



GIZMOZ: Health Monitoring Band

Rachana Deshmukh¹, Nimish Mahajan², Deepali Tijare³, Bhagyashree Deshmukh⁴, Shital Waghmare⁵, Ashwini Kothale⁶
Assistant Professor¹, Student^{2, 3, 4, 5, 6}

Department of Computer Technology
Rajiv Gandhi College of Engineering and Research, Nagpur, India

Abstract:

What Present day computer ecosystem offers advance connectivity of numerous devices system and services, providing the basis for the Internet of Things (IOT) paradigm implementation. most people perceive of its structure often lacks once, namely smart phones and smart watches. Being recognized as a prominent member of the wearable /ubiquitous computing family, smart watches have been gaining in popularity proving themselves valuable in various contexts, ranging from providing fitness applications and general health monitoring, to always- on assistive technology for people with special needs. Project focuses on an alternative approach to using smart watches, considering them health monitoring tools for patient's acknowledgement of the smallest part of it, albeit as of recently the most used and able to provide fast and readily available information on various network equipment and services to doctors and help the patients. We show how smart watches can offer different, and some unique, previously considered impractical ways to convey information. It's mostly designed as a remote rescue system for people who are at risk of having stroke and cardiac arrest. GIZMOZ is a smart phone synced mobile health monitoring bracelet capable of reading a human vital sign (pulse rate, body temperature).

I. INTRODUCTION

The Internet of Things (IoT) has not been around for very long. However, there have been visions of machines communicating with one another since the early 1800s. Machines have been providing direct communications since the telegraph (the first landline) was developed in the 1830s and 1840s. Described as "wireless telegraphy," the first radio voice transmission took place on June 3, 1900, providing another necessary component for developing the Internet of Things. The development of computers began in the 1950s. The device(band), which would monitor pulse rate and body temperature and store observed values on a cloud for that temperature sensor and pulse rate sensor would be used. The basic objective of this system would make the work of the supervising doctor very easy as one can monitor multiple patients at the same time. Even when the doctor is not in his chamber, he will be immediately appraised about the patients' condition. This will greatly reduce the work load of Doctor and paramedical staff to a great extent Our aim is to address the most important wearable devices, which measures effective parameters in health status directly. Readers can obtain comprehensive and useful information on the most reliable currently available devices and technique concepts in this area. The basic motivation for creating this band is because of the rate of deaths due to heart attacks has gone up recently cumulating the fact that most of the deaths that occur gives the paramedics teams some time to breath and still the patients could be saved but in this scenario the patients could faint or even die in seconds so every time frame is crucial. So, we thought of making a device that could either cut short the time frame between the ambulance reaching the patient or either the doctor gets the awareness about the patient's condition. As they say in heart attacks every second is crucial.

II. EXISTING SYSTEM

Health band present recently are often compact and easy to use but the problem with those is that they are accessed by a individual and can be operated by that person on his will but

we are talking about the scenario where the band wearer is in grave danger and can't get the reading to himself so its not possible for the patient to take the reading and send it over to any nearest hospital & also the patient might faint and that can cause a problem.

III. PROPOSED SYSTEM

The basic working of our project signifies that how the medical band works practically. Initially the medical band has 3 modules:

- WeMos IC
- Temperature sensor & Heart rate sensor.
- Database

Apart from our modules we also need application and gadgets that will act as intimate between the basic modules of the medical band. As the Arduino IDE software as the coding on the WeMos isn't possible without the use of proper software that can be used for coding on the IC. Also, cloud will be used to transfer live feed of information to the doctor.

BASIC WORKING

Once the band is worn by the patient, the sensors gets triggered and as soon as a connection is established the WeMos collects the data from the sensor and immediately transmits the data over secure wireless connection (WIFI module is basically present on the WeMos itself) to the dedicate server created by the cloud to the receiver's system. Proper database is created on the receiver's end (usually doctor's) where each data keeps on feeding by itself in the table. To reduce the doctor's work, we will have a small application that will be transcript of the database present on the system that will makes the readings mobile. Also a alert feature will be added so that the doctor doesn't has to invest his time in checking for records and he will be notified whenever the readings of the patient will

exceed a certain limit. That way the medical band is boon to human kind. PS- Refer the architecture at the end of the module.

IV. SYSTEM COMPONENTS

In this project, we are going to collect data (i.e. Pulse rate, body temperature), of a person and store on a cloud, where doctor can monitor from anywhere in the world.

- **Body Temperature:**

Your body's like a little furnace. It puts out heat all the time. It comes from your body doing the work that keeps you alive. When it puts out a lot more or a lot less heat than usual, it's trying to tell you there's a problem. Not everyone's body temperature is the same. Yours could be a whole degree different than someone else's. A German doctor in the 19th century set the standard at 98.6 F, but more recent studies say the baseline for most people is closer to 98.2 F. For a typical adult, body temperature can be anywhere from 97 F to 99 F. Babies and children have a little higher range: 97.9 F to 100.4 F. Your temperature doesn't stay same all day, and it will vary throughout your lifetime, too. Some things that cause your temperature to move around during the day include:

- What time of day it is
- Your age
- Your gender
- What you've eaten or had to drink
- (If you're a woman) where you are in your menstrual cycle

