DATA TRANSFER THROUGH HUMAN BODY

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Abstract - *RedTacton is a technology that enables communication through human body. Human Area Network (HAN) is a data transmission method that uses the human body as an electrical channel source. It is the idea of a cable free secure data transmission system. Use of cables nowadays is inconvenient as they can get tangled and are difficult to manage when they are used in communication between devices. Wireless technique has been developed to prevent short circuiting in wire. People can communicate through technologies with device in a user friendly way. Communication between mobile terminals and terminals that are embedded in the environment is important. Data speeds are decreases in the crowded place due to packet collision and there is also security risk from unwanted signal interception. Solution for such problems we use body of a person as a signal path for communication. Basically it works as a transmission path which is automatically formed when a person comes into contact with a device and communications between mobile terminals begin. By introducing this new communication mode, load on other communication channels will get reduced.*

Key Words: Human area networking (HAN), Microcontroller chip, RedTacton transceivers, files transfer, electric field.

1. INTRODUCTION

In today's time every individual uses computer at their work or in their spare-time. Special input and output devices have been designed over the years with the purpose of easing the communication between computers and humans, Human society is entering a period of ubiquitous computing, when networks are seamlessly interconnected and information is always accessible when it is required. The practical implementation of global services requires three levels of connectivity Local Area Networks (LAN), typically via Ethernet or Wi-Fi connectivity among all the information and communication appliances in offices and homes; Wide Area Networks (WAN), typically via the Internet, to connect remotely all types of sewers and terminals; and Human Area Networks (HAN) for connectivity to personal information, media and communication appliances within the much smaller space of ordinary daily activities-- they have one meter. With the emergence of new technology in the market to ease the complexity of jobs performed Computer programmers have proved themselves incredibly successful in easing the communication between computers and human. Earlier, they avoided building such complex programs which is difficult to implement on speed than other modifiable features. Human Computing Interaction (HCI) is one of the important areas of research where people try to improve the technology these days. In the past, the "last meter" connectivity problem was solved by Bluetooth, Infrared communications (IrDA), Radio Frequency ID systems (RFID), and other technologies. However, they each have various fundamental technical drawbacks which limits their usage, such as the high fall-off in transmission speed in multi-user environments producing network as a problem.

2. LITERATURE SURVEY

[1] Akshada Langi has proposed a system in which she described the new method by using Human area network. The human body is used an electrical channel in novel data transmission method. The idea of Akshada Langi was driven by the vision of a cable-free secure data transmission system. The human body is used as a transmission medium for electrical currents by means of the dielectric properties. SPARSH is a data transmission technology which enables communication by touching. Wireless techniques are being developed because short circuiting of wires is a very critical problem. The property of a User Identifier and User Distinguisher has been used. This approach provides severe limitation on the data rate, but the rate required to transfer the data from the body is sufficiently.

[2] Aviraj M. Jadhav has proposed a system in which Red Tacton that is one of the advanced prevalent technologies that are user-friendly to everyone who requires technologies which enable communication between people and object in close proximity. Human area networking technology is one that enables communication by touching, which is known as RedTacton. Here, the transmission medium is the human body which support IEEE 802.3 half-duplex communication at 10Mbit/s. An electric-field sensor implemented with an electro-optic crystal and laser light it is the main component of transceiver. The human body generates the minute electric field as

medium for transmitting the data which is used by the Red Tacton. Transmitter and receiver has chips embedded in it which is built to send and accept data in digital format .

[3] Batchu Naga Sai Aakarshit has proposed a system in which the system uses Technologies enabling communication between people and devices in close proximity required for all modern user friendly gadgets. It demonstrates a design and implementation of Human Area Network technology which enables communication through human body contact. It is important to have Communication between mobile terminals and terminals that are embedded in the environment . Use of cables is inconvenient as they can get tangled and are difficult to handle when used in communication between devices which are in close proximity. Data speeds decreases due to packet collision in crowded places such as exhibition sites where very weak radio signal are used for communication. There is security risk from unwanted signal interception. To solve these problems the body of a person is used as a signal path for communication. A transmission path is automatically formed with a device and when a person comes into contact with communications between mobile terminals begin. This concept will reduce load on many communication channels by introducing new communication mode.

[4] Karunamoorthy V has proposed a new concept of communication method called as Intra-body communication for security enhancement in various fields especially in the military. In this concept, medium of transmission of data will be human body. The complexity of existing technologies that involves cables, wire connection for transmitting data are eliminated by the use of this technology. The author has proposed model that provides a secure and efficient communication system that consists of wearable devices for authentication and also useful for transmitting the data to the master device in real time. The model proposed by the Karunamoorthy V is easy to be wearable on the wrist or any other part of the body which has an integrated processor as well as galvanic coupling is a method in which insulating material (copper) allows the intra-body communication. Karunamoorthy V proposed methode uses human body which has improves the security of transmitted signals as compared to the other wireless technologies.
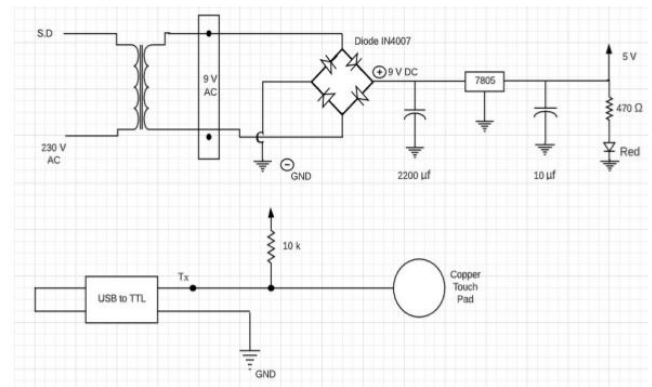
3. PROPOSED SYSTEM

