

## IOT Based Temperature and ECG Monitoring System for Physically Challenged

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Article Received: 27 January 2018

Article Accepted: 23 February 2018

Article Published: 09 April 2018

### ABSTRACT

Assisting a physically challenged individual on a daily basis has now become an issue for the present generation. It is not an easy task for a physically challenged individual to visit the doctor for their routine checkup. Hence the prime goal was to develop a reliable health monitoring system so that the healthcare professionals can monitor the patients, executing their normal daily life activities. This project provides a wearable device which will continuously monitor the vital parameters such as ECG and temperature. This data is continuously uploaded into the server using the WIFI which is in-built in CC3200. It will collect and transfer the information to the doctor at the earliest because of IoT. IoT ensures the effective and efficient care of the patient in any environment. The usage of these advanced technologies eradicates all complications faced by the physically challenged individual.

Keywords: CC3200, ECG module (AD8232), Temperature Module, IOT.

### 1. INTRODUCTION

Currently, there is need for a modernized approach. In the traditional approach the healthcare professionals play the major role. There are two basic problems associated with this approach. Firstly, the healthcare professionals must be present on site of the patient all the time and secondly, the patient remains admitted in a hospital, bedside biomedical instruments, for a period of time. In order to solve these two problems, a reliable and readily available health monitoring system is required. In order to improve the above condition, we can make use of technology in a smarter way. In recent years, health care modules along with CC3200 play a vital role. Wearable health care modules such as ECG module, temperature module, which remain in contact with the human body enable easy monitoring of the patient.

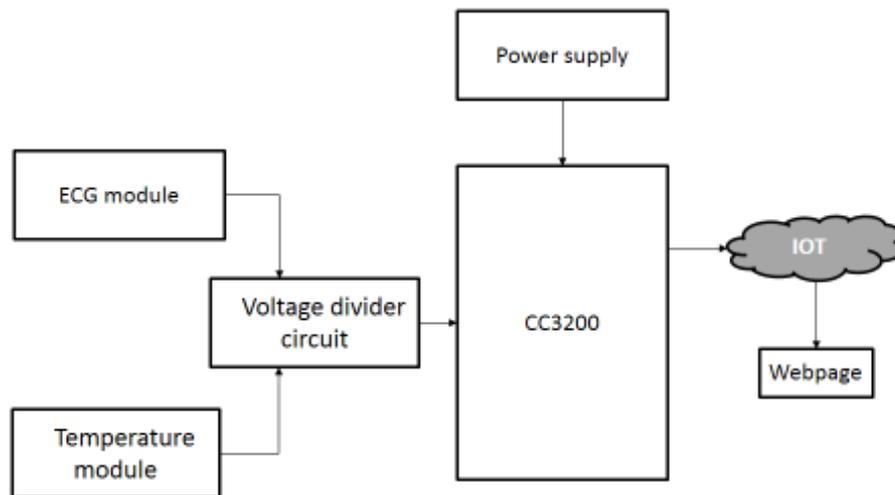
The CC3200 which is a flexible and programmable board provides an easy access to the network. In our system we are measuring patient's parameters (ECG, temperature) with different available modules. These module collected data i.e. biometric information is given to CC3200 and then it is transferred to server.

### 2. PROPOSED SYSTEM

The day to day life of a physically challenged person is becoming so difficult. They are in need of an assistant to carry out their routine activities. They could not able to travel very long distance for their health checkups often. This proposed system is to overcome these difficulties of them. In this health monitoring system different modules are used to monitor the body parameters that are to be checked often. It is very important to measure the functioning of the heart. So the ECG module determines the electrical activity of the heart. Similarly temperature is also measured using temperature module. Thus the Wearable health care modules such as ECG module, temperature module, which remains in contact with the human body enable easy monitoring of the patient. The CC3200 which is a flexible and programmable board provides an easy access to the network. In this system the patient's body

parameters (ECG, temperature) are measured with different available modules. These module collected data i.e. biometric information and they are given to CC3200 and then it is transferred to server.

### 3. SYSTEM DIAGRAM



In this project some of the vital parameters such as ECG and temperature of a physically challenged person is monitored. ECG module and temperature module is used for the accurate measurements. The microcontroller-CC3200 can accept a voltage of 1.1v but the output from the module is above the threshold value so a voltage divider circuit is used. The output obtained from the modules is given to voltage divider circuit and then to CC3200. The inbuilt WIFI module uploads the processed data into the cloud. So the doctor can monitor the physical condition of patient being away from them. This in turn reduces the risk in travelling to the hospital by the patient. The doctor can continuously monitor and provide instant remedy if any abnormality is detected in the patient.

### 4. SOFTWARE TOOL USED

Energia is an open source & community-driven integrated development environment (IDE) & software framework. Based on the Wiring framework, Energia provides an intuitive coding environment as well as robust framework of easy-to-use functional APIs & libraries for programming a microcontroller. Energia supports many TI processor, primarily those available in the LaunchPad development ecosystem.

### 5. FEATURES

- Simple & easy-to-use code editor and compiler with built-in Serial Monitor/terminal.
- Support for various TI embedded devices (MSP430, TMC4, CC3200, C2000, etc).
- Open source & hosted in GitHub.

- Higher level libraries are also available (i.e Wi-Fi, Ethernet, displays, sensors & more)
- Features a robust framework of intuitive functional APIs for controlling microcontroller peripherals (i.e. digitalRead, digitalWrite, Serial.print, etc.

## 6. CONCLUSION

As health care services for a physically challenged person are important part of our society, automating these services lessen the burden on humans and eases the measuring process. Also the transparency of this system helps patients to trust it. When threshold value is reached, the doctors can act more quickly. The objective of developing monitoring systems is to reduce health care costs for the physically challenged by reducing physician office visits, hospitalizations, and diagnostic testing procedure.

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