- **Pulse Rate:**

Pulse rate, or heart pulse, is the speed of the heartbeat measured by the number of poundings of the heart per unit of time — typically beats per minute (bpm). The heart rate can vary according to the body's physical needs, including the need to absorb oxygen and excrete carbon dioxide. Activities that can provoke change include physical exercise, sleep, anxiety, stress, illness, ingesting, and drugs. The normal resting adult human heart rate ranges from 60–100 bpm. Bradycardia is a slow heart rate, defined as below 60 bpm. Tachycardia is a fast heart rate, defined as above 100 bpm at rest. When the heart is not beating in a regular pattern, this is referred to as an arrhythmia. These abnormalities of heart rate sometimes indicate disease. A DIY pulse monitor design from make magazine: Infrared Pulse Sensor My written article on making a DIY Arduino pulse monitor: Homebrew Arduino Pulse Monitor

V. COMPONENTS:

- **WeMos D1 mini:**

WeMos D1 mini is like a "little Arduino with WIFI" for a great price. It's based around the ESP8266, has one analogue port and 11 digital ports. It's programmed via micro-USB (or remote flash via WIFI). You can use it with the Arduino IDE, micro python or NodeMCU. It runs from 5V or 3.3V. Logic levels are 3.3V for all ports.



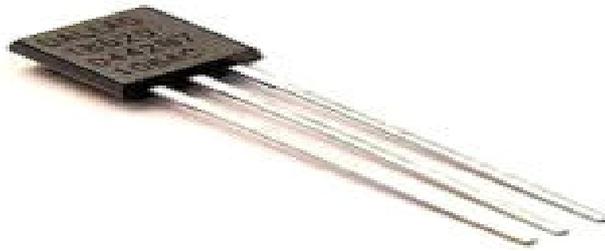
- **Pulse Sensor:**

The Pulse Sensor is a plug-and-play heart-rate sensor for Arduino. It can be used by students, artists, athletes, makers, and game & mobile developers who want to easily incorporate live heart-rate data into their projects. Essence it is an integrated optical amplifying circuit and noise eliminating circuit sensor. Clip the Pulse Sensor to your earlobe or fingertip and plug it into your Arduino, you can ready to read heart rate. Also, it has an Arduino demo code that make it easy to use.

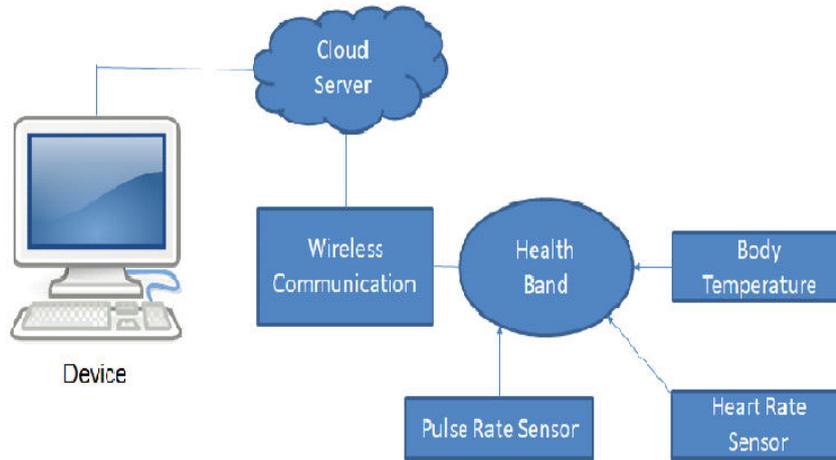


- **Temperature Sensor:**

This sensor allows you to measure body temperature. It is of great medical importance to measure body temperature. The reason is that a number of diseases are accompanied by characteristic changes in body temperature. Likewise, the course of certain diseases can be monitored by measuring body temperature, and the efficiency of a treatment initiated can be evaluated by the physician. You can find our **e-Health Sensor Platform Complete Kit** to get a complete First Aid Kit for Makers or buy the **e-Health Sensor Shield** separately. The e-Health Sensor Platform has been designed by Cooking Hacks in order to help researchers, developers and artists to measure biometric sensor data for experimentation, fun and test purposes. However, as the platform does not have medical certifications it cannot be used to monitor critical patients who need accurate medical monitoring or those whose conditions must be accurately measured for an ulterior professional diagnosis.



VI. SYSTEM ARCHITECTURE



VII. FUTURE SCOPE

The band which we are going to make, where doctors can easily monitor the subject(s) condition from the place where they are sitting or from any part of world and hence proper and timely care to the patient can be given. This will help in curbing deaths due to delay in timely care. Further in case of emergency, the doctor is also informed about the patient via SMS, thus even when the doctor is not in his chamber; he will be immediately informed about the patients' condition. It will be of great help for the patients, as in any case of emergency, they can get immediate treatment.

VIII. CONCLUSION

Using this model, it makes easy to take help from outward or from the specialist as the subject's information will be stored and, in this way, subjects can be monitored under the specialist. The implementation for this model consists of Sensor band and other modules Attached to the patient through which Data can transfer. This will sense the Patient Health and would give the corresponding sensor readings and Numbers from that corresponding parameter and would be help to evaluated. As this will show specific value such as for pulse rate or heart rate the subject will be aware about is health. This Data would be sent and can be stored for future reference and this model will serve as a helping hand in future.

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