

Patient Health Monitoring System Using GSM And Arduino

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ABSTRACT

We live in a generation where diseases have reached such an unprecedented level.

Diseases are so much that the greatest worry for many people should be their health. Lifestyle diseases such as cardiovascular ailments and blood pressure are becoming more prevalent. Cardiovascular diseases are some of the leading causes of deaths in world. Heart beat and blood pressure readings are by far the best parameters that could promote early detection of cardiac events. By using this system that I am proposing, we can measure ones heart rate through fingertip. The number of patients is also increasing exponentially,

bringing a tremendous challenge to health resources in our very own country Kenya where they have never been enough.

INTRODUCTION

Telemedicine is a field that did not begin yesterday. There has been a lot of development behind this field. As with all other fields, technology plays a very big role as it eases the burden on health officials, reduces the cost of treatment, surveillance and diagnosis of patients. Patient monitoring systems are already being used in hospitals among other places. However, their

costs are prohibitive and hospitals in third world countries like Kenya can barely have them. This means someone will always have to be there to watch over a patient whether in the hospital or at home.

The proposed patient monitoring system would be beneficial for medical practitioners to do proper and better treatment. It is also beneficial to relatives or guardians who have are taking care of the sick. As I have stated, the signals are transferred from the Arduino to the health personnel in the hospital or to a relative for a case of patient at home. My project is thus to create an affordable prototype of heart beat and temperature monitor.

I plan to both simulate and fabricate this project so that the end result becomes a comprehensive system. Softwares that I will use are the Arduino Software, matlab and circuit wizard. Bulk of simulation will be done with matlab while circuit wizard shall be majorly for drawing.

LITERATURE REVIEW

This section outlines what has been so far done or researched by others on this project.

Wan seri bahiyah [3] does a project where he uses Zigbee, Arduino Uno, and ECG circuit and temperature sensor. He uses Lab View to process the signals. The problem is that this does not cover a wide are as compared to GSM.

Lauren Akoth [4] introduces processing and simulation of ECG data using Matlab. This one is a good research on how to simulate heart rate.

Purnima, Puneet Singh [5], uses both Zigbee and GSM to transmit the data obtained from a patient. GSM is used for purpose of mobile phones while zigbee is for PCs where the transmitted signals are processed.

Bandana Mallick and Ajit Kumar [6] proposed the use of fingertip to measure the heart rate and process it using Arduino.

Shrenik Suresh Sarade et. al[9] proposed a project having a simple, microcontroller based heart beat rate & body temperature measuring device with display the information on LCD display. Heart rate of the subject/body is measured from the index finger using IRD (Infra-Red Device) sensors. Also Saline Level is measured continuously for different

levels. The device alarms when the heart beat & the body temperature exceed the provided threshold value. This threshold value is defined by the programmer at the time of programming of microcontroller. The threshold value is as 20 to 120 pulses per minute for heart beat indication & 18°C to 38°C for temperature.

This information transmitted wirelessly to the doctor which is not in the vicinity of the patient through GSM technique. The problem with the use of infrared Device is that the LED light must be very bright or it will not be sensed by the photodiode.

EXISTING SYSTEM

In today's busy and expensive world everyone is so tied up with their daily works that most of the times no family members can be with the elder people of the family 24/7.

The Elder person should be continuously monitored by other external. Also, external help is not affordable for everyone. Again, there are cases where elder people are living in their home all alone independently.

In all of the above cases, the common problem is lack of continuous health monitoring of elderly people living alone.

PROPOSED SYSTEM

In this paper, proposing a remote monitoring and sensing parameter of the human body which consists of pulse and temperature.

The parameters that are used for sensing and observing will send the data through wireless sensors. Adding a web based observing helps to keep track of the regular health status of a patient. The sensing data will be collected in database continuously and will be used to inform patient to any unseen problem to undergo possible diagnosis.

Block diagram of the system

Heart Beat sensor

This shall read the heart rate which is then processed by the processor and displayed on LCD display and sent out through GSM module



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