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A SMART NETWORK: IoT TO MONITOR TEMPERATURE AND HEART BEAT OF A PERSON USING RFID TECHNOLOGY

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ABSTRACT

The current trend is to use internet for monitoring patient. In worldwide there is a need for IoT based remote health care monitoring system. By this smart system elderly people without compromising their convenience and preference of staying at home their health can be taken care. RFID technology is used for gathering various information about living environment like temperature, humidity and other gases. RFID technology is used in full fledge as a part of the IoT physical layer which is applicable to personal health care. This smart environment is of low cost which uses optimized resource consumption to monitor a person.

Key words: IoT, RFID technology.

INTRODUCTION

This project is related with the current research on RFID sensing from the perspective of IoT for personal healthcare. The survey will cover passive (i.e., battery-less) devices in the UHF band (860-960 MHz) which are capable to provide services and enough read ranges to implement a network of sensors for tracking the human wellness and monitoring the quality of the local environment. Using RFID the data will transmit to the doctors for advice related to illness. It will cover both the physical issues and the signal processing, for the application level. RFID-powered environment supporting new pervasive healthcare services could be a Smart-House equipped with a distributed network of readers, enforcing a uniform and robust coverage in the most relevant spaces, and a heterogeneous set of battery-less tags with sensing capability.

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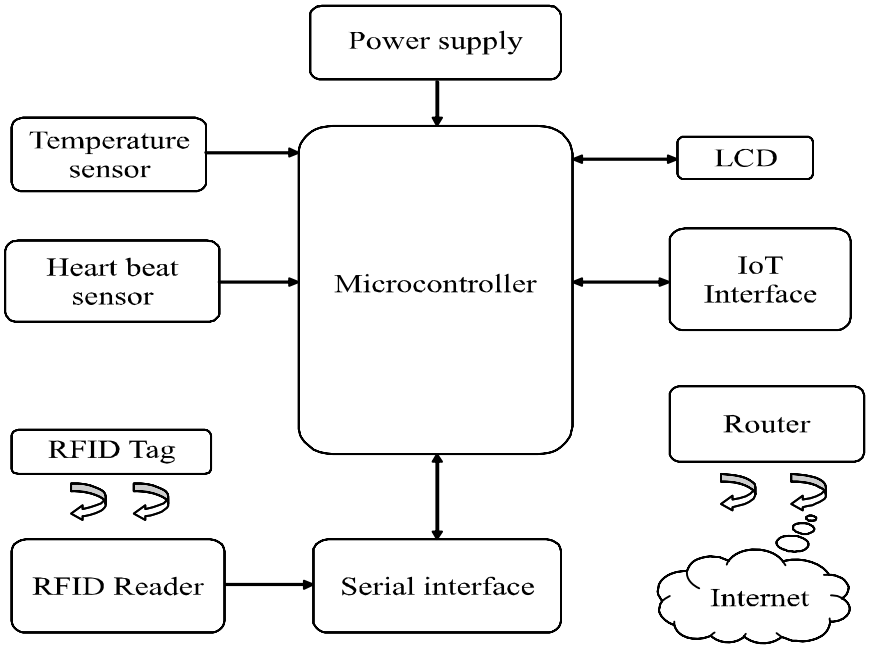

Fig. 1: Block diagram of proposed system

EXPERIMENTAL

Working operation

When the power supply is given to the microcontroller, the values gained and noted in each of the module. The sensors will observe the patient's heart beat rate with respect to temperature of the room where the values are taken and also with reference to the interfaces used in serial communication the data will also be taken to the microcontroller. Each person will have a unique RFID tag as their Identification. And using the RFID tags, the RFID reader will read the values that are taken in account for the simulation of the output. The internet is used for producing the output with all other hardware components.

Hardware used

1. PIC Microcontroller
2. Temperature sensor- MCP9800
3. LCD Display
4. RFID Reader
5. Heart beat Sensor- AD8232
6. Analog to digital converter

Software used MPLAB IDE

RESULTS AND DISCUSSION

This is the ON Condition of hardware module. When the GSM module gets switched to the ON state and also the power supply is given for displaying the IoT healthcare in the module.

