

Patient Health Monitoring System using Zigbee Technique

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ABSTRACT

The main aim of the project is development of microcontroller based health monitoring system for heartbeat, temperature and oxygen using Zigbee. Now a days, nation population increases demands for caretaking because of these reason monitoring system are the most important system. In this paper we use wireless sensor network based on Zigbee technology. This monitoring system consists of Zigbee based network, microcontroller and three types of sensors which are heartbeat sensor, temperature sensor, oxygen sensor. These sensors are connected to the patient and the output is directly displayed on LCD through Zigbee. The output from the sensor is analog values it is converted to digital and processed by using microcontroller and it will be respond in LCD or computer display.

Keywords: Heartbeat sensor, Microcontroller, Oxygen sensor, Temperature sensor, Zigbee network.

ARTICLE INFO

Article History

Received: 25th March 2017

Received in revised form :
25th March 2017

Accepted: 25th March 2017

Published online :

4th May 2017

I. INTRODUCTION

Now a day, patient health care monitoring system is important topic and research field. These health monitoring system are developed for many application such as military, homecare unit and hospitals. This paper describes the Zigbee based health monitoring system. This system consists of microcontroller, Zigbee technology, heartbeat sensor, temperature sensor and oxygen sensor. The Zigbee is low cost technology. It's rang is 30 m to 1 km.

The technology is intended to be simpler and less expensive than other WPAN's such as Bluetooth. Due to tiny size and low power consumption of microcontroller are applicable where miniaturization is key requirement such as access control and point of sale. This paper describes wireless sensor network based on Zigbee technology. It is used for collecting and transferring various monitoring information about patient in hospital. The application consists of Zigbee based network, three sensor i.e. heartbeat sensor, temperaturesensor, oxygen sensor.

II. BLOCK DIAGRAM

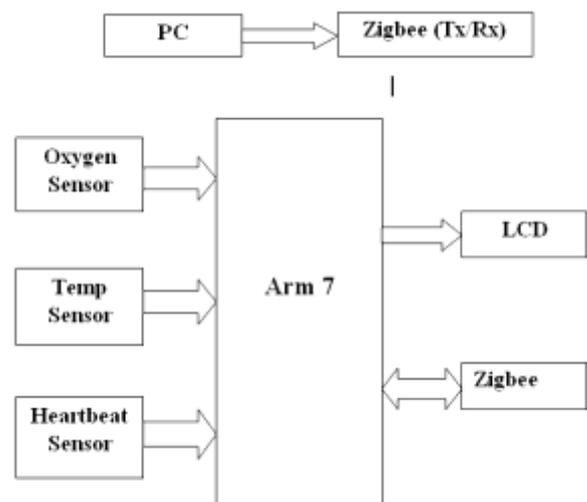


Fig.2.1 Block Diagram of Zigbee

III. BLOCK DIAGRAM DISCRIPTION

3.1. Microcontroller (Arm 7)

ARM7 has a 32 bit data bus and a 32 bit address bus. The data types the processor supports are Bytes (8 bits)

Heart beat sensor is designed to give digital output of heart beat when a finger is placed on it. When the heart beat detector is working, the beat LED flashes in unison with each heartbeat. This digital output can be connected to microcontroller directly to measure the Beats per Minute (BPM) rate. It works on the principle of light modulation by blood flow through finger at each pulse. It is applicable for Digital Heart Rate monitor, Patient Monitoring System, Bio-Feedback control of robotics and applications. The heartbeat is indicated by LED. It has instant output digital signal for directly connecting to microcontroller. It has compact size and its working voltage +5V DC.

IV. HARDWARE DIAGRAM



Fig. 4.1 Hardware Prototype Model

V. CONCLUSION

We have analyzed wireless health monitoring system of temperature, heartbeat and oxygen of human being using Zigbee based wireless health patient monitoring system. The wireless device is comfortable and reliable for patient as well as medical representative and the speed is high, low power consumption, more highly efficient system.

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