Patient Monitoring System

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Abstract. This project is an attempt to construct a working version of a pulse oximeter from a relatively cheap set of parts – including a microcontroller. An off the-shelf microcontroller has enough processing power to perform the tasks required for this design; however, in any commercial application, specialized hardware will be designed that is specifically suited to the task. Patient monitoring is one of the IoT application to monitor the patient health status. Internet of things makes medical equipment's more efficient by allowing real time monitoring of health. Using IoT doctor can continuously monitor the patient's on his smart phone.Pulse oximeters have been used in medical settings for many years. In many cases, such as during an operation, in intensive care, the emergency room, even an unpressurized aircraft, a person's oxygen level may be unstable and needs monitoring. In addition, from these readings, the person's heart rate can also be determined. This project is an attempt to construct a working version of a pulse oximeter from a relatively cheap set of parts – including a microcontroller.

Keywords: Please list your keywords here. They should be separated by middots, if possible. The first letter of each keyword should be capitalized.

1   .Introduction

There is a growing problem in human health unfortunately, people have always found it too late to get serious medical care when things are inseparable. But since it is well-known everywhere (or across the continent) it is very dangerous and can be fatal if not tested and treated beforehand. If action is taken as soon as possible, many patients can recover and help stop the spread. Heart rate and body temperature are among the most important indicators of human health. It would be helpful if there was a way to monitor the heart rate and temperature of these people [5].
So, we have a problem. This project focuses on how we can overcome this problem and solve it.

IoTtechnology provides a communication channel between human-to-human, human-to-smart devices, and smart devices-to-smart devices without human interaction. IoT applications have been increasing over time such as smart wearable devices, smart cities, home automation, remote control, and monitor systems. Also, IoT technology has a modern evolution in healthcare systems and fitness applications. This can be an essential step to change the conventional healthcare systems which require patients' existence inside hospitals or clinic centers to check their health parameters.

Patient health monitoring is an important and rapidly growing field, nowadays with opportunities for advancing technologies; many researchers have come up with different designs for patient healthcare monitoring systems according to technological development. Pulse oximeters have been used in medical settings for many years. In many cases, such as during an operation, in intensive care, the emergency room, even an unpressurized aircraft, a person's oxygen level may be unstable and needs monitoring. In addition, from these readings, the person's heart rate can also be determined. This project is an attempt to construct a working version of a pulse oximeter from a relatively cheap set of parts – including a microcontroller. An off the-shelf microcontroller has enough processing power to perform the tasks required for this design; however, in any commercial application, specialized hardware will be designed that is specifically suited to the task. Pulse oximeters have been used in medical settings for many years. In many cases, such as during an operation, in intensive care, the emergency room, even an unpressurized aircraft, a person's oxygen level may be unstable and needs monitoring. In addition, from these readings, the person's heart rate can also be determined. This project is an attempt to construct a working version of a pulse oximeter from a relatively cheap set of parts – including a microcontroller.

2   .Literature Survey

Here, various papers describing various techniques for solider health monitoring system are studied. In paper [1] Surekha N, Yamuna N, Akhil Kumar A J, Naveen Kumar K G," Patient Monitoring System using IOT", the design of system is based on SST89E516RD2 microcontrolled based high performance integrated health portable monitoring. The person measure their heart rate by placing finger on IRD (infra-red devices) sensor and then pulse rate is measure and all results will be displayed on LCD. The device sends messages when the parameter value exceeds the provided cut-off value. This cut-off value or threshold is given by the programmer during coding of the LPC-2148. The standard heart rate range between 60-100 pulse/min and standard temperature range between 18°C to 38°C. The heart rate, ECG, brain tumor and body temperature information is then send to the authorized person through GSM.

In Paper [2] Vikramsingh R. Parihar, Akesh Y. Tonge, Pooja D. Ganorkar "Heartbeat and Temperature monitoring for remote patients using Arduino", the system is working of wireless heartbeat and temperature monitoring system which is based on microcontroller ATmega328 . The real time person heartbeat and temperature reading are display on LCD monitor and data can be send to remote location.

In paper [3] Sudhindra F, Annarao S.J, Vani R.M, Hunagund P.V, "Development of Real time Human body temperature monitoring system. They proposed 5 L architecture base on low cost real time human temperature (hypothermia – low and hyperthermia – high) monitoring using body temperature sensor.

In paper [4] YadavSatyendraSatyanarayan, YadavRaghvendraSatyanarayan, Deep H. Desai," Intelligent Wireless Emergency Alert System for patient monitoring using Node MCU Microcontroller", the propose system is based on AT89S52. The real time clock or real time values (DS1307 RTC) embedded in system.

3   .Proposed Methodology

In this project, we are going to use latest microcontroller Node MCU which has in-built Wi-Fi technology. It operates on 5 V DC supply. To monitor heartbeats and oxygen level MAX30100 Pulse oximeter sensor is used. This sensor will sense the oxygen level and heartbeats and gives output to Node MCU. LCD16X2 is connected further for displaying heartbeat per minute's % oxygen level. We can check the status of the same on Android App also. We will be developing an Android App and web applications with Blynk.
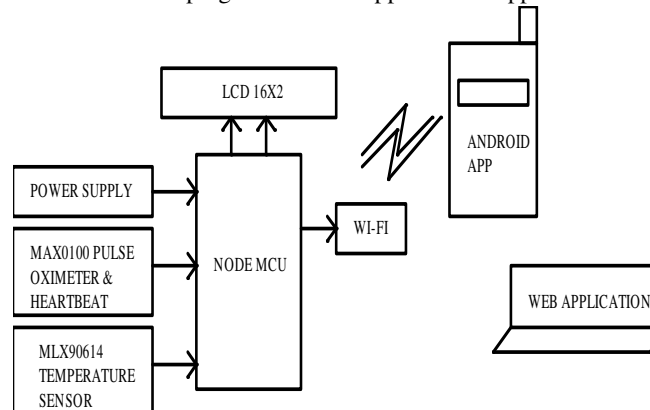
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4   .Advantages

- To continue the monitoring heartbeat
- To continue monitoring oxygen level
- To continue monitoring real time latitude and longitude data.
- We can check the status of the same on Android App and web applications also.

5   .Application

Wireless tracking of human body parameters has attracted significant interest in recent years due to its wide ranging applications such as rehabilitation, virtual reality, sports science, medical science, surveillance, in recent times, wireless sensors and sensor networks have become a great interest to research, scientific and technological community.

6   .Future Scope

As per our literature this is completely new solution it is not available in market.This will maintain the security and overall status of the respective office or industry.We are planning to take this Application and Product to the Market with the help of Playstore.

7   .Conclusion

The aim of this system for monitoring and tracking soldier's health information. The enhance his ability of caring about the band benefiting from web page and android application. The system security can be addressed using encryption technologies, such as AES (advanced encryption standards) for the data exchange between central unit and the soldiers. To enhancement on the system could be by providing an agreed upon secret code to be send with emergency buttor in order not to abuse this facility by enemy.

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