

# Red Tacton Technology

K. Subbulakshmi, S. Ramya, M. Jasmine

**Abstract:** All user friendly services need technologies that allow communication among people and object in a more closer proximity. This is possible through a distinct wireless technology called as – RED TACTON TECHNOLOGY. It is a human area networking technology, which was initially developed by Robbin Gaur Jind. This paper explains in detail about the working of technology and why it must be chosen over other technologies. We all know that wireless technologies like Bluetooth and infrared are over-rated now-a-days. Now researchers are trying to advance a new path for transmission of signals called Human Area Networking. This networking uses our body as a transmission medium to transfer data. It uses the electric field generated on the surface of the body. It detects the user's physical movements and performs tasks according to the instruction given. When the transceiver comes in contact with the human body a transmission path is formed. Red Tacton works through shoes and clothing as well. Communication through body surfaces such as the hands, torso, feet, face, legs can be made possible using this technology. The human body itself acts as a transmission medium supporting half duplex communication at

10Mbps. Sensor equipped with an electro optic crystal and laser light is the major component of transceiver. Even communication plays an important role in the field of networking which has resulted into creation of many tools such as card readers in ATM pin. but the existing methods are not secure enough so if this technology is implemented in a right way then this can make all the control systems more secure and user friendly where human body acts as the only medium for transmission of data.

**Keywords -**RedTacton, Networking Technology, Transmission, Electroopticcrystal, Transceiver

## I. INTRODUCTION

Communication in today's world has become easier. People can convey and receive information from around the globe within seconds with the help of cellphone. Internet allows users to gather or download huge amount of data from even remote areas. All these technologies have made human communication and interaction more ambient. Wearable computers too are hectic and can get entangled. Wireless communications have started too overshadow the existence of such computers and other wired devices such as PDAs. Wireless communications over a small range such as Bluetooth (IEEE 802.11b) faces some problems in that the signals can be intercepted in a crowded locality [1-5].

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In addition to this, the present mode of communication faces severe challenge from upcoming mode of communication which is nothing but us, the human beings. All the existing technologies are suffering from signal interception which plays a major problem in networking. With communication security playing a major role authentication and authorization is required. In order to support this requirement many tools have been created such as card readers in ATM, pin codes. But there was drawback that these tools were not fraud proof, we moved to biometric type of systems where the fingerprints and retina scans of the user helps him in accessing control. So we have seen that there are many methods followed all over the world. This paper is organized as follows: Section I describes about Red Tacton, Section II discusses about red tacton. Section III explains the working principle. Section IV discusses about features of red tacton. Section V discusses about the application in several aspects. In section VI comparison is done. In section VII future scope is discussed. Section VIII gives the conclusion for this technology [6-8].

## II. REDTACTON

The NTT labs in Japan are working on this challenging method known as the REDTACTON TECHNOLOGY. RedTacton represents action triggered by touching. In this technology the human body serves as the medium for communication. This would be an advantageous way of implementing human area network as it could sort out all problems such as reduction in throughput, security problems, high network setup costs and several other issues. Human body generates a small electric field which acts as the transmitting medium for data. In this, small chips containing a transmitter and receiver to send and receive data are embedded in our body. The instant our body part comes in contact with the RedTacton transceiver, it forms a transmission path. The terminals are either embedded in the device or are carried by the user itself. In fig. (a) shows the schematic of the Red Tacton technology. Communication can be through any part of the body such as hands, legs or arms or any part of the body. This technology has two limitations which are 1. range of operation through the body was limited to few tens of centimeters 2. highest communication range was only 40 Kbits/seconds. These were because of the use of electrical sensors. Electrical sensor consists of two lines - 1 signal line and 1 ground line [9-11].

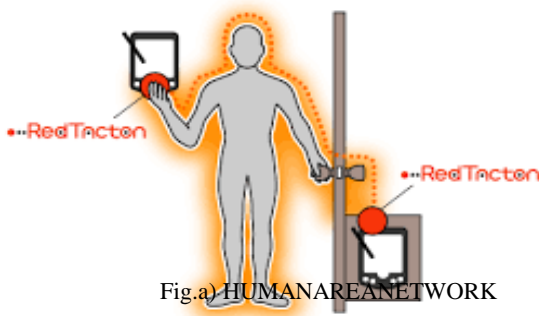


Fig.a) HUMANAREANETWORK

**III. WORKING PRINCIPLE**

Fig(b)explains the working principle of Red Tacton Technology.

