# Red Tacton Technology

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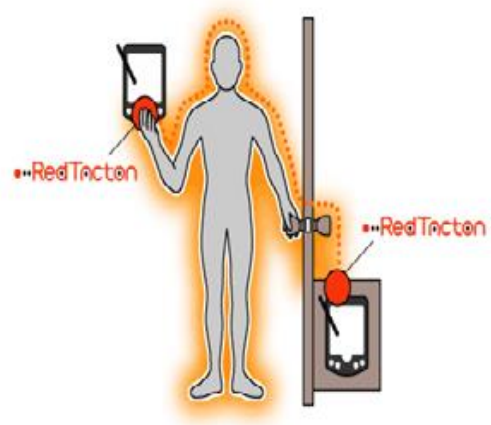
***Abstract*** **- We have discussed about various infrared and Bluetooth wireless technologies in our recent posts. But the technology has been advanced that these technologies have been overrated. Now, researchers are trying to develop a new path for transmission of signals called Human Area Networking. As the name indicates, such a technology will have the human body surface to transmit and receive signals at very high speeds. Now we are going to discuss such a technology, which is currently under development, called RedTacton Technology. According to science studies, we know that our body is creating minute electric charges all the time. This electric field thus created is used for RedTacton technology to transmit and receive [duplex communication] the signals. Thus, this method is completely different from other signal transmitting technologies like wireless and infrared. Thus, like LAN and WAN, a new network protocol called HAN [Human Area Network], is being configured.**

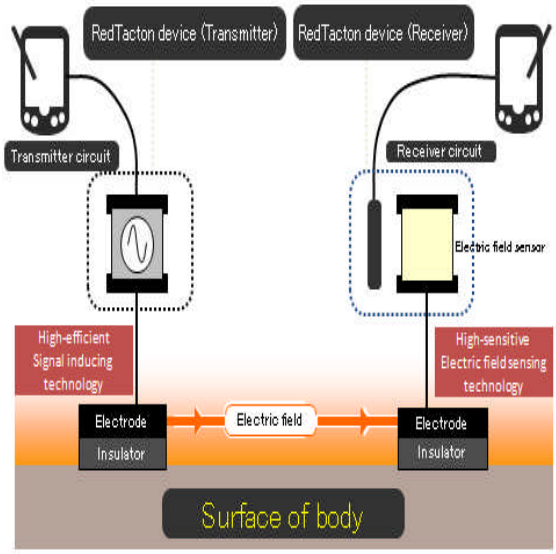
## I. INTRODUCTION

Red Tacton technology is an electronic future where information can be accessible whenever and wherever needed at our finger tips. Some of the communication equipment that is required to Provide this immediate access to information will be Incorporated into our attire. Just as a quick look at
today's wristwatch saves a trip to the nearest clock; a glance at tomorrow's wristwatch will replace finding a terminal to check e-mail. Red Tacton is a new
Human Area Networking technology which was introduced by Nippon telegraph and Telephone Corporation (NTT's) that uses the human body surface is a high speed and safe network transmission path. Red Tacton is a Break-through technology that enables reliable high-speed HAN for the first time.In the past, infrared Communications (IrDA), Bluetooth, radio frequency ID systems (RFID),and other technologies have been Proposed to solve the "last meter" connectivity problem. However, those technologies each have various fundamental technical limitations that constrain their usage, such as the precipitous fall-off in transmission speed in Multi-user environments producing network congestion.

*WHAT IS RED TACTON TECHNOLOGY*
RED- auspicious colour for Japanese
TACTON-action triggered by touching
It was developed by Nippon telegraph and telephone corporation




*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 RedTacton 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 [2]. 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.



