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Health Monitoring System Using ZIGBEE Based Physical Parameter

Vijay M. Bondre , Prof. Nikita Umare , Prof. Gajanan Patle

M. E. Student, Dept. of CSE, AGPCE, Nagpur University, India

Professor, Dept. of CSE, AGPCE, Nagpur University, India

Professor, Dept. of CSE, AGPCE, Nagpur University, India

ABSTRACT: Care of critically ill patient, requires spontaneous & accurate decisions so that life protecting & lifesaving therapy can be properly applied. Statistics reveal that every minute a human is losing his/her life across the globe. More close in India, everyday many lives are affected by heart attacks and more importantly because the patients did not get timely and proper help .This paper is based on monitoring of patients. We have designed and developed a reliable, energy efficient patient monitoring system. It is able to send parameters of patient in real time. It enables the doctors to monitor patient health parameters in real time. Here the parameters of patient are measured continuously and wirelessly transmitted using Zigbee. The project provides a solution for enhancing the reliability and flexibility by improving.the performance and patient monitoring system. In the current proposed system the patient health is continuously monitored and the acquired data is analyzed at a centralized system. If a particular patienthealth parameter falls below the threshold value, an automated SMS is sent to the prefigured mobile number using a standard GSM module interfacedto the System. Here, we are using Zigbee for wireless transmission. The Doctor can get are cord of a particular information by just accessing the database of the patient on his PC which is continuously updated through Zigbee receiver module.

KEYWORDS: wirelessly transmitted, Zigbee, automated SMS.

I. INTRODUCTION

In recently, wireless sensor networks areused to structure Remote care system in many researches.Wireless sensor networks application for physiologicalsignals communication transmission has manytechnologies. Such as the ZigBee, used forPhysiological signal transmission.Although ZigBeehaslower power consumption. Hence, ZigBee is used for 24 hours monitor of communication transmissionsystems. ZigBee provides higher network flexibility and a larger number of nodes, and a better transmission range with low power consumption.Large number of nodes enables the expansion of such systems. Recently, ZigBeebased wireless networks were check in various applications.The proposed patient monitoring system would be beneficial for medical practitioners to do proper and treatment; also it would be useful for health care providers to improve diseasemanagement. The patient is monitored the data transferred to the PC is wired.Recent work [1,2] includes using Bluetooth technology coupled with the GSM technology to report signs to PDAs held by the patient or his doctor. Monitoring based on ultra widebandbased personal area networks was reported in [3]. Sneha and others [4] presented an architectural framework for a system that utilizes mobile techniques to wirelessly monitor patients. The work reported in [5] discusses the implementation issues, and describes the overall system architecture of a Bluetooth sensor network for patient monitoringin[6]the authors investigate the use of ZigBee and mobile phones in monitoring elderly patients with diabetes mellitus or heart diseases.

II. IMPLEMENTATION METHODOLOGY

TEMPRATURE WORKING:

The key component is the Dallas Semiconductor's DS1621 temperature sensor. This tiny 8 pin IC needs only +5 volts to measure the temperature and to send it out via its IIC bus output. Since many IIC bus devices can be connected in parallel, three address inputs (A0, A1, A2) are provided to select one out 8 addresses the device will respond on. This

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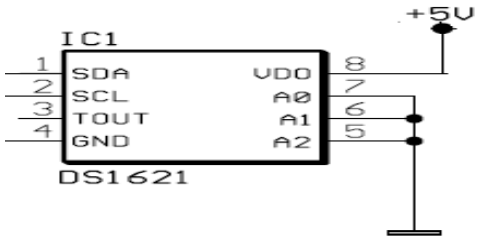
way, up to 8 sensors can be connected in parallel. I have set the internal temperature sensor to address 0 and the external one to address 1. If you plan to use only one sensor connect it as address 0.

