

# BIOTELEMETRY USING HUMAN AREA NETWORKING

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**Abstract -** Technology is making many things easier; we can say that our concept is standing example for like that only. So far we have seen LAN, MAN, WAN, INTERNET & many more but here a new concept of “RED TACTON” has been introduced which makes the human body as a communication network named by HAN (Human Area Network). Human Body Communication (HBC) is a novel communication method between devices which use human body as a transmission medium. This idea is mostly based on the concept of wireless biomedical monitoring system. The on-body sensor nodes can monitor vital signs of a human body and use the body as a transmission medium. This technology is convenient for long durations of clinical monitoring with the option of more mobility and freedom for the user. Biotelemetry is remote monitoring, measuring and recording of a living organism’s function, activity or condition. Network of sensor nodes placed on or implanted inside the body of a subject is called Human Body Area Network (HAN). RedTacton is a user-friendly pervasive technology that establishes a communication between human body and devices in a closer proximity. This paper proclaims model of a human area networking technologies that enables communication by means of “Touching”. Redtacton technology was implemented to overcome the weak radio signals, data speeds and security –risks on unwanted signal interceptions. Here, human body is the transmitting medium supporting IEEE 802.3 half-duplex communication at 10 Mbits/s. RedTacton uses the minute electric field generated by human body as a medium to transmit the data.

**Keywords:** Human body communication, RedTacton, IEEE 802.3, Human Body Area Network (HAN), Biotelemetry, Body Coupled Communication (BCC).

## 1. INTRODUCTION

We may have imagined the feature as a place crawling with antennas and emitters, due to the huge growth of wireless communications. And it seems that the current means of transferring data might already have a very serious competitor none other than the human body. Thus NTT labs from Japan has announced that is currently testing a revolutionary technology called “Red Tacton”, which use the electric fields generated by the human body as medium for transmitting the data . The chips which will be embedded in various devices contain a transmitter and receiver built to send and accept data in digital format. The chips can take any type of file such as mp3 music file or mail and convert it in to the format that takes the form of digitals pulse that can be passed and

read through a human being electric field. The chip in receiver devices reads these tiny changes and converts the file back into its original form.

In the era of digital communication, data transmission is a common need of every individual to communicate their devices with the remote devices or sometimes nearby devices. Even a common man now is everyday indulged in transferring data in some or the other way like the voice calls, SMS, chats, etc. This is nothing but transmission of data from one end to the other. Some data are securely transferred that should not be readable or writable to public as in the case of defense, bank data, etc. But still there is a vast risk of data being hacked by the anti-social elements. For the distance communications, also called Far-field communication, it requires radio frequency (RF) waves to transmit data over long distance where Personal Area Network is not possible to setup and hence Human Area Network (HAN). But for the communication type which can be reached within our hands, also called as Near-field communication, Human Area Network can be introduced as a medium for transmission of data from start point to end point.

Medical biotelemetry is used to remotely track physiological functions of patients, like body temperature, heart rate, blood pressure, ECG, EEG signals, etc., and even to operate devices such as drug delivery systems and prosthetics. Implantable biotelemetry focuses on the transmitter devices implanted in the human or animal being studied, like cochlear implants or implantable pacemakers. The main constituents of a biotelemetry system are sensors of physiology functions located on the transmitters, transmission path and receivers. Transmitters with sensors are placed on the surface of or implanted inside the human body. In contrast to the medical biotelemetry, the implantable implies the absence of wires as a transmission medium between a transmitter and a receiver. Still, the wires are impractical for monitoring, since they disturb the patient and the medical personnel. Using different wireless technologies provides better freedom of movements and the mobility of the patient, which is of particular importance in a long-term monitoring, every day activities of non-ambulatory patients and during the surgeries. Wearable sensor network placed on the human body is called Body Area Network (BAN). RedTacton technology is a Human Area Networking (HAN) technology which was introduced by Nippon Telegraph and Telephone Corporation (NTT's) that uses the human body surface as a high speed and safe network transmission path. It is completely distinct from wireless and infrared technologies as it uses the minute electric field emitted on the surface of the human body. A transmission path is formed at the moment a part of the human body comes in contact with a RedTacton transceiver. Communication is possible using anybody surfaces, such as the hands, fingers, arms, feet, face, legs or torso.

