

**RFID BASED HEALTH CARD FOR DOCTORS TO ACCESS PATIENT
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Abstract— Indian healthcare system is a dilapidated state. India facing many problems in medical field because of poor physical infrastructure. The disease like cancer, diabetes, BP and heart patient need continuous monitoring as they get admitted into the hospital. Even they require regular health care. In earlier days while monitoring, doctor need to come and check patient's real time parameter. It is time consuming system. If doctor become late for check-up of patient it may affect the patients health. The patient who need regular treatment need to carry their medical documents every time while coming for check-up. It is possible that they may loss the documents. In this paper, light weight low cost and wireless connected medical diagnostic system is proposed. The main features of system are: (1) Continuous monitoring of real time parameter like heartbeat, temperature. (2) Doctor can get patient history and basic information using RFID cards which is uniquely assigned to patient. (3) Due to use of non-volatile memory doctor can access patient history any time during his whole treatment period. (4) Patient need not to carry all medical documents while check-up. (5) Get authentication and security to patients history. This system provides low cost-effective health care system.

Keywords—Patient, Continuous monitoring, Heart Beat, Temperature, RFID, Authentication, Security

I. INTRODUCTION

System of patient monitoring becoming an important topic and research field today. This paper described the wireless sensor network based on zigbee technology and RFID technology for accessing the patient history. It consists of two unit's patient unit and doctor unit. Patient unit consists of sensors, microcontroller, LCD, zigbee. Doctor unit consists of zigbee, memory, RFID module, microcontroller, PC. When patient get admitted into the hospital for his further treatment parameters like heartbeat, temperature should be continuously monitored. This proposed system will measure this real time parameter using sensors. Sensor output is in analog form which is given to the ADC pin of microcontroller. ADC pin of microcontroller converts this analog signal into digital which will display on LCD. Microcontroller simultaneously sending this real time parameter to the doctor unit using zigbee wireless network. That means this unit continuously monitoring this parameter, displaying it and sending to doctor unit for wireless monitoring and storage. At doctor unit, the information send by patient unit receive by zigbee module. Doctor wirelessly monitors the patient by accessing patient unique RFID card. This receive parameter get save into the Heart beat sensor. Nonvolatile memory after each particular interval of time. In this system RFID technology is using for wireless monitoring as well as for accessing history save in memory. Doctor will have one RFID card for each patient.

II. SYSTEM BLOCK DIGRAM**A. TEMPERATURE SENSOR**

In this paper we are using temperature sensor to measure internal human body temperature. Sensor output is feed directly to an ADC pin of microcontroller for digitizing and displaying it on the LCD. Temperature sensor range is -50° to 250°.

B. HEART BEAT SENSOR

The basic heartbeat sensor consists of a light emitting diode and a detector like a light detecting resistor or a photodiode. The heart beat pulses causes a variation in the flow of blood to different regions of the body. When a light emitted by the led, it either reflects (a finger tissue) or transmits the light (earlobe). Some of the light is absorbed by the blood and the transmitted or the reflected light is received by the light detector. The amount of light absorbed depends on the blood volume in that tissue. The detector output is in form of electrical signal and is proportional to the heart beat rate.