Interfacing the IIC bus to the RS232 com port is a matter of adapting levels. IIC works on 0..5V signals, RS232 uses -12V .. +12V. The trick here is that, altough specified for -12V..+12V, almost all PC com port I know work equally well with 0..5V signals. This eliminates the need to raise the IIC output to RS232 levels, and the SDA data line connects directly to the PC CTS line. On the opposite way, the RS232 signals can damage the IIC inputs, so I placed voltage limiters (R1, DZ2, R2, DZ1) on the SCL clock input and SDA data input. (note that SDA is bidirectional: receives from the DTR line and transmits to the CTS line). Since the circuit draws very little current, there is no need to add an external power supply. The +12V from the RS232 lines are conveyed to the regulator by diodes D1, D2, filtered by C1 and regulated to +5V by the LM2936-Z5. Don't replace it with an ordinary 78L05 regulator unless you want to add an external 9V battery: the LM2936 is capable to regulate even with input voltages near to 6V, as is the case of many serial ports.



Since the dawning of the age of electronics, countless attempts have been made to convince the medical profession of the advantage of amplifying hearts sounds with the idea that if the sound level could be increased a greater diagnostic capability might be achieved. the heart sound heard by the physician through his conventional stethoscope occur at the time of closure of major valves in the heart. In an abnormal heart additional hearts sounds. Murmurs are heard between the normal sounds . Murmurs are generally caused either by improper opening of the vales or by opening in the septum, which separates the left and the right side of the heart. Different physicians may hear the same sound but interpret them differently. This could lead to faulty diagnosis.

In addition high fidelity equipment would be able to reproduce the entire fidelity equipment would be able to reproduce the entire frequency range much of which is missed by the ordinary stethoscope. The instrument that has been developed in order to utilize the entire sound spectrum with high fidelity is the digital stethoscope from heart by means of suitable hardware. The extracted signal is feed to computer to detect for abnormalities of the heart if anyMeasurement of physiological parameters like heart rate and respiration rate crucial in the field of medicine. Advances in technology have provides different measurements for constantly monitoring Here is a simple method for respiration rate measurement using a displacement transducer. This meter can be used to monitor the respiration rate, pulse rate (by using a proper sensor) and heart rate. It responds fast and is cost-effective compared to conventional medical equipment. By using this, respiration rate can be measured in the range can be measured in the range of 0-999 respirations/minute.

CIRCUIT DESCRIPTION:

shows the block diagram of the respiration rate meter. It uses a displacement transducer for sensing the respiration rate using IR transmitter and receiver as shown in the physical assembly. Inhaling and exhaling the air during respiration leads to move of a lightweight ball (made of thermocal) up and sown in a capillary glass tube. This movement is sensed with the help of IR transmitter-receiver assembly of the sensing circuit and converted into pulses through the pulse generator. These pulses are counted for a minute using a counter. Start switch s1 is used to reset the display to zero and enable the counter for a minute to count the respiration pulse. The gate pulse generator consists of a monostable consists of a monostablemultivibrator. When triggered by start switch, it generates gating pulse of one minute duration.

The circuit of the respiration rate meter. The IR transmitter LED (IRTX) connected in series with resistor R1 transmits IR signals, which are received by the IR receiver Led (IRTX).The IR receiver is connected to the base of transistor T1 through resistor R2. When the transmitter IR signal fails directly the reverse biased IR diode, it produces