RedTacton works through shoes and clothing as well. When the physical contact gets separated, the communication is ended. RED - It is an auspicious colour according to Japanese culture for warmth. TACTON-meaning "action triggered by touching". In the past, Bluetooth, infrared communications (IrDA), radio frequency ID systems (RFID), and other technologies have been proposed to solve the "last meter" connectivity problem. But, they each had a various fundamental technical limitations that constrain its usage, such that precipitous fall-off in transmission speeds in multiuser environments producing network congestion. The concept of intra-body communication was first proposed by IBM in 1996. This communication mechanism was later evaluated and reported by several research groups around the world. Finally, all limitations were overcome by NTT (Nippon Telegraph and Telephone Corporation) located in Tokyo, Japan by using photonic electric field sensors and finally came up with a human area networking technology called "RedTacton". There are three features based on RedTacton. They are as follows,

1. Touch - Touching, gripping, sitting, walking, stepping and other human movements can be the triggers for unlocking or locking, starting or stopping equipment, or obtaining data.
2. Broadband and Interactive - Duplex, interactive communication is possible at a maximum speed of 10Mbit/s. Because the transmission path is on the surface of the body, transmission speed does not deteriorate in congested areas where many people are communicating at the same time.

3. Any media - In addition to the human body, various conductors and dielectrics can be used as transmission media. Conductors and dielectrics may also be used in combination.

### 1.1 Red Tacton

Red Tacton is a new Human Area Networking technology that uses the surface of the human body as a safe, high speed network transmission path. Red Tacton uses the minute electric field emitted on the surface of the human body. Technically, it is completely distinct from wireless and infrared .A transmission path is formed at the moment a part of the human body comes in contact with a Red Tacton transceiver. Physically separating ends the contact and thus ends communication Using Red Tacton, communication starts when terminals carried by the user or embedded in devices are linked in various combinations according to the user's Communication is possible using anybody surfaces, such as the hands, fingers, arms, feet, face, legs or torso. Red Tacton works for natural physical movements.

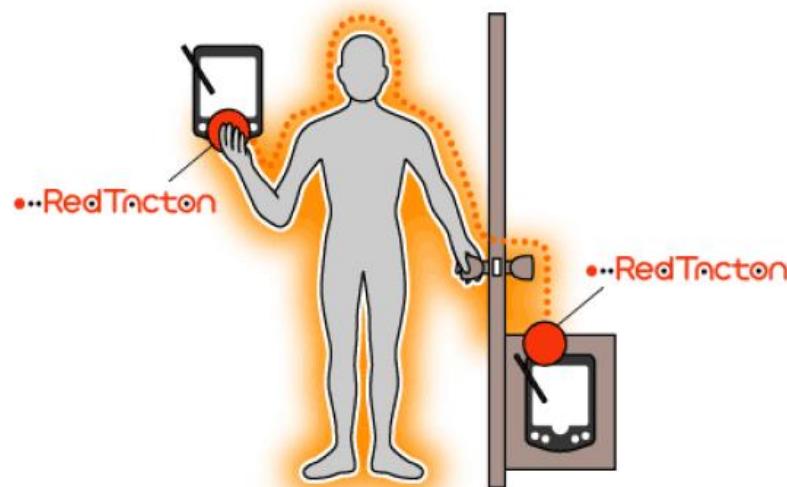


Fig 1: Overview of Red Tacton on HAN

1. Registration of a user in a SN
2. After a service request
3. Location Update Request
4. Attach Request
5. Detach request
6. Connection re-establishment request

Registration of a subscriber in a SN (Serving Network) typically occurs when the user goes to another country. The first time the subscriber then connects to the SN, he gets registered in the SN. Service Request is the possibility for higher-level protocols/applications to ask for AKA to be performed. E.g. performing AKA to increase security before an online banking transaction. The terminal updates the Home Location Register (HLR) regularly with its position in Location Update Requests. Attach request and detach request are procedures to connect and disconnect the subscriber to the network. Connection re-establishment request is performed when the maximum number of local authentications has been conducted.

### 1.2 How Red Tacton Works?

Using a new super-sensitive photonic electric field sensor, Red Tacton can achieve duplex communication over the human body at a maximum speed of 10 mbps. The Red Tacton transmitter induces a weak electric field on the surface of the body. The Red Tacton receiver senses changes in the weak electric field on the surface of the body caused by the transmitter. Red Tacton relies upon the principle that the optical properties of an electro-optic

crystal can vary according to the changes of a weak electric field. Red Tacton detects changes in the optical properties of an electro-optic crystal using a laser and converts the result to an electrical signal in an optical receiver circuit. The transmitter sends data by inducing fluctuations in the minute electric field on the surface of the human body. Data is received using a photonic electric field sensor that combines an electro-optic crystal and a laser light to detect fluctuations in the minute electric field. The naturally occurring electric field induced on the surface of the human body dissipates into the earth. Therefore, this electric field is exceptionally faint and unstable. The photonic electric field sensor developed by NTT enables weak electric fields to be measured by detecting changes in the optical properties of an electro-optic crystal with a laser beam.