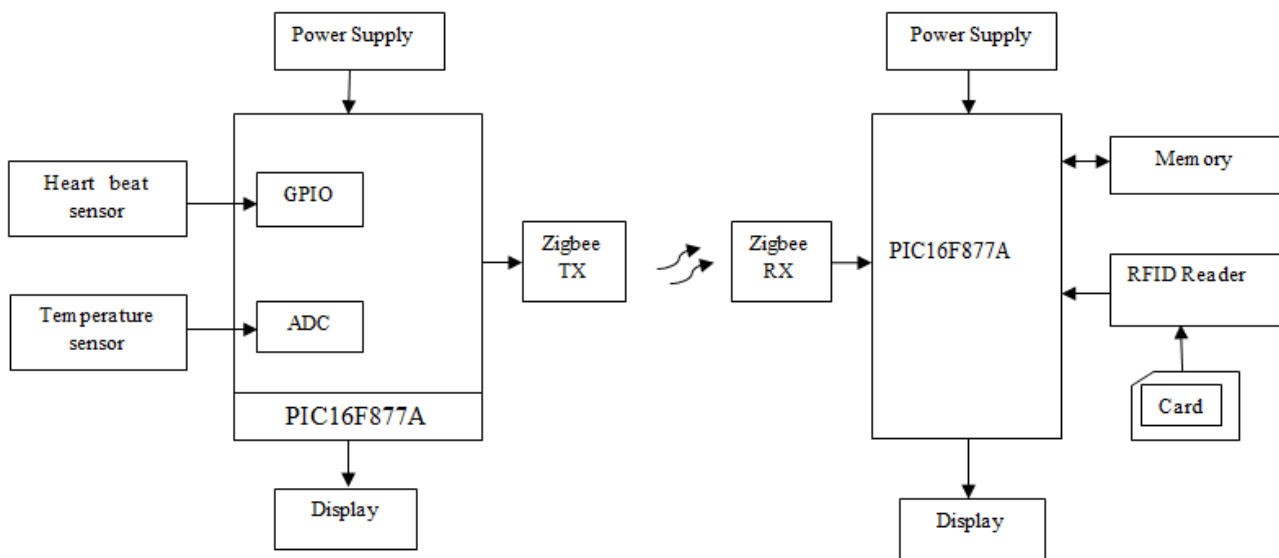


fig.1 Block diagram.

C. The display circuit

The device uses LCD module for real-time display. The module has on board display controller, there are two types of LCD 16x2 and 16x4 which has lower cost as compare to other but we have to used 16x2lcd .The LCD is configured in 4-bit mode.So only 6 pins are required for this configuration requires.[2]

D. XBEE

The XBee a Module were engineered to meet IEEE 802.15.4 standards and support the unique needs of low-cost, low-power wireless sensor networks. This module requires minimal power and provides reliable delivery of data between devices. The modules operate within the ISM 2.4 GHz frequency band and are pin-for-pin compatible with each other. Indoor/Urban: up to 100' (30 m). Outdoor line-of-sight is up to 300' (90 m). Transmit Power is 1 mW (0 dBm). Receiver Sensitivity is 92 dBm.SerialInterface Data Rate is1200 bps - 250 kbps .The XBEE module are the best choice for connecting microcontroller based embedded systems to any local area wireless network

E.EEPROM

EEPROM stands for **E**lectrically **E**rasable **P**rogrammable **R**ead-**O**nly **M**emory and is a type of [non-volatile memory](#) used in computers and other electronic devices to store relatively small amounts of data but allowing individual bytes to be erased and reprogrammed. An EEPROM typically allows bytes to be read, erased, and re-written individually. In this paper EEPROM is use for holding the patient basic information and real time parameter reading of patient of particular time.

F.RFID MODULE

RFID module consists RFID reader and tag. Here RFID reader is active and tag is passive. RFID readers are used to activate passive tags with RF energy and to extract information from the tag.RFID reader read the electronically stored information in tag from up to several meters away by reader. The EM-18 RFID Reader module operating at 125 kHz is an inexpensive solution for your RFID based application. The Reader module comes with an on-chip antenna and can be powered up with a 5V power supply. Power-up the module and connect the transmit pin of the module to receive pin of your microcontroller. Show your card within the reading distance and the card number is thrown at the output. Reading distance is up to 100mm depending on tag.

CONCLUSION

The use of RFID technology in health care system allows to access patient 's history. The continuous monitoring is done by sensor and zigbee network. The updated value is displayed on the LCD. The values are stored in EEPROM as per intended time. The proposed system consist of RFID technology. It will be of low cost ,fast and accurate. The proposed device is able to measure real time parameter of patient and RFID technology that provides the patient medical history to the doctor .

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