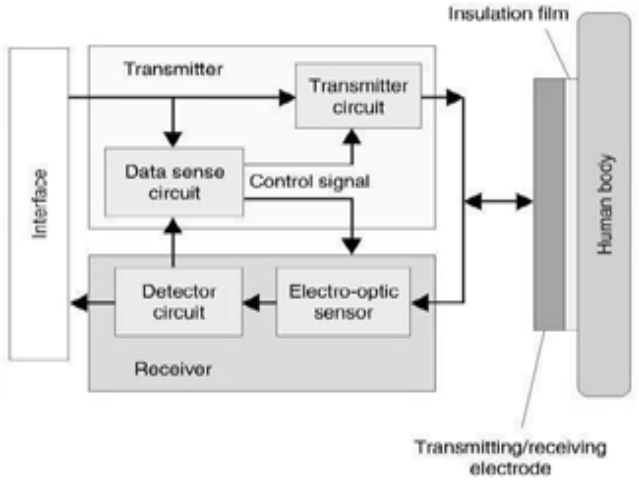

The naturally occurring electric field induced on the surface of the human body dissipates into the earth. Therefore, this electric field is exceptionally faint and unstable. The photonic electric field sensor developed by NTT enables weak electric fields to be measured by detecting changes in the optical properties of an electro-optic crystal with a laser beam.

*Transmission Steps*

1. The Red Tacton transmitter induces a weak electric field on
the surface of the body.
2. The Red Tacton receiver senses changes in the weak electric
field on the surface of the body caused by the transmitter.
3. It relies on the principle that the optical properties of the electro-optic crystal varies according to the changes in the weak electric field.
4. It detects the changes in the optical properties of an electro optic
crystal using a laser beam and converts the result into an electrical signal in a detector circuit.

*Red Tacton Transceiver*

The block diagram of a Red Tacton Transceiver . The signal from the interface is sent to the data sense circuit and the transmitter circuit. The data sense circuit senses the signal and if the data is present it sends control signal to the transmitter which activates the transmitter circuit. The transmitter circuit varies the electric field on the surface of our body. This change in the electric field is detected by the electro-optic sensor. The output of the electrooptic sensor is given to the detector circuit, which in turn given to the interface of the receiving red tacton device.




Applications of Red Tacton

There are many applications of red tacton in different fields. This technology will widely used in daily working schedule and provide
convenience to people

*A. One–To–One Services*

1**. An Alarm**

Red Tacton devices embedded medicine bottles transmit information on the medicines attributes. If the user touches the
wrong medicine, an alarm will trigger on the terminal he is carrying. The alarm sounds only if the user actually touches the medicine bottle, reducing false alarms common with passive wireless ID tags, which can trigger simply by proximity

**An Alarm** **Touch Advertising**

**2. Touch Advertising**

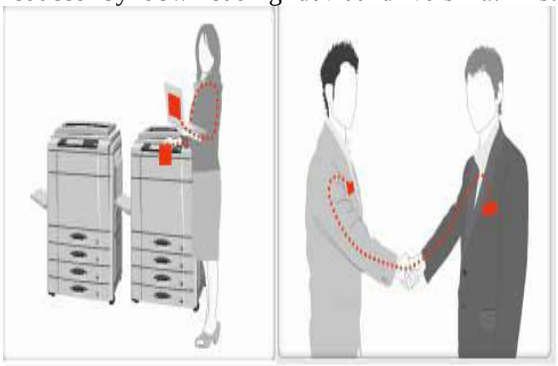
When a consumer stands in front of an advertising panel and information matching his or her attributes is automatically displayed. By touching or standing in front of items, consumers can get more in-depth information

**B. Intuitive Operation**

**1. Touch a printer to print**

Print out where you want just by touching the desired printer with one hand and a PC or digital camera with the other hand to make the link Complicated configurations are

reduced by downloading device drivers "at first touch"



Printing Application Data Exchange

*2. Instant private data exchange*

By shaking hands, personal profile data can be exchanged between mobile terminals on the users. (Electronic exchange of business cards) Communication can be kept private using authentication and encryption technologies

