Abstract

The “GSM based patient monitoring system” using Arduino is the important project for patients health care. In this project we are trying to implement one kit which determine the patients high temperature, high blood pressure, and high breath rate. Here we use three sensors namely Thermistor, Blood pressure(LDR+LED), Respiratory. By those sensors the above parameters are measured and if any danger condition is occurred then via GSM the message will send on doctor’s mobile. So doctor will give the service to that patient which needs it so it will save patients life.

I. INTRODUCTION

The high temperatures, high blood pressure, high breathing problems are widely faced by lot of peoples. The admissions to hospital with heart failure, has more than doubled in last 20 years. This is big challenge in front of doctors to reduce this problem. In order to keep in track of critical health conditions, a real time temperature monitoring, blood pressure monitoring, and breath monitoring system of patient based on GSM is designed & developed in this system. In this system, if the temperature, blood pressure, breathing are goes on high level then via GSM the message is send on doctors mobile, so that doctor can understand the condition of that patient and they gives immediate treatment to that patient. Due to this it saves their life. This is the main aim of our project.

II. PROPOSED SYSTEM BLOCK DIAGRAM DESCRIPTION

i.) Arduino: Arduino is the heart of the system. Arduino is used for processing the data from sensors. In that project we use “ATmega328”Arduino Uno controller. It consist 28 pins. In that, there are six analog inputs and fourteen digital i/o pins. Arduino consist inbuilt ADC also inbuilt programming.
ii.) **Sensors:**
   
a) **Thermistor:** Thermistor is inexpensive, easily obtainable. They are easy to use and adaptable. Thermistors are widely used for simple temperature measurement. They are not used for high temperature. They are responding quickly.

b) **Blood Pressure:** We are implement blood pressure sensor using combination of LDR and LED. The function of heart beat device is based on the blood circulation in heart beats that can be sensed by circuit formed by LDR and LED.

c) **Respiratory:** It is used for measuring breathing capacity of human per minute. It is humidity sensor which converts relative humidity to the corresponding output voltage. It works on dc 5v voltage, operating temperature 0-60 degree Celsius, Humidity is 10-90%RH, Accuracy is 5%.

iii.) **LCD Display:** Here we use 16*2 LCD Displays. It is used to display the sensors reading given by Arduino and Microcontroller.

iv.) **Microcontroller:** We use (89c52) microcontroller. It is an 8 bit Microcontroller and belongs to Atmel’s 8051 family. AT89c52 has a 8KB of flash programmable and erasable read only memory (EPROM) and 256 Bytes of RAM. AT89c52 has an endurable of 1000 write/ erase cycles which means that it can be erased and programmed to a maximum of 1000 times. The output of Microcontroller is given to the GSM Module. Microcontroller is used for Decision making.

v.) **GSM Module:** GSM SIM 900A is used in our project. It is used for sending message to the doctor mobile. Power requirement of GSM module 12V input,1A DC power supply. It requires 9600 baud rate.
III. WORKING

In this project, we are using three sensors that are thermistor, blood pressure and respiratory sensor. All sensors are analog sensors and they are interfacing with Arduino. It is used to convert analog signal into digital form. The output of sensors is displayed on LCD Display and also gives to the 89c52 Microcontroller.

We are giving the set points for three sensors that are, for thermistor it is 50, for blood pressure it is 120 and for respiratory it is 160. If the temperature measured by thermistor is above 50 then it is dangerous to the patients health. Similarly for blood pressure and respiratory crossing their set points that are 120 and 160 respectively. Then it is displayed on Arduino’s LCD Display. The output from Arduino LCD Display is giving to 89c52 Microcontroller. It takes a decision to transfer the message of critical condition or not. And also it display on LCD Display of it. One output of Microcontroller is connected to GSM. It is used to transfer the message to the doctors mobile. And if the Temperature, Blood pressure, Breathing are below the set points then message is display only on LCD Display not on doctors mobile.

IV. CONCLUSION

The “GSM Based Patient Monitoring System” plays an important role in health care and hospital use. Because now a day there is need to take care of patient’s health. By implementing this project patients can get proper and quick treatment. This project is reliable, cheap and low power consumption also more accurate system that can monitors the all parameters continuously. Thus, this project is an optimum solution for problems related to health and hospital.
V. REFERENCES


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