

Health Monitoring Tracking System Using GPS and GSM Module

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ABSTRACT

Health Monitoring tracking system using GPS & GSM module will detect the person's location and will send the message to the respective members phones if their heartbeat and body temperature is more than usual so that they can get a help if required. Sensors will show the readings in BPM (Beat Per Minute) on the LCD connected to it. The body Temperature will be displayed on serial monitor along with BPM readings. With the development of technology, in this project we can digitally sensing body temperature and heart rate using arduino. Mainly arduino is used because it can sense the environment by receiving input from variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators. The microcontroller on the board is programmed using the Arduino programming language. LM35 is used for the sense body temperature. Body temperature is a basic parameter for monitoring and diagnosing human health. Heart beat sensor was used for sensing heart rate. This device will allow one to measure their mean arterial pressure (MAP) in about one minute and the accurate body temperature will be displayed on the Android. The system can be used to measure physiological parameters, such as Heart rate (Systolic and Diastolic), Pulse rate.

KEYWORDS: Health Monitoring, GPS and GSM, Location Tracking, Arduino Uno

INTRODUCTION

More than 2 million people are at high risk of having heart attack. It would be helpful if there was a way for these people to monitor their heart. So we have a problem. That is the way our project focuses on how we can overcome this problem and find a solution. Heart rate means the number of heartbeats per unit of time, usually expressed as beats per minute (bpm). Human's heart pounds to pump oxygen-rich blood to muscles and to carry cell waste products away from tissues. Heart rate can vary according to the demand of muscles to absorb oxygen and excrete carbon dioxide changes, such as during exercise or sleep. It also varies significantly between individuals based on fitness, age and genetics. That means heart must beat faster to deliver more oxygen-rich blood. During exercise routines, the heart rate gives a strong indication of how effective that routine is improving health. Normal heart rate of a resting person is about 70 bpm for adult males and 75 bpm for adult females. A heart rate monitor is simply a device that takes a sample of heartbeats and computes the beats per minute so that the information can easily track heart

condition. Medical professionals use heart rate for tracking of patient's physical conditions. Individuals, such as athletes, who are interested in monitoring their heart rate to gain maximum efficiency from their training, also use it. Body temperature means measurement of the body's ability to generate and get rid of heat. It is one of chief indicators of normal functioning and health. The nature of the human body is to keep its temperature within a narrow, safe range in spite of large variations in temperatures outside the body. So basically it can be used for tracking the health of a person or even for the soldiers who are away from their base camp to provide them any kind of help.

Literature Survey:

Extensive research has been dedicated to the exploration of various technologies such as information technologies (IT) in complementing and strengthening existing healthcare services. In particular, the Internet of Things (IoT) has been widely applied to interconnect available medical resources and provide reliable, effective and smart

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healthcare service to the elderly and patients with a chronic illness. The aim of this project is to summarize the applications of IoT in the healthcare industry and identify the intelligentization trend and directions of future research in this field. Based on a comprehensive literature review and the discussion of the achievements of the researchers, the advancement of IoT in healthcare systems have been examined from the perspectives of enabling technologies and methodologies, IoT-based smart devices and systems, and diverse applications of IoT in the healthcare industries. Finally, the challenges and prospects of the development of IoT based healthcare systems are discussed in detail.

Problem Statement:

One of the increasing popular public concerns is human health. Anything else becomes meaningless if one gets sick or dead. For this reason, people spend a lot of money to keep sound health. Unfortunately, people always find that it is too late to receive serious medical care when things are non-invertible.

If early actions can be taken in time then lots of patients can be cured. However, access to many medical equipment is inconvenient and expensive. Heart rate and body temperature are the most vital ones among the most notable indexes of the human health, and they have the advantage of easy access. Moreover, unlike the X-ray, the measurement of heart rate and body temperature has no effect on human health itself.

There are some devices in the current market which can provide raw medical measurement data to patients and doctors, but the patients may not interpret the medical measurement into meaningful diagnosis since they have little medical background. On the other hand, if raw medical data is delivered to the doctor, it kills much time and may cause trouble, but in emergencies time can never be wasted. It is tough to share data over a large area within a short period. Most of the products available in the current market have these major drawbacks with limitation in flexibility and portability.

Proposed System:

Health Monitoring Tracking System would be using Arduino Uno, GPS & GSM module, Heart rate sensor, Temperature sensor, 16 x 2 LCD, 12V Adapter.

LCD is connected to the RS-8, EN-9, D4-10, D5-11, D6-12, D7-13.

LM 35 Body temp sensor is connected to A0.

Heart beat sensor is connected to the A1.

Emergency switch button is connected to 5.

GPS is connected to the external serial to the 3 pin.

GSM is connected to the 0 & 1.

Advantages:

- Reduced Human Labour.
- Quick and Accurate reading.
- Digital India.
- Helpful for the soldiers, old age people and people with disabilities.

Scope:

- Monitoring device that could be used to detect the heart beat anomalies of physically challenged Individuals without hands.
- Also a graphical LCD can be used to display a graph of the change of heart rate over time.
- A serial output can be incorporated into the device so that the heart rates can be sent to a Personal Computer (PC) or mobile phones for further online or offline analysis.
- It could be integrated with mobile technology for e-health cloud transmission to health care providers.

Application:

- Have become a widely used training aid for a variety of sports.
- Hospitals / Dispensaries
- Better and accurate method of measuring heart beat.
- At homes
- A set point can help in determining whether a person is healthy or not checking his/her heart beat and comparing with set point.
- It can also be helpful for the soldiers who are away from their base camps to track their location and provide them help if needed.

Conclusion:

Through this project our knowledge regarding iot and embedded systems and circuit designing is achieved. We learned about real world applications of microcontrollers and embedded systems. This system can be used for heartbeat monitoring and body temperature monitoring using Arduino and tracking their location and providing help if needed.

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