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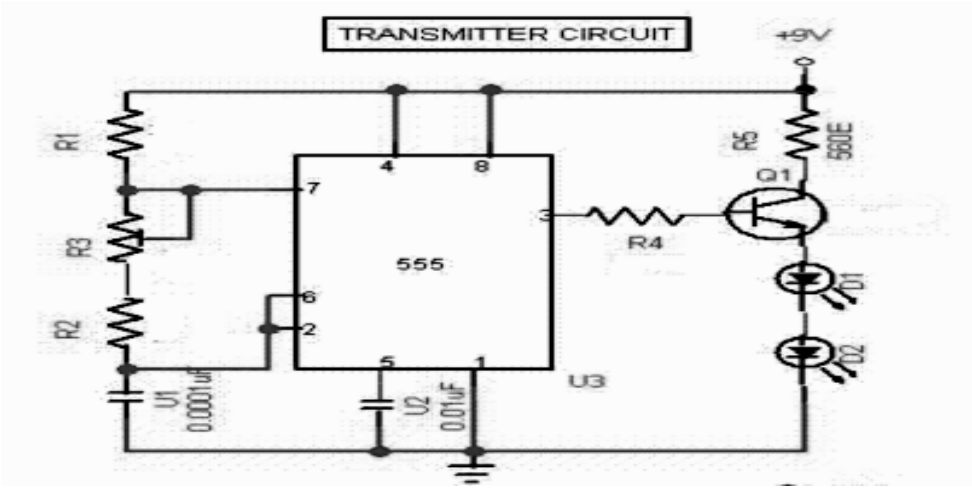
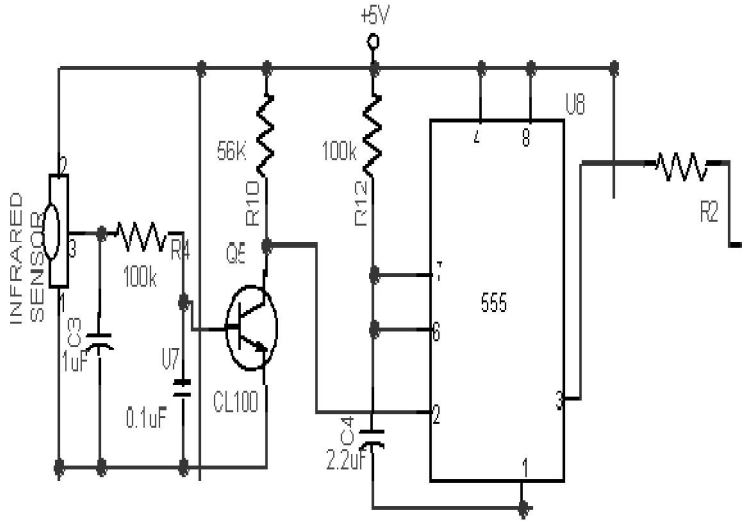
an electrical signal according to the IR intensity. So transistor T1 conducts and its collector goes low, which makes transistor T2 becomes high, which represent logic'1'. When the IR signal from the transmitter is interrupted sue to movement of the ball up and sown during the bale-exhale mechanism, transistor T1 is cut-off and its collector goes high, which drives transistor T2 into conduction. The collector of transistor T2 goes low, which represents logic '0'. This means whenever the ball crosses the IR beam, a pulse is generated during in bale and exhale.IR emits the rays amplified by transistor and generated by 555 timer. TSOP sense the signal and sends to the transistor Which has 555 timer sends to the microcontroller will has the programming which sends to decoder which trigger the relay Through which it will trigger the relay ON.certain frequency and ignores all other IR received. The best frequency for the job is between 30 and 60kHz, the most used is around 36kHz.So, remote controls use the 36kHz(or around) to transmit information. InfraRed light emitted by IR Diodes is pulsated at 36 thousand times per second, when transmitting logic level "1" and silence for "0".To generate a 36kHz pulsating infrared is quite easy, more difficult is to receive and identify this frequency. This is why some companies produce infrared receives, that contains the filters, decoding circuits and the output shaper, that delivers a square wave, meaning the existence or not of the 36kHz incoming pulsating infrared.





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III. CONCLUSION

For computerizing the working in a hospital. The software takes care of all the requirements of an average hospital and is capable to provide easy and effective storage of information related to patients that come up to the hospital. It generates test reports; provide prescription details including various tests, diet advice, and medicines prescribed to patient and doctor. It also provides injection details and billing facility on the basis of patient's status whether it is an indoor or outdoor patient. The system also provides the facility of backup as per the requirement.

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BIOGRAPHY

Vijay Madhorao Bondreis a student of M.E. (Wireless Communication and Computing), AbhaGaikwardPatil College of Engineering Nagpur,MS, India. He research interests are electronics parts repairing, Computer Hardware parts repairing etc.