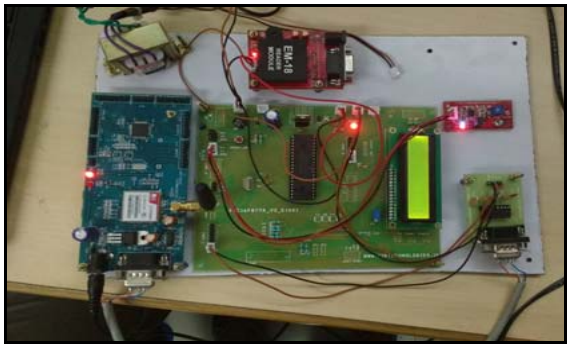

Fig. 2: Hardware module

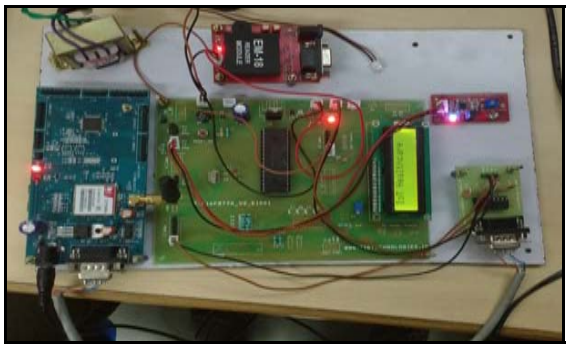

Fig. 3: Displaying IoT healthcare when GSM and power supply module is ON

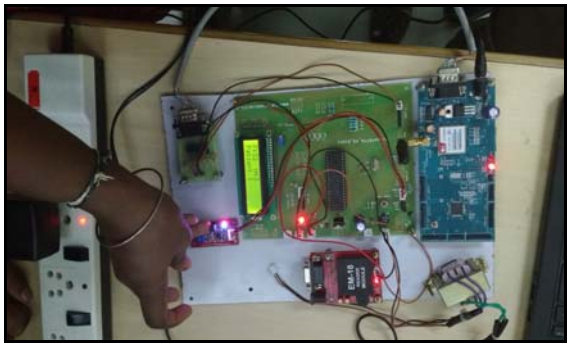

Fig. 4: Picture of the hardware module displaying the heart rate with respect to room temperature fixed of the patient 1

The heart beat rate can be measured in the module with respect to the database to be maintained in the hospital. The hardware module will display the heart beat rate when the patient keeps finger in the respective place for calculating the value with respect to the room temperature which is fixed.

Simulation output

This is the simulation result of the project displaying the values of the patient with respect to the fixed room temperature. In this output values, when IoT is displayed, it is the initializing value of the hardware used. And the empty spaces in the output are the garbage values when the range of the network used in the hardware is considered.

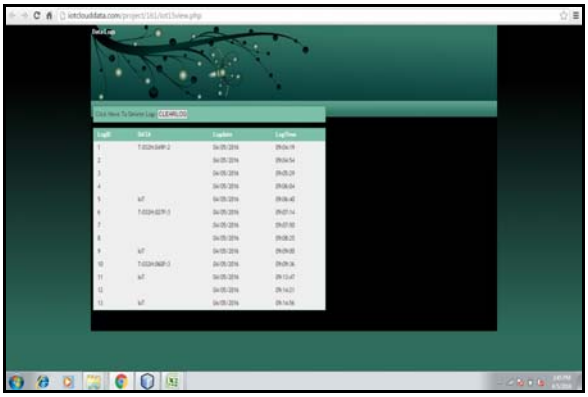

Fig. 5

CONCLUSION

The unique strategic position of gateways in IoT architectures, an Intelligent E-Health Gateway can tackle many challenges in ubiquitous healthcare systems such as energy efficiency, scalability, interoperability, and reliability issues.

Future enhancement

We can enhance our proposed work with security and authentication for IoT-Based Healthcare using Intelligent E-health Gateways.

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