The data sense circuit and transmitter circuit receive signals from the interface. The transmitter will now induce small electric field on human body surface. Thedata sensecircuit detects the signal and in the presence of the data, it sends control signals to the transmitter. The transmitter circuit gets activated by this signal. The electricfield on the surface of the body is varied by the transmitter circuit, which is identified by the electro-optic sensor. Atransistororthe photonic electric field sensor will be setup as the sensor for the electric field on the receiver part. This sensor detects the electric field and signal will be processed in receiver as well. This processed signal is the data to be downloaded. The signals,as the digital signals, depend on the variations in the induced electric field. As the electric field nducedisvery mild, high sensitivity sensing technologies are used in the receiverpart.Apartfrom theelectricfieldinduced,therewill beothersmallorunstable electricfields onthesurfaceofthe body.These willbenaturalandwillbeautomaticallysent backtoearth [12-15].

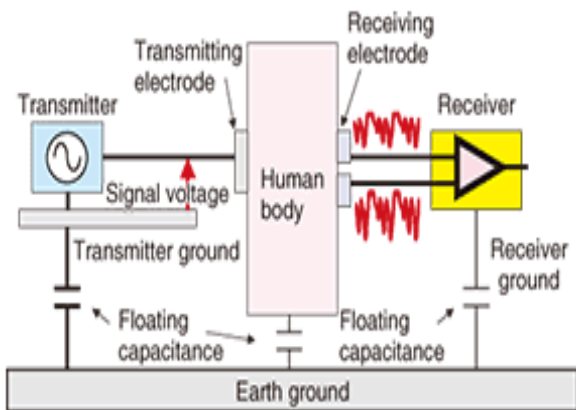


Fig.(b)RED TACTON TRANSCIEVERBLOCK DIAGRAM

**IV. FEATURES OF REDTACTON**

**A. Touch Feature**

In this, communication isdonewithasimpletouch. Physical movements such as walking, gripping, touching are all used as triggers for various processes of the equipment. These process include START and STOP of the equipment, data retrieval, locking and unlocking data.

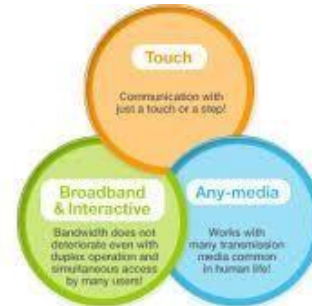
**B. Broadband Feature**

Theidealspeedusingthismethodis10Mbps for broad band communication, which is constant forfull- duplex communication. The speed of communication will notbeaffectedeven incaseofmultiple communications since thetransmission of signal takes place through humanbody.

**C. Anymedium**

Besides human body, there are several other conductors which can be used for communication.

Fig.(c) explains the features of red tacton technology in a diagrammatic form .



**V. APPLICATIONS**

**A. An alarm sound to avoid accidental medicine intake**

A red tacton transceiver is placed in the medicine bottle which transmits the information about the medicine. When the user picks the wrong medicine,an alarm is triggered. The alarm buzzes only when the user comes in actual contact with the medicine bottle.

**B. Touch advertising and information reception**

The attribute of the consumer is displayed automatically when they touch or stand in front of the advertising panel they are interested in.

Fig(d) explains the various applications of red tacton technology.

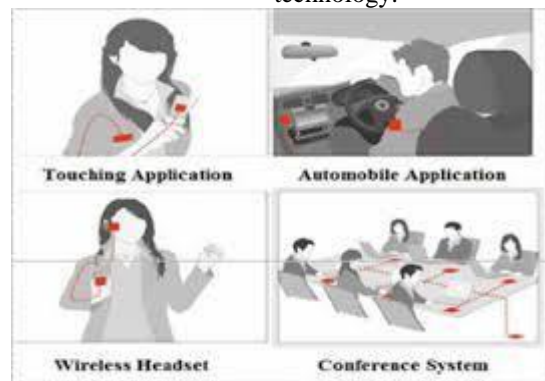


Fig.(d)APPLICATIONS

**C. Payments made easy**

Our phone numbers are storedinvariousshopsandbilling startsautomaticallywhenour transmittercomesin contact with their receiver.

