Mechanical and Production Engineering and Development

Volume: 1 Issue: 1 08-Jun-2013, ISSN_NO: 2320-7256



MONITORING TEMPERATURE USING CLOUD SENSOR

Saurabh Srivastava, Mohamed Shabeer, *S.Thileepan, #P. Vivekananda Shanmuganathan Robotics Laboratory, School of Mechanical & Building Sciences, VIT University, Vellore, Tamil Nadu, India. thileep_st@yahoo.co.in; +91-9003129821.

Abstract

The proposed device has a ZigBee module interfaced with P89V51RD2 Microprocessor and LM35 sensor. An LM35, temperature sensor senses the temperature of a baby/person and it is transmitted by the Zigbee transmitter. Temperature data is received by the Zigbee receiver and is connected the host computer via RS-232. By the host computer, the received data is uploaded to the cloud so that the persons health condition can be monitored anywhere from the world. This data is then worked upon by the ZigBee Health Vigilance Software which monitors the data continuously and if the temperature of the baby/person is more than the critical level, it will send a message to the doctor via an App created for WP7 and it will send all the data report to the doctor via E-mail. It will save the patient profile and all the necessary data log with timeline.

Keywords - Zigbee module, Zigbee Health vigilance software, cloud, data log , P89V51RD2 Microprocessor and LM35 Temperature sensor.

Introduction

In the current world it is difficult for the doctor to monitor the patients' health frequently. Some time it is not possible for a doctor to check the patient in night and he may not be able to reach the patient. Cloud computing sensor and selfdiagnosis using mobile phones is an reasonably priced solution for this problem. The LM35 temperature sensor is used to monitor the body temperature. This data is transmitted using Zigbee module to the host computer. Then, Temperature data is fed in Excel sheets and it is synchronised with the cloud. An alert message is made to the doctor when the body condition of the patient is not normal. Health monitoring and self-diagnosis is an essential technology in today's world.

Experimental Setup

The Temperature sensor LM35 sensor which senses the temperature of the human body and Temperature data it is sent to P89V51RD2 Microprocessor which is transmitted using Zigbee to a host computer which synchronises the heat data with the cloud. Doctor can monitor

ISRJournals and Publications

the patient with his mobile phone using the cloud sensor.



Figure. No: 1 Experimental setup

Page 1

Mechanical and Production Engineering and Development

Volume: 1 Issue: 1 08-Jun-2013, ISSN_NO: 2320-7256



Working Principle

In this project, LM35 temperature sensor is used for sensing the temperature of the patient then this sensed signal is superior and the analog signal is digitized using A/D converter. This digital signal is given to P89V51RD2 Microcontroller for program by zigbee transmitter. The gesture received by the receiver Zig Bee module is fed into the excel sheets of the host computer. This excel sheet data is synchronised to cloud using Microsoft Azure platform. The Doctor can scan the patient remotely using the phone.A mobile application is designed using Microsoft Windows Phone 7 SDK for remotely monitor the patients health.



Result and Discussion

The tentative setup is made and programmed by Visual Studio 2010 and Windows Phone 7 software development kit. This method proves to be an reasonably priced way for monitoring the patient's condition at any time.



Figure. No 3 Screenshots of the mobile phone



Graph.1: Temp & Time

Conclusion

Cloud computing sensor for monitoring temperature of the patient serves to be the best and it is useful in diagnosis and monitoring the patient remotely. The outcome are established and are assuring. Hence this device can be further developed in the future for self-diagnosis and sensing the temperature and pluses of patient. Mechanical and Production Engineering and Development

Volume: 1 Issue: 1 08-Jun-2013, ISSN_NO: 2320-7256



References:

1. Wang, D.H. "Instrumentation of a wireless transmission system for health monitoring of large infrastructures" Instrumentation and Measurement Technology Conference, 2001. IMTC 2001. Proceedings of the 18th IEEE.

2. Alahmadi, A" A approach towards a mobile e-health monitoring system architecture" Research and Innovation in Information Systems (ICRIIS), 2011 International Conference.

3. Basak, A. "KiMS: Kids' Health Monitoring System at day-care centers using wearable sensors and vocabulary-based acoustic signal processing "e-Health Networking Applications and Services (Healthcom), 2011 13th IEEE International Conference.

4. Ogawa, R. "Attempts at monitoring health status in the home "Microtechnologies in Medicine and Biology, 1st Annual International, Conference On. 2000.

5. Watthanawisuth, N. "Wireless wearable pulse oximeter for health monitoring using ZigBee wireless sensor network" Electrical Engineering/Electronics Computer Telecommunications and Information Technology (ECTI-CON), 2010 International Conference.

International Journal of Advanced Research in

Mechanical and Production Engineering and Development

Volume: 1 Issue: 1 08-Jun-2013, ISSN_NO: 2320-7256

ISRJournals and Publications



Page 3