IOT Based Healthcare Monitoring System

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Abstract

This paper describes the working of a wireless heartbeat and temperature monitoring system based on NodeMCU-Wi-Fi model for implementing IOT concept with a microcontroller. Online mode is mostly used in today's world but our system is designed such that a patient can be monitored remotely in online mode in real time. The proposed system, we use sensors which measures heartbeat and body temperature of a patient which is controlled by the microcontroller. The measured data collected from the remote location is transmitted through the wireless system. The heartbeat sensor checks the value of the human body counts the heartbeat and the temperature sensor measures the temperature of the human and surrounding and both the data are sent to the microcontroller for transmission to receiving end and send a value to the server. Here we design the three modules, doctor module to check the overall patient record, the patient module is to check the all health record, a relative module is used to the emergency situation. If an emergency occurs to the patient then automatically server sends the notification to the doctor and parent to the help.

Keywords: Controller, Sensors, Data analysis, Health record, Patient record.

1. Introduction

Heartbeat and body temperature are the major signs that are routinely measured by physicians after the arrival of a patient. The heart rate of a normal human being is 72 bpm(beat per min). Heart rate varies for different age groups. The patient is addressed having efficient heart rate which is functioning of the heart. The heartbeat rates of the babies have a much higher rate than adults. It is around 120 bpm and older children have a heart rate of around 90 bpm. Bradycardia is a condition where heart rate is lower than normal. Another condition is tachycardia where higher than usual. Like a heartbeat, the body temperature also varies. The normal body temperature varies from person to person and it changes throughout the day.

The body temperature is minimum in the early morning and high in the early evening. The normal body temperature is about 37° C or 98.6° F. However, it can be as low as 36.1° C (97° F) in the early morning and as high as 37.2° C (99° F) and still be considered normal. Thus, the normal range for body temperature is 97 to 100 degrees Fahrenheit or 36.1 to 37.8 degrees Celsius. Now day's various sensors are available in the market to measure the body temperature. These sensors come in different forms such as thermocouples, thermistors, resistance temperature detectors (RTD), an integrated circuit (IC) sensor.

2. literature Survey

[2] This paper aims to investigate and compare the accuracy of different data mining classification schemes and their combinations through Ensemble Machine Learning Techniques for predicting heart disease. The dataset for heart diseases, containing 303 instances, has been used in this study.

[3] The proposed system uses sensors, the data acquisition unit, microcontroller and software. Alert alarm messages about the patient's critical health data are send by text messages or by email reports by this system. Using this information the healthcare professional can provide necessary medical advising. Thus the proposed system removes some drawbacks of existing system and provides a reliable health monitoring system which will monitor health parameters such as ECG, RR, HR, BP and BG.

[5] This paper addresses various algorithms and techniques of Mobile Healthcare System. The purpose of this paper is to discuss these algorithms. After analyzing these algorithms and identifying their advantages and limitations, we conclude with several promising directions for future research.

[6]Algorithm using for heart attacks predictions are Data mining algorithms such as J48, Naïve Bayes, reptree, cart, and Bayes Net are applied in this research for predicting heart attacks.

[9] This paper explores the present status of Mobile based Health Care systems in different countries, shortfalls in Primary Health Care Management in rural India, and the potential solution to fill it with the enabling of Mobile Web technologies for Primary Health Care management.

[10] This paper attempts to comprehensively review the current research and development on wearable biosensor systems for health monitoring solutions.



3. Proposed Model

4. Module Identified

1.Patient Module :All the patient's records like appointments ,prescription ,reports etc are maintain in this modules.

2.Doctor Module : An authorized person who analyze all the values of patient's.

3.Relative Module :Guardian of the patient who receive the all the updates of patients.

5. Conclusion

As health care services are important parts of our society, automating these services lessen the burden on humans and ease the measuring process. The trust of patients is gained by the transparency of the system. When the threshold value is reached, the alarm system that consists of SMS alert the doctors and parent he can act more quickly. The objective of developing monitoring systems is to reduce health care costs by reducing physician office visits, hospitalizations, and diagnostic testing procedure.

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