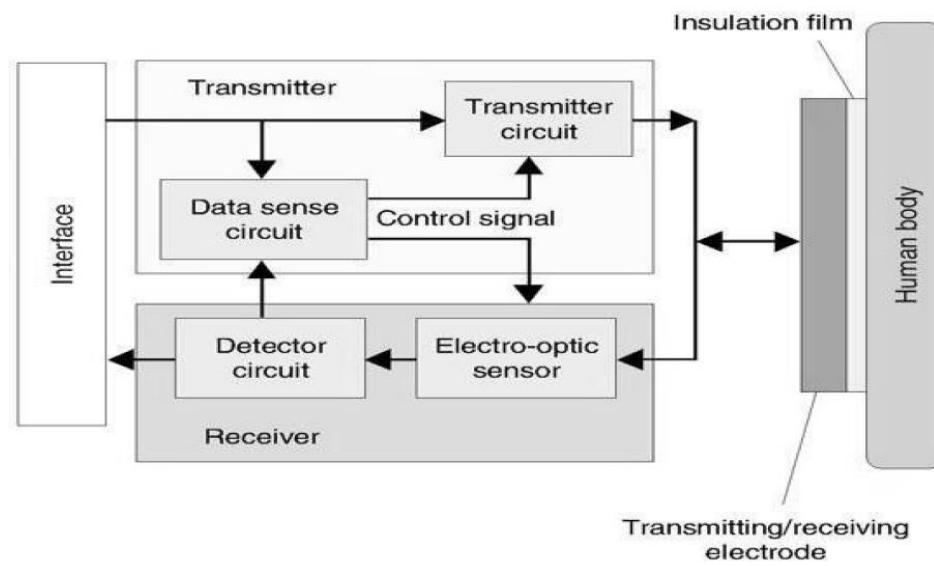


Fig 2: Transmitting /Receiving Circuit

### 1.3 Problem Statement

1. To identify the attitude of people on using redtacton-HAN in their future technology.
2. To identify the importance of redtacton among the resources.

## 2. LITERATURE SURVEY

The paper [1] presents Red Tacton was one of the progressed Pervasive innovation that are really easy to understand to everybody will require advancements that enable communication amongst individuals and questions in closeness. Concentrating on the expectation, inevitability, and feeling that all is well with the world passed on by touching in regular daily existence, this article portrays human region organizing innovation that empowers correspondence by touching, which we call RedTacton. t. Red Tacton utilizes the moment dynamic plot produced by mortal part as connecting for communicating the information. The scratch will be implanted as different gadgets have transmitter and beneficiary worked to pass and acknowledge information in advanced type. In this paper they over viewed the red tacton technology, working standard of red tacton over human region network, application, protocols for information transmission.

The paper[2] focuses on a model of human range organizing innovation that empowers correspondence by touching, an innovation we call Red Tacton. Human territory organizing innovation for correspondence between portable terminals and between terminals that are inserted in the earth has gotten to be vital. At the point when links are utilized for correspondence between terminals, the steering of the links is obviously badly designed.

The mortal part goes about as a communicating part aiding IEEE 802.3 partially paired correspondence at 10Mbit/s. The rule disadvantage of coral correspondence (IrDA) is the strong directionality of bars in between ends is required for the framework to be powerful. A definitive mortal range organizes answer for every one of these requirements of routine advancements was "intra body" correspondence, in which the mortal part serves as the communicating medium.

The paper[3] explains RedTacton was presented by Nippon Telegraph and Telephone Corporation(NTT). RedTacton is a leap forward introduction that, uses the outer of the mortal part as a secured, rapid system communicating way. So we, in this paper are clarifying the one of a kind new utilitarian elements and colossal capability of RedTacton as a Human Area Networking innovation. In this paper I have portrayed components, applications focal points, inconveniences of redtacton. RedTacton is an achievement innovation that, interestingly, empowers solid rapid HAN. Before, Bluetooth, infrared correspondences (IrDA), radio recurrence ID frameworks (RFID), and different advances have been proposed to unravel the "last meter" availability issue.

The paper[4] presents Human culture is entering a period of advanced processing, when systems are easily interconnected. The execution of pervasive administrations requires three levels of availability: Local Area Networks (LAN), Wide Area Networks (WAN), and Human Area Networks (HAN) for availability to individual data, share news, source and correspondence machines inside the much littler territories for correspondence. RedTacton is an innovation that uses in outer of the mortal part as a fast and secure system communicating way. So in this paper we are clarifying the special useful elements and gigantic capability of RedTacton a Human Area meeting innovation.