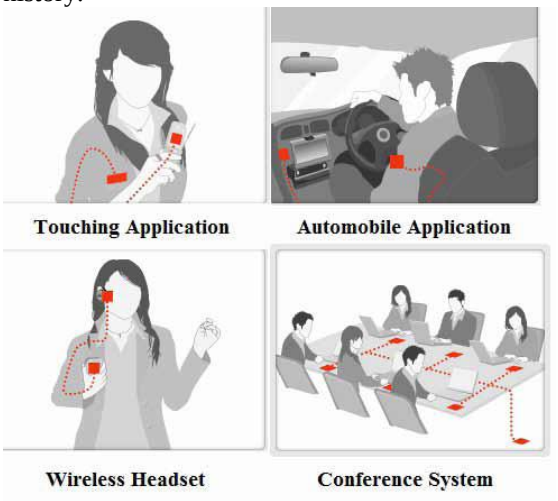
**C. Personalization**

There are many applications under personalization. Some applications are

**1. Just Touching a phone makes it your own**

Your own phone number is allocated and billing commences.

Automatic importing of personal address book and call history.



Touching Application Automobile Application

Wireless Headset Conference System

**2. Personalisation of Automobiles**

The seat position and steering wheel height adjust to match the driver just by sitting in the car [6]. The driver's home is set as the destination in the car navigation system. The stereo plays the driver's favourite song.

**3. Wireless Headset**

Red Tacton can carry music or video between headsets, mobile devices, mobile phones, etc. Users can listen to music from a Red Tacton player simply by putting on a headset or holding a viewer.

**4. Conference System**

An electrically conductive sheet is embedded in the table. A network connection is initiated simply by placing a lap-top on the table. Using different sheet patterns enables segmentation of the table into subnets.

**D. Security Applications**

Red Tacton is very secure in all respects such as authenticity, authorization and verification as well as unlocking as we see in

**1. User verification and unlocking with just a touch**

Carrying a mobile Red Tacton capable device in one's pocket, ID is verified and the door unlocked when the user holds the doorknob normally. Secure lock administration is possible by combining personal verification tools such as fingerprint ID or

other biometric in the mobile terminal.

User Verification & Unlocking Automatic Access Log

**E. Other Applications**

Red Tacton has many applications. So, it is not easy to explore all the applications. Some additional applications

**1. Under Water Communication**

Red Tacton allows communication in outer space and in water

where the speech constraints are very high and thus enables a

highly efficient means of expression of speech which is beyond

the purvey of human beings.

Under Water Communication Communication inside body

## V. PROTOTYPES

A prototype is an early sample or model built to test a concept or process or to act as a thing to be replicated or learned from. Prototypes are shown .

NTT has made three types of prototypes:-

**1. PC Card Transceiver (PC Card type)**

PC Card was originally designed for computer storage expansion, but the existence of a usable general standard for notebook peripherals led to many kinds of devices being made available in this form. Typical devices included network cards, modems, and hard disks. In Red Tacton, we can use PC Card Transceiver having both the capabilities to transmit and receive of communication speed of 10Mbps and communication method used in this is Half-duplex. TCP/IP protocol suite is used in the transceiver and

interface is PCMCIA which was developed by Personal Computer Memory Card International Association.


**2. Embedded Receiver (Hub Type)**

Receiver is used with the speed of 10 Mbps. Protocols and communication method is same as that of PC Card Transceiver.

RJ 45 is used as an interface in the embedded receiver.

**3. USB Transceiver (Box Type)**

A type of connection between a computer and a peripheral device

like a printer or a camera. The original USB could transfer data

at a rate of 12Mbps (million bits per second), a new USB2.0 now

transfers at a rate of 480 Mbps

**ADVANTAGES**

High efficiency

Required less number of electrodes

Superior than Wi-Fi

**DISADVANTAGES**

It has no compelling applications that aren't already available.

