT DECLARATION i**

**SUPERVISOR DECLARATION ii**

**ABSTRACT iii**

**ABSTRAK iv**

**TABLE OF CONTENTS v**

**LIST OF TABLES vii**

**LIST OF FIGURES viii**

**LIST OF ACRONYMS / ABBREVIATION / GLOSARY ix**

[**CHAPTER 1 1**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539436)

[**INTRODUCTION 1**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539437)

[**1.1 Project Background 1**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539438)

[**1.2 Problem Statement 2**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539439)

[**1.3 Objective 3**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539440)

[**1.4 Scope 3**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539441)

[**1.5 Report Organization 4**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539442)

[**CHAPTER 2 5**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539443)

[**LITERATURE REVIEW 5**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539444)

[**2.1 Introduction 5**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539445)

[**2.2 Overview 5**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539446)

[**2.3 Review of Existing System 6**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539447)

[**2.4 Comparison Feature Existing System 13**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539448)

[**2.5 Review of Methodology 14**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539449)

[**2.6 Comparison of Three Methodologies 17**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539450)

[**2.7 Conclusion 18**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539451)

[**CHAPTER 3 19**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539452)

[**METHDOLOGY 19**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539453)

[**3.1 Introduction 19**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539454)

[**3.2 Rapid Application Development (RAD) Methodology 20**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539455)

[**3.3 Hardware and Software 26**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539456)

[**3.4 Gantt Chart 28**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539457)

[**3.5 Implementation 29**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539458)

[**3.6 Testing 29**](file:///C:\Users\sony\Downloads\CB14015_FINAL-YEAR-PROJECT-PORTAL.docx#_Toc481539459)

**APPENDICES 30**

**LIST OF TABLES**

**Table 2.1 Comparison of Features for three existing system 13**

**Table 2.2 Comparison three Methodology 17**

**Table 3.1 List of Software Items 26**

**Table 3.2 List of Hardware Items 27**

**LIST OF FIGURE**

**Figure 2.1 Interface creating a question 6**

**LIST OF ACRONYMS / ABBREVIATION / GLOSARY**

**ABBREVIATION TITLE**

FYP Final Year Project

UMP Universiti Malaysia Pahang

UML Unified Model Language

RAD Rapid Application Development

DFD Data Flow Diagram

ERD Entity Relationship Diagram

SDLC Software Development Life Cycle

# **CHAPTER 1**

# **INTRODUCTION**

# **Project Background**

Recently, the health care sensors are playing a vital role in hospitals. The patient monitoring

systems is one of the major improvements because of its advanced technology. So we are

here, just connecting the temperature sensor and heartbeat sensor so that simultaneously we

can monitor the patient’s condition and hence ruling out the use of the thermometer and other

devices to check the condition of the patient.

This project describes the design of a simple, microcontroller based heart rate measuring

device with SMS output. Heart rate of the subject is measured from the index finger using

Arduino Device sensors and the rate is then averaged and displayed on a text based

LCD.

The device alarms when the heart beat & the body temperature exceed the provided threshold value. This threshold value is defined by the programmer at the time of programming the microcontroller. The threshold value given for the project is as 20 to 120 pulses per minute for heart beat indication & 18°C to 38°C for temperature.

This information i.e. the Heart Rate & the Body Temperature and saline level is then transmitted wirelessly to the doctor which in not in the vicinity of the patient through GSM technique. The sensors measure the information and transmit it through GSM Modem on the same frequency as on which cell phones work.

# **Problem Statement**

Before the invention of FYP portal, student need to submit each chapter to their supervisor by giving the hardcopy of the document. If student need to do a correction on their chapter, they need to edit the chapter then submit again to their supervisor.

During the evaluation day, student need to prepare three hardcopies their full report and give the hardcopy to their supervisor and to the both examiner. Student also required to burn their report into the cd-r for faculty. Examiner need to use evaluation form during evaluate student. All the given mark and comment must be state at the form before return to the coordinator. Student mark from examiner will be insert by coordinator. In order to key in student mark, coordinator need to review each evaluation form before inset a student mark into the E-COM.

All the process is done manually. Student will waste a paper where they need to print the document and show to their supervisor for checked. For the evaluation day, coordinator need to prepare the hardcopy form for examiner use to evaluate student. Coordinator also need to manage manually examiner and student before evaluation day.

Therefore, FYP Portal is requiring to develop a system that will manage student, supervisor, examiner and coordinator during presentation day. This system will manage the process of submitted student document to their supervisor by uploading through the system without waste a paper. This system also will help coordinator in managing examiner and student for the evaluation. Supervisor can view the document that already upload by student and give a comment or message to the student if there have a correction on the document.

# **Objective**

The objective need to be apply in this system:

1. To manage evaluation process between examiner and student by using online system.
2. To manage student mark from supervisor and examiner by using online system.
3. To monitor student progress by upload a student document into FYP Portal.

# **Scope**

1. **System User**

There are four users can use this system which is coordinator, supervisor, examiner and student.

1. **Function**

The function of this system is to manage evaluation process from examiner and supervisor by saving the data into the database. This system also available to upload and download the document from student.

# **Report Organization**

There are five total chapter in this thesis:

1. **Chapter 1** discusses about FYP Portal Module Evaluation system background. This chapter also explain about the reason this system need to be develop by discover the problem statement. From the problem statement, objective and scope for this system can be archive in this chapter.
2. **Chapter 2** discusses about the literature review of FYP Portal. This chapter also discuss about comparison the existing system with FYP Portal by state the advantage and disadvantage the existing system.
3. **Chapter 3** discusses about the usage of methodology in FYP Portal. This chapter cover the UML diagram that use to develop FYP Portal such as use case, context diagram, activity diagram and class diagram.
4. **Chapter 4** discusses about the implementation and testing. How this system develop will state in this chapter by record the code.
5. **Chapter 5** discusses about conclusion. Limitation and future works about this system can be state in this chapter.

1. **SYSTEM DESIGN APPROVAL**

|  |  |  |
| --- | --- | --- |
|  | **Name** | **Date** |
| **Verified by:**  Developer |  |  |
| **Approved by:**  Client |  |  |

**APPENDICES**