- i) RedTacton utilizes the moment voltaic space radiated on the outer of the mortal part. It is totally unmistakable in remote and rust.
- ii.) A communicating way is shaped in part of the mortal part which interacts with need of RedTacton handset. Bodily isolating closures the touch and along these lines closes correspondence.
- iii.) With RedTacton, correspondence begins when ends conveyed by the client are connected in a few mixes as indicated by the client's common, physical developments.
- iv.) Communication is conceivable utilizing anyone surfaces, for example, the human parts like hands and legs. Red Tacton works through shoes and dress too.

The paper[5] says RedTacton is another Human Area organizing new ideas that uses the outer of the mortal part as a sheltered, rapid, arrange communicating way. RedTacton use the moment voltaic field created by mortal part as help for communicating the news. The chips which are installed in different gadgets have transmitter and collector worked to pass and acknowledge information in advanced configuration. In paper they will talk about RedTacton, and its working condition and utilizations of RedTacton different parts. The will contrast our RedTacton and the other innovation for information transmission to think about my proposed arrangement of utilizing as a part of DNA for more security. NTT labs from Japan has declared that is as of now testing a progressive innovation called "RedTacton", which utilize the dynamic fields created by the mortal part as medium for communicating the information. The chips which will be implanted in different gadgets contain a transmitter and collector worked to send and acknowledge information in computerized arrange. RedTacton utilizes the moment dynamic field transmitted on the outer of the mortal part. In fact, it is totally particular from remote and rust. A communicating way is framed right now a part of the mortal part interacts with a RedTacton handset.

The paper[6] focuses on electronic instruments get to be littler, bring down with power must, and lower priced, we endured to decorate our fleshy with individual information and respective workings. Such object incorporate mutable buzz, individual hi tech assistants (pdas), pagers and some more. As of now there is no method for these objects to share news. Organizing these objects can reduce utilitarian I/O reputations and allow new comforts and control. It empowers the principal commonsense Human zone networking with flesh-focused electronic gadgets and computers or other system gadgets inserted on the earth by means of another era of UI in light of absolutely normal human activities, for example, gestures, sitting, strolling or venturing on a particular spot. It can be utilized for natural operations of PC based frameworks in everyday life, impermanent balanced administrations, gadget personalization, security and a large group of different applications in view of new conduct patterns. NTT is focused on moving RedTacton out of research center and into business generation as fast as could be expected under the circumstances by arranging joint field trials.

The paper [7] describes a another period of innovation, an innovation we call Red Tacton. For exchange of the information, Red Tacton utilizes mortal part as a medium. It utilizes IEEE 802.3 standard to have an information rate of up to 10Mbps. Its transmitter utilizes the body minute electrical field to transmit messages as computerized flag. The human body sends the greater part of the power to the collector, as it detects Voltage change in the electric field; the recipients interpret them to get the information. . It depicts, the perfect web index would have the capacity to coordinate the hunt inquiries to the correct setting and return comes about inside that unique circumstance. While Google, Yahoo and Live keep on holding influence in hunt, here are the motors that take a semantics (which means) based approach, the final product being more significant indexed lists which depend on the semantics and importance of the inquiry Semantic pursuit tries to enhance look exactness by comprehension searcher aim and the relevant importance of terms. The paper[8] presents red Tacton is one of the progressed Pervasive innovations that are really easy to understand to everybody who requires advancements that empower correspondence amongst individuals and protests in closeness. Human territory organizing innovation is one that empowers correspondence by touching, which we call RedTacton. Here, the mortal part goes about as a communication medium helping IEEE 802.3 partially paired correspondence at 10Mbit/s. The key part of the handset is an dynamic-field sensor actualized with an electro-optic gem and glittering light. RedTacton utilizes the moment dynamic field produced by mortal part as center for communicating the news. The scratch will be inserted in different gadgets contain transmute and collector worked to pass and acknowledge information in advanced configuration. In this paper we studied the red tacton innovation, working rule of red tacton over human territory arrange, application, conventions for information transmission. The Red Tacton transmute actuates a frail electric field on the surface of the body. The Red Tacton recipient detects changes in the frail dynamic field on the outer of the body brought on by the transmute. Red Tacton depends upon the rule that the optical properties of an electro-optic precious stone can fluctuate as per the progressions of a frail dynamic field. Red Tacton recognizes changes in the visual area of an electro-optic precious stone utilizing a glitter and believes the outcome to an current flag in an visual beneficiary circuit. The transmute pass information by initiating vacillations in the moment dynamic field on the outer of the mortal part. Information is gotten utilizing a photonic voltaic field detector that consolidates a electro-optic gem and glittering light to recognize variances in the moment dynamic field. The normally happening dynamic field actuated on the outer of the mortal body disperses into the mud. Consequently, this dynamic field is particularly swoon with insecure.