Fig1. Circuit Diagram

The device that is going to be used is basically made from the circuit diagram shown above. Where the transferring current is transferred from AC to DC. Firstly the diode reduces the 9v energy which when received transferring is done. The flow of current is unidirection in diode. The output from the diode is received as 9v DC current, this current can also be reduced till 5v which is harmless to the body and allows smooth flow of the transfer. Later Page 3 capacitors and IC 7805 is used to regulate the voltage till 5v. IC is not only voltage regulator but also capacitor stores electrical energy in an electric field. The above diagram shows the illustration.
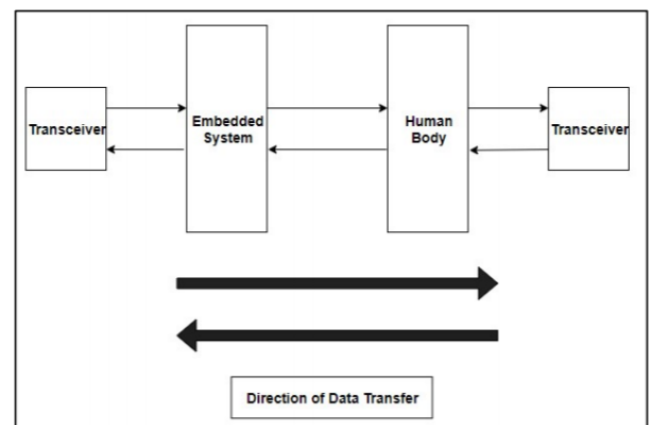

Fig2. Block Diagram

In this, data is transmitted by inducing fluctuations in the minute electric field on human body surface. RedTacton is the human body surface as a safe, high speed network transmission path that uses a technology as Human Area Networking. As emitted it uses the minute electric field on the surface of the human body so it is completely different from wireless and infrared technologies. A transmission path is

formed when any part of human body comes in contact with the Red Tacton transceiver. Communication is possible using any body surfaces, such as the hands, fingers, feet, arms, legs, face, knee or torso. RedTacton works through clothing and shoes as well.

4. WORKING

RedTacton create the weak electric field on our body., Red Tacton has a Transmitter and a Receiver like every other transmission technology. Data is received using a photonic electric field sensor that combines an electrooptic crystal and a laser light to detect fluctuations in the weak electric field on the surface of the body caused by the transmitter. Through this Red Tacton Device it is possible to have duplex communication at the rate of 10 Mbps. It uses human body as the transmission path for the electrical signals that leads to the better communication.

Transceiver:- The signals are transmitted and received by the Red Tacton Transceiver interface. Once the signals from data Sense circuit is received by Transmitter Circuit is gets activated. the changes in the electric field of our body is studied by the electro optic sensor. The Transmitter Circuit gets activated once it receives the signal through the interface. Red Tacton depends on the principle that the electro-optic crystal having the optical properties changes when there is changes in the weak electric field.

A copper pad is used as a medium which is connected to the circuit as well to a computer machine which will feel the electric field of any human body. Another computer machine will be connected to same circuit and copper pad. When a body will touch both the copper pads together, it will sense the electric field and file transfer will take place the electric field on the surface of our body due to transmitter circuit. The electro-optic sensor detects the change in electric field. This transfer of data is safe and reliable.
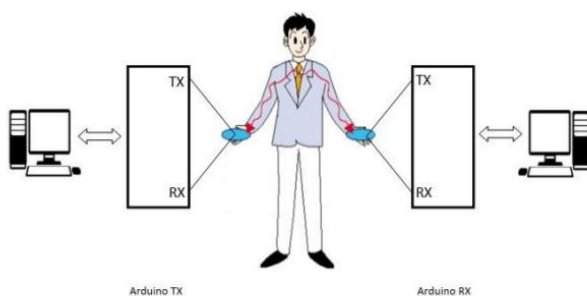
5. CONCLUSION

Red Tacton is a new technology for Human Area Networking. It employs an exclusive electric field/photonics method, in Human Area Networking which give better performance in comparison with other existing short distance technologies. As compared to other technologies RedTacton performance is better. It is highly secure and impossible to get hacked due to the involvement of the two devices in end-to-end basis, thus impossible to get hacked, as our body itself is the transmission media. Thus, for Red Tacton technology is life saving Tech fast world and it would prove to be noteworthy against all other technologies.

6. REFERENCES

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Fig3. Intra Body Communication