#### D. Advanced car features

The seat position and steering wheel height are adjusted automatically according to driver's desire just by sitting in the car [5]. The driver's home is also set as destination in the car navigation system. Driver's favorite songs are also played as soon as he enters the car.

#### E. Conference system

By embedding an electrically conductive sheet on the table, the network connection in our laptop is initiated as soon as the laptop is placed on the table. Change in sheet patterns enables to segment the table into subnets.

#### F. Security application

When the user carries a Red Tacton supporting device in his pocket and touches the door knob, his identity is verified and the door is unlocked. It can be made more secured by including personal verification tools such as fingerprints or other biometrics in mobile terminal.

#### G. Military applications

One red tacton transceiver can be placed in the gun which is programmed to the other transceiver that is with the soldier. In this way only that particular soldier can fire the weapon. This reduces the misuse of stolen weapons and decreases the black marketing of weapons [16-18].

### VI. COMPARISON WITH OTHER NETWORKS

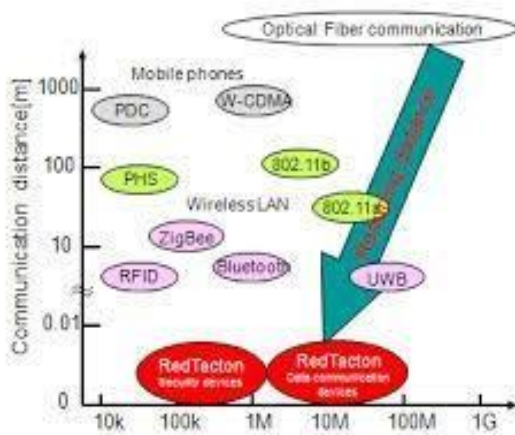


Fig.(e) COMPARISON GRAPH

In Fig.(e) the comparison of this technology is done with other existing technologies. When compared with wired transmission Red Tacton requires high rate of physical connection for data transmission when more user try to retrieve data from the single source the physical connections become difficult but it would not affect the security of the data.

Hence we infer that Red Tacton technology lies in between wireless and wired communication. It provides maximum security and data. Hence we infer that Red Tacton technology lies in between wireless and wired communication. It provides maximum security and data transfer without the use of physical connections. The security is high as the data is transferred only between two contact points. Transfer without the use of physical connections the security is high as the data is transferred only between two contact points. Fig(e) gives

the comparison of red tacton technology with other wireless technologies.

#### ADVANTAGES

1. Data transfer is faster and easier through this technology
2. Data loss during transfer is less
3. Use of minimum amount of power (of some millivolt range)
4. Security is more
5. Less charging
6. It does not require the electrode to be in direct contact with the skin
7. The transceivers are programmable and we can decide what to share with whom and what devices you communicate with.
8. No problem of hackers. It is very hard to pick up stray electronics signals radiating from the body.

#### DISADVANTAGES

1. It will be comparatively expensive
2. Continuous use of this technology may cause harm to the body as it uses electric fields on the surface of the body [19,20].

### VII. FUTURE DEVELOPMENTS

When a user carries a Red Tacton device or any special card walk through railway verification gate, the data will pass through the user's clothing or shoes which can unlock the gate. It has many other future applications such as personalized cabinets which opens for authorized person, choosing our favourite channels by television remote controls, unlocking car doors with our personalized keys which does not allow access to outsiders. It ensures that only the driver can open their cars by touching the door keys in their pockets. It has other benefits like sharing files or images among a group of people without any delay. When it comes to securing personal information such as bank details, important passwords Red Tacton plays a vital role by providing one-to-one service. In this technology data can be transferred at speed of 10 mbps. In this way wireless data transmission and communication in future is taken to different heights by providing more security and abundant features.

### VIII. CONCLUSION

Red Tacton technology is an advanced method in human area networking. It uses human body as the transmission path based on the electric field sensor which uses a laser light and electro optic crystal. While the present objective of this technology is to introduce a network supporting two way Intra-body communication between any two points on the body at a rate of 10 mbps, the longer term plans include to enhance the portability by bringing down the size and also by decreasing the power consumption.

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