The paper[8] describes idea of "REDTACTON" which makes the mortal part as a correspondence organize by called HAN (Human Area Network). Nippon Telegraph and Telephone Corporation (NTT) lab from Japan is right now testing also with building up this progressive innovation. RedTacton is the real prerequisite and preferred standpoint for individuals. RedTacton utilizes the moment dynamic field produced by mortal body as medium for communicating the information. The scratch which will be inserted in different gadgets contain transmute and recipient worked to pass and acknowledge information in advanced arrangement. As electronic object to be littler, bring down in power must, and lower priced, we have started to embellish our flesh with individual information and appropriate apparatuses. RedTacton is an achievement new ideas that, has the outer of the mortal body as a sheltered, rapid system communication way. s. Constrained remote correspondence frameworks, for example, Bluetooth and remote neighborhood have a few issues. Throughput is decreased by

bundle impacts in swarmed spaces, for example, meeting rooms and assembly halls loaded with individuals. Correspondence is unreliable on the grounds that signs can be ceased. The guideline disadvantage of rust correspondences (IrDA) is the strong direction of shafts in between ends required for the framework to success. A definitive answer for every one of these confinements of common advances is the "Intra-body" correspondence that is human territory organizing. The transmission medium is human body. This would be a perfect method for actualizing HAN as it would tackle every one of the issues including throughput high system setup costs, diminishment and low security. Wired associations between electronic gadgets in human zone systems are lumbering and can undoubtedly get to be ensnared.

The paper [9] presents "REDTACTON" gives a radical new intending to the expression "networking". It makes the mortal part as a correspondence arrange. HAN(Human Area Network). Body detector systems are at present not extremely instinctive and not exceptionally solid. In the last two years flesh coupled correspondences has been re founded later time of uninterest. In this paper a review of late research into body coupled interchanges is given. It is another individual territories organize innovation which utilizes frail voltaic fields on the outer of the mortal part, as a sheltered information communicating way, at paces up to 10 Mbps. RedTacton includes starting correspondence with a touch that could bring about an extensive variety of activities accordingly. It doesn't depend on electrically seductive or a light wave to pass information. In fact, it is totally particular from remote and infrared. Utilizing another super-delicate photonic electric field sensor, Red Tacton can accomplish duplex correspondence over the mortal part at a most extreme speed of 10 mbps. The Red Tacton transmute incites a powerless dynamic field on the outer of the body. The Red Tacton recipient detects changes in the feeble dynamic area on the outer of the body brought about by the transmute Red Tacton depends on the rule that the visual wealth of an electro-optic precious stone will differ as per the progressions of a powerless electric field. Red Tacton identifies changes in the optical properties of a electro-visual gem utilizing a glitter and proselytes the outcome to an electric flag in an visual beneficiary circuit. The transmitter sends information by actuating changes in the moment dynamic field on the outer of the mortal part. Information is gotten utilizing a photonic electric field detector that joins an electro-visual gem and a glittering light to identify vacillations on the moment dynamic field. Electro-Optic field sensor joined with Electro-Optic precious stone and laser light .The normally usually dynamic field actuated on the outer of the mortal part scatters down the earth. Along these lines, this dynamic field is astoundingly black out with shaky.

The paper[10] Red-Tacton is another Human Area Networking ideas that uses the outer of the mortal part as a sheltered, rapid system communicating way. Red Tacton uses the moment voltaic field transmitted on the outer of the mortal body. In fact, it is totally particular than remote and rust .A communicating way is shaped right now a part of the mortal body interacts with a Red Tacton handset. Bodily isolating finishes the contact and consequently closes correspondence Using Red Tacton, correspondence begins when ends conveyed the client or implanted in gadgets was connected in different mixes as per the client's Communication is conceivable utilizing anyone surfaces, for example, the human parts. Red Tacton works regular, physical developments. We may have envisioned the element as a place slithering with receiving wires and emitters, because of the tremendous development of remote interchanges. Furthermore, it is appears that the present method for exchanging information may as of now have an intense contender none other than the human body.

The paper[11]presents Human area organizing (HAN) is a rising pattern in the field of correspondence. Red tacton is an innovation which utilizations mortal part as a connection for exchange of information. Red tacton utilizes IEEE 802.3 standard to accomplish an information rate of 10Mbps. Red tacton handsets utilize the body's electrical field to convey advanced news. visual precious stone and glitter innovation changes over the progressions in dynamic field once more into a flag at the recipient. That technique for information exchange is innocuous. This strategy was easy to use and quick. It likewise has an extra favorable position of being free of the earth in which it is utilized as a part of. The real hindrance postured by this strategy is clamor obstruction. This causes loss of information at the end of the day security slip by. We utilize an enhanced vascular example extraction calculation for individual confirmation applications. The approached bearing type vascular example extraction (DBVPE) calculation depends on the directional data of vascular examples. The arrangement postured by is towards the disadvantage confronted by the red tacton. The best arrangement is the implanted arrangement .The real burden postured by the red tacton strategy is clamor obstruction. This causes negative of information at

the end of the day security slip by. The arrangement postured by us is forwarding the downside confronted by the red tacton. The good arrangement is the installed arrangement.