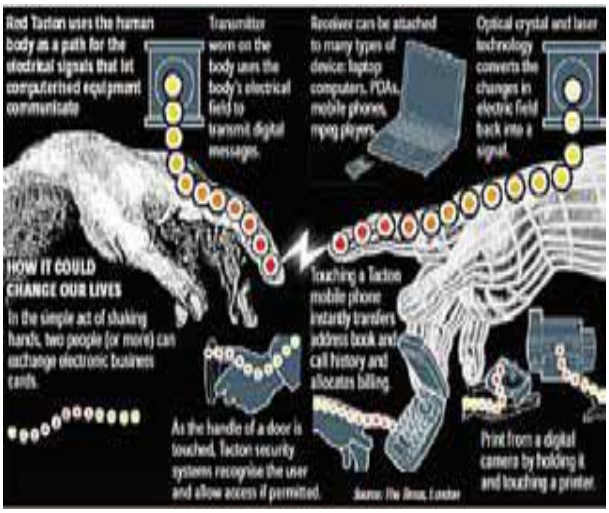
It is very costly.

## VI. FUTURE DEVELOPMENT

Red Tacton has a wide range of unique new functional features and enormous potential as a Human Area Networking technology [6]. Red Tacton is a big achievement given by NTT to people. NTT is committed to quickly identifying and opening up those application areas with the most commercial promise for Red Tacton as shown in fig. 9, a business development process to be coordinated under NTT's Comprehensive Producer function program Red Tacton looks remarkably like a big pot of kryptonite is said to allow over 200kbps of data through th10 human hands or feet. Telecom giant Nippon Telegraph and Telephone Corp (NTT) is planning a commercial launch of a system to enter rooms that frees users from the trouble of rummaging in their pockets or handbags for ID cards or keys. Data will travel 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

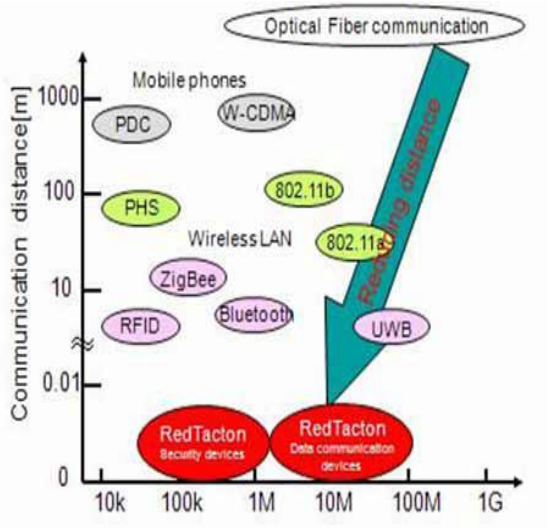
and a television control that automatically chooses favourite

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. You will try to observe and compare Red Tacton with other technologies in fig. 11 and analyze the benefits of it. It uses technology to turn the surface of the human body itself into a means of data transmission.




*Comparison with Other Networks*

The positioning of Red Tacton with respect to existing communication technologies. The focus on ubiquitous service has brought about the shortening of distances in communication. Red Tacton is positioned as the last 1m solution to ultimate close-range communication. Wireless communication creates connections when signals arrive, allowing for easy connections because connectors are unnecessary. However, seen from another aspect, the arriving signals can be intercepted, so security becomes an issue. Several "human body communication" technologies using the human body as a transmission medium have been reported in the past. But Red Tacton employs a proprietary electric field/photonics method, which surpasses the other methods in terms of communication distance, transfer speed, and interactivity.




## CONCLUSIONS

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. The evolution of

Red Tacton technology is a big achievement, which will likely be targeted for use in applications such as wireless headset, medical application, security applications, wireless transmission by applying different actions. This could get as simple as two people equipped with Red Tacton devices being able to exchange data such as text files as well as business cards just by shaking hands.

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