



# Design and

BY IMAN FAHRUZI

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### Crossref

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*Abstract*—heart disease is a disease with a high ri  
The preventive measures will eliminate the risk of  
other body parts. This paper proposes a low-cost ea  
system to develop a heart condition monitoring sys  
time through the internet. The system consists  
essential parts: the arduino microcontroller, SIM9  
GPRS shield, and several sensors that record he  
based on blood intensities. The activity of heart rate  
using the pulse sensor. The result of the puls  
monitoring related to heart conditions recorded i  
The heart rate recordings are taken from the intens  
flow taken at the fingertips, and at that time,  
forwarded via the mobile GSM network. The r  
processing heartbeat results will be sent to users in  
a short message system. When the interbeat interva  
sensor values exceed the limit, an alert SMS will  
clinical expert or home healthcare through the SI  
module. The required parameters displayed are u  
mobile number. Based on the experiment, the t  
sensor, the results of sensor readings were comp  
comparative data with the "Nonin" oximetry an  
ECG (Electrocardiogram). Based on the experimen  
of reading and testing the pulse sensor are compar  
data produced by other certified equipment. The r  
that the system demonstrates better measuring with  
error of 5%.

*Keywords*—heart rate, GSM network, SIM sh  
shield, pulse sensor

### 1. INTRODUCTION

This template, heart disease, is one of the big  
of death ever known. Indonesia recorded a co  
disease rate of 12.9% in 2014 [1]. In 2016, the W  
Organization published those cardiovascular  
account for more than 31% of 17.9 million death  
Aside from death, cardiovascular disease is also  
for high morbidity and cost of treatment [2]. P  
action is needed to reduce the increased risk of  
year around the world. Abnormalities in hu  
functions are found in both developed modern citi  
communities lacking inadequate infrastructure.

The development of information and telecom  
technology is essential in the human devel  
hardware and software. The avenues current  
include wearable medical devices capable of

## Match Overview

Match 1 of 1

- 1 **Crossref** 20 words  
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