

# BODY TO BODY COMMUNICATION USING REDTACTON TECHNOLOGY

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**Abstract:** This paper introduces a new method of communication called as body-body communication where human body is used as a medium of communication of data. Using this technology in medical field for monitoring system, eliminates the difficulty of the prevailing technologies that makes use of cables, wires for communication of data. This model provides an assured and easy communication of data that has wearable devices to measure heart-beat and temperature and hence transmits the data to the master device. This model basically improves the reliability of signals as compared to the other technologies.

**Index Terms:** Sensor, PIC controller 16F877A, body-body communication

## I. INTRODUCTION

In everybody's life, health care has become one of the significant problems. Upcoming technologies and several equipment are reinforced to enhance the monitoring systems. Diagnosing the problems and treating it are totally dependent on monitoring information. Prevailing methods utilizes wires and cables to find health related specifications like temperature, heart rate, etc. which makes it very uneasy for the patients and doesn't allow them to move at all. This enlarges the difficulties during emergencies and risky patients. The devices used for monitoring get data through sensors. Several sensors are upcoming to keep a check of Electrocardiogram, body temperature, blood pressure and electroencephalography of risky patients to monitor them. As of now, currently prevailing method makes use of wired technology to establish connection between sensors and systems that are used for monitoring. Due to the presence of these wires, the patients feel uneasy and they will not be able to move easily. The motive is to lessen the difficulty by replacing wired with wireless technology. The Technologies such as WLAN and Bluetooth which are wireless will make the patients free, easy to move and comfortable. This also eases difficulties in surgeries and treatments for patients and output data can be obtained and saved during motion of the patient. The ability of a sensor to produce patient's information is less in the range of few Kbit/s for observing the signals. Large number of sensors are needed to improve the data rate in the range of  $10^2$  to  $10^3$  Kbit/s. The sensors are interconnected using wireless technologies. Huge amount of transmission power is released by wireless modules. With battery, sensors also emit a very large amount of transmission power. Thus based on above table body-body data communication provides transmission power that is lower than 1mW, and also reduces the size of the transceiver modules into PC cards and PCB modules.

## II. OVERVIEW

Body-Body data Communication is a technique to transmit electrical signals through our body. A special type of sensor is used, to avoid the direct connection between sensors. These sensors are attached to the body for communication between them. This phenomenon is termed as body-body data communication link. The direct transmission of data is not possible with the help of sensors to the hospitals. To overcome this limitation we can use relay sensor between central link sensor and the other sensors implemented in the form of a watch that can be worn on wrist for easy and comfortable usage.

## III. PROPOSED MODEL:

### A. Hardware architecture:

In our proposed model we make use of the PIC controller for processing data and LM35 as the temperature sensor to detect the change in temperature. Light dependent resistor and Light emitting diode are used to sense the heartbeat. Conditional circuit is used as amplifier and comparator as well. Data will be transferred from slave and master though body. Patient parameters are displayed in display device.

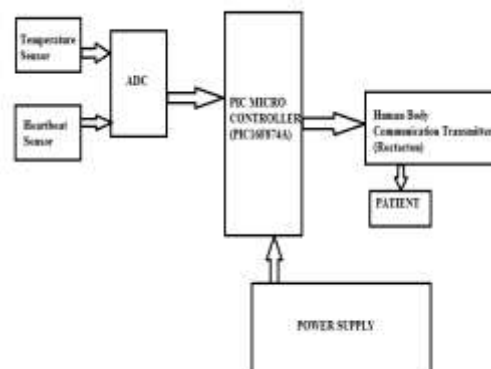


Fig -1(a): Block diagram of transmitter.

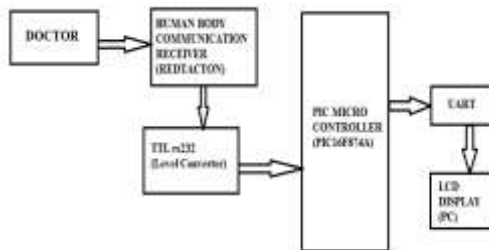


Fig -1(b): Block diagram of receiver.

**B. RedTacton technology:**

RedTacton technology is the way of transferring data from one person to other using human body as the medium of communication. It is different from other technologies where data are transferred using wires which makes it difficult for the mobility of people.

**C. Implementation:**

This proposed system contains temperature and heart beat sensor that are used to sense the temperature and heartbeat of the person. All these are implemented using integrated processor. Heart beat and temperature devices acts as slave devices.

**a. Slave device:**

There are 2 slave devices used in this module. In transmitter side the patient’s finger is placed in front of the heart beat sensor and the pulse rate is determined and is displayed in the LCD module. The received data is converted into weak signal and is spread over the body. The data is sent to the body in serial communication. The other slave device is used to find the temperature of the patient’s body. Thus the temperature found is displayed in the display device.

**b. Master device:**

The data is transferred from slave devices to master device in the form of packets through UART. The result can be viewed using LCD and data can be stored for future use.

**IV. WORKING:**

In this technology, the data are sent to a person’s body as small electric pulses in the range of few millivolts. When another person touches the person’s body where the data are available all over his body, these data available in the form of electric pulses gets transferred to the person who touches and thus the weak electric pulses are converted into the form of digital data and can be viewed using a display device.

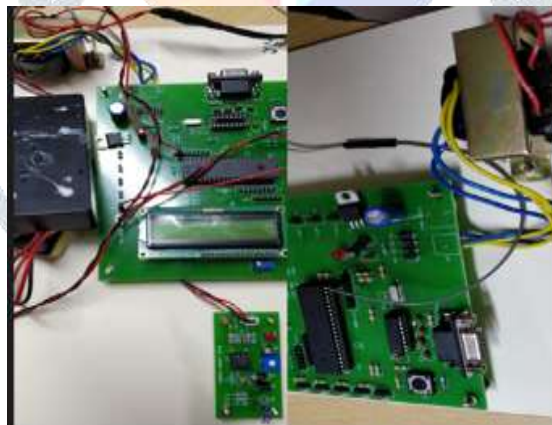


Fig -2: Master and slave kit

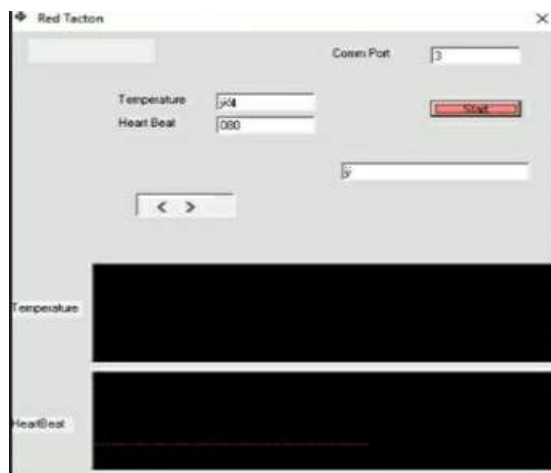


Fig -3: Output.

**V. CONCLUSION:**

This paper tells about the body to body communication and its application for diagnosing patients effectively in medical field. It is asserted that human body can act as a communication medium for data transfer. This kit can be further minimized and worn in the form of wrist watch. This eliminates difficulties faced due to the usage of cables and wires. This type of communication provides more secured way of data transmission and it is also more power efficient for a short range of data transmission. This type of communication utilizes lower power. In future, the communication can be made between two human body having several people in between them, acting as communication channels.

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