### 3. PROPOSED SYSTEM ARCHITECTURE

On the basis of above literature survey the proposed block diagram for biotelemetry using human area networking is shown in figure 3. The setup has two sections namely, Transmitter and Receiver. The proposed system uses the human body as a transmission medium for data communication. Here, the bio-medical data of a patient will be transmitted from the transmitter to the receiver section through human body. For biotelemetry, few sensors are attached to the human body along with RedTacton transmitter and the data at the receiver section can be collected using the RedTacton receiver. Here, the sensor module which is present in the transmitter section consists of Heart rate sensor, Respiratory sensor, Glucose sensor, Blood pressure sensor along with a PIC microcontroller. It is attached to the RedTacton transmitter. The receiver section has RedTacton receiver and a monitor to display the data for biotelemetry function. A common ground must be connected between the transmitter and receiver.

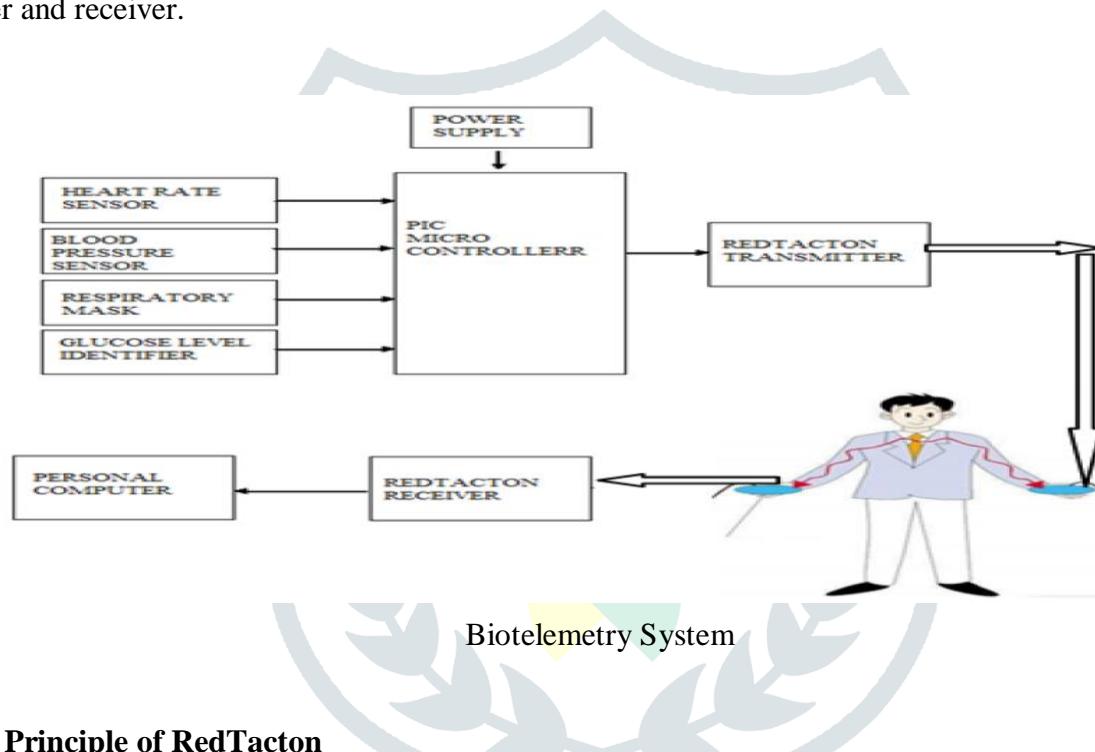


Fig. 3:

Biotelemetry System

#### Working Principle of RedTacton

Similar to other technologies, RedTacton Technology, will have a transmitter and a receiver. As soon as the physical contact is established between the transmitter and the body transmission gets triggered and it continues until the contact is there. The transmitter will induce a mild electric field on the body surface and a transistor or photonic electric field sensor will be installed on the receiver side and this sensor detects the electric field present on the body and processes the signals and after processing the data is to be downloaded in the receiver end. Other than the actual signal carrying electric field there will be other electric signals which are small and have no role in the communication. This can be compared to noise in communication and these are automatically sent to ground in the receiver end.

