UNIVERSITI TEKNOLOGI MARA

HEALTH CARE:
HEART RATE MEASUREMENT

MOHAMAD JAZLI BIN JAMALUDIN
FARAH WAHIDA BINTI RISDIANTO
HANIS NADZIRAH BINTI HISHAMUDDIN

A project report submitted in partial fullfillment of
the requirements for the award
Diploma of Electrical Engineering (Electronics)

FACULTY OF ELECTRICAL ENGINEERING

SEPTEMBER 2014

"We declare that this report entitled "**HEART RATE MEASUREMENT**" is the result of my own group research except as cited in the references. The report has not been accepted previously and concurrently submitted for any other diploma or award at UITM or other institutions.

Signature : .....

Name : MOHAMAD JAZLI BIN JAMALUDIN

Student I.D : 2011370713

Date : SEPTEMBER 2014

Signature : .....

Name : FARAH WAHIDA BINTI RISDIANTO

Student I.D : 2011617604

Date : SEPTEMBER 2014

Signature : .....

Name : HANIS NADZIRAH BINTI HISHAMUDDIN

Student I.D : 2011747437

Date : SEPTEMBER 2014

ABSTRACT

This project describes the design of a simple, low-cost microcontroller based heart rate measuring device. The result display at LCD .Measure heart rate is important to health care. Hearth is important body part to human.Heart rate measurement machine in this project for measure from finger using IR sensor.IR sensor act as transmitter and photodiode receive signal from transmitter. So,the photo diode is a receiver. Heart rate exhibiting direct proportional characteristics with change in blood volume during heart beats can be measured by modelling an analog and digital manipulation scheme. In this project used two -stage high gain, active low pass filter using two Operational Amplifier(Op-amp)) to filter and amplify the signal to appropriate voltage level so that the pulses can be counted by a microcontroller.. This project use PIC16877A as microcontroller to connect to lcd and two stage filter. In project, we set the time to count is 15 second and the result multiplied with 4 for get one minute heart beat.

ACKNOWLEDGMENT

All praises for allah S.W.T the Lord Almighty and Salam to Nabi Muhammad S.A.W.

First of all we would take to wish our grateful to Allah S.W.T for blessing us and giving opportunity toembark our diploma and for complete this project. We are very thankful for those following for their contribution in assisting us in completing our project with their ideas and guardians. Our special thanks is dedicated to our supervisor Mohd Talib Bin Ahmad for helping us. Your support, guidance, inspiration and contribution have leaded us to this great path to finish our project in this two semester.

Special thanks and appreciation to our parents, family and friends for their cooperation, encouragement and undying support. Also special thanks to all people who involved directly or indirectly during we finished our project well. Finally, thanks to our coordinator Madam Aishah Cik Kar for assisting us and involved herself directly toward this project. Thank you.

TABLE OF CONTENTS

ITEM		PAGE
CONFIRMATION BY PANEL OF EXAMINERS		ii
AUTHOR'S DECLARATION		iii
ABSTRACT		iv
ACKNOWLEDGEMENT		v
TABLE OF CONTENTS		vi
LIST OF FIGURES		ix
LIST OF TABLE		xi
LIST OF SYMBOLS		xii
CHAPTER ONE: INTRODUCTION		1
1.1	Background	1
1.2	Problem Statement	2
1.3	Objective	2
1.4	Scope	2
CHAPTER TWO: LITERATURE REVIEW		3
2.1	Introduction	3
2.2	Component and Description	3
	2.2.1 Infared sensor	3
	2.2.2 photodiode	4
	2.2.3 Resistor	4
	2.2.4 Capacitor	4
	2.2.5 Battery and connector	6