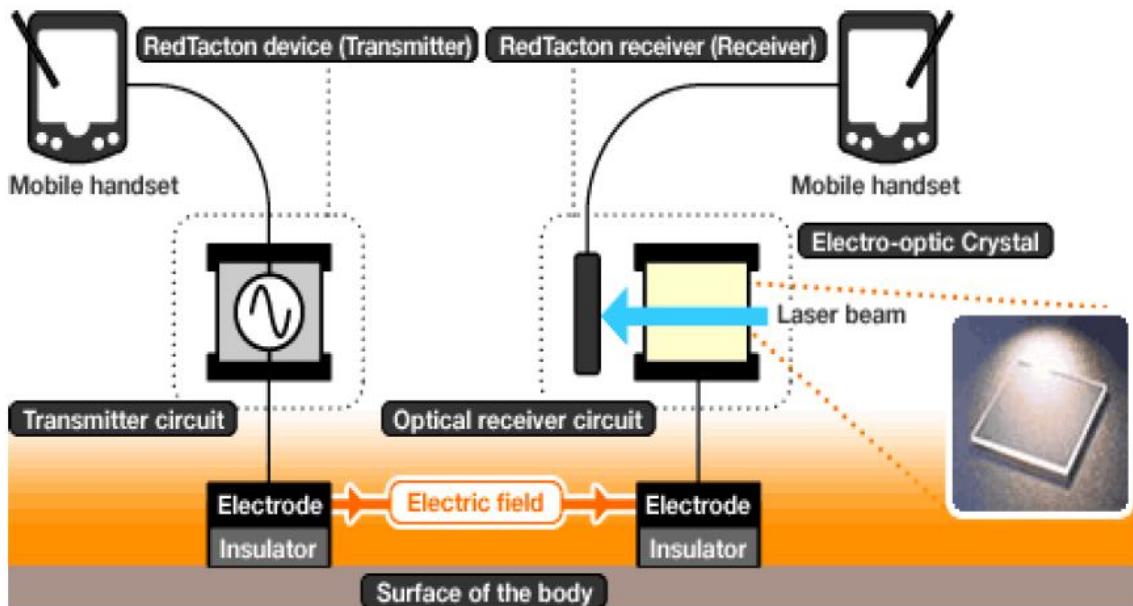


Fig. 4: Human society is entering an era of ubiquitous computing.

Tacton transmitter induces a weak electric field on the surface of the body. The Red Tacton receiver principle that the optical properties of an electro-optic crystal can vary according to the changes of a weak electric field. Red Tacton detects changes in the optical properties of an Electro-optic crystal using a laser and converts the result to an electrical signal in a optical receiver circuit. The transmitter sends data by inducing fluctuations in the minute electric field on the surface of the human body. Data is received using a photonic electric field sensor that combines an electro-optic crystal and a laser light to detect fluctuations in the minute electric field. In addition to the WANs (Internet) and LANs, there are applications best served by Human Area Networks (HANs) that connect the last meter. The naturally occurring electric field induced on the surface of the human body dissipates into the earth. Therefore, this electric field is exceptionally faint and unstable. The photonic electric field sensor developed by NTT enables weak electric fields to be measured by detecting changes in the optical properties of an electro-optic crystal with a laser beam.

#### 4. RESULTS AND DISCUSSION

The simulation result of the proposed biotelemetry system is shown in figure 5. The real time data will be collected and displayed at the receiver section using RedTacton transmitter and receiver with the human body as a transmission medium. [14] Here, AC voltage is converted into DC voltage and given as an input voltage to the PIC microcontroller. Data from the sensor module which consists of Heart rate sensor, Respiratory sensor, Glucose sensor, Blood pressure sensor will be given as the input to the controller through the input pins. The output will be displayed using the LCD interface in the transmitter section. The same output will be displayed in the receiver section using RedTacton transmitter and receiver. Validation of the proposed design-and-testing methodology is performed within the framework of a specific fabrication process, as dictated by the available materials, assembling tools, and technical expertise/experience.

Standard 0.017 mm-thick electrodeposited copper foil covers both sides of Rogers 3210. The sheets are etched using a photolithographic process. The lower substrate layer contains the ground plane and the lower patch, the upper substrate contains the upper patch, and the superstrate has no metallization. Sprayable glue 3M 77 is used to bond the three layers ( $\epsilon_r = 2$ ), which is found to exhibit an average thickness of 0.3mm for the specific fabrication process. The antenna is fed through a 50 mm-long EZ-47 semi-rigid coaxial cable.

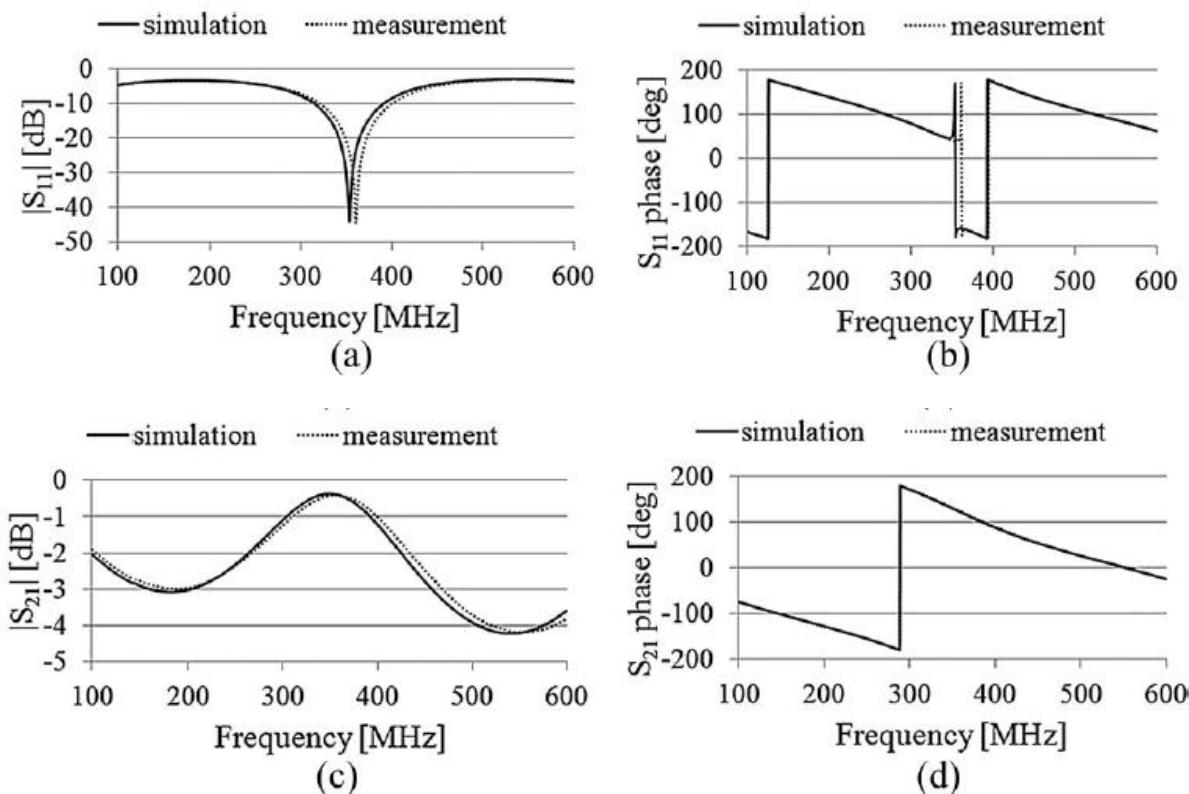


Fig. 5: Results

## 5. FUTURE DEVELOPMENT

RedTacton has a wide range of unique new functional features and enormous potential as a Human Area Networking technology. In future, RedTacton can be developed as a portable device which can be used everywhere. Biotelemetry can be done through Wireless Body Area Network. Data transmission may happen through the user's clothing, handbag or shoes, anyone carrying a special card can unlock the door simply by touching the knob or standing on a particular spot without taking the card out. It will have many future applications such as walkthrough ticket gate, a cabinet that opens only to authorized people and a television control that automatically chooses favourite programs. The system also improves security. It ensures that only drivers can open their cars by touching the doors if the keys are in their pockets, not people around them.

### Advantages

- 1) Data transfer is faster and easier.
- 2) Data transmission speed is 10Mbps for shortest distance.
- 3) Data loss during the transfer is low.
- 4) Power consumption is lesser.
- 5) Security is more.

### Disadvantages

- 1) Though it is been used only within a few centimetres, the data can be transmitted via multiple person by touching each other.
- 2) Cost is more; it can be reduced in future.

## CONCLUSION

The performance of Red Tacton is better as compared to other technologies. It is best to connect network within short distances. There is no any type of problem of hackers as our body itself is the transmission media. Today main issue is speed; it is solved by Red Tacton by providing very high speed of 10 Mbps within short distances. Red-Tacton technology is better when compared with other technologies; it is well-known for its data transmission at 10 Mbps within a shortest distance. This technology that enables the first practical Human area networking between body-centred electronic devices and PCs or other network devices embedded in the environment a new generation of user interface based on totally natural human actions such as touching, holding, sitting, walking or stepping on a particular spot. RedTacton technology is expected to overcome the Bluetooth technology in the future. This technology could put the use of cables to an end. Finally, We conclude that "Future Technology Is On Red-Tacton Technology".

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14. REDTACTON Bhawik Kotadia , Vibhor Agrawal.