

**RED TACTON**

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**ABSTRACT:**

We have seen LAN,MAN,WAN,internet & many more here is the new concept of "RED TACTON" which makes the human body as a communication network by name HAN called HUMAN AREA NETWORK. We created the word, "Tacton" because with this technology, communication starts by touching (Touch), leading to various actions (Act on). We then added the color red to convey the meaning of warmth in communication. Combining these phrases led to the name, "RedTacton". Japanese telecom company NTT(Nippon Telegraph and Telephone Corporation) is soon to launch a product that transmits data via your body, effectively turning you into a touch-technology swipe card. RedTacton is a card-like gadget that you simply carry anywhere on your person, and it transmits data via electric fields a world's first according to NTT. The data is passed on to other devices as you touch them, even with your clothes or shoes. So you can open an office door keylessly, unlock and start your car, or any of a million other applications currently using swipe-card entry.

**1.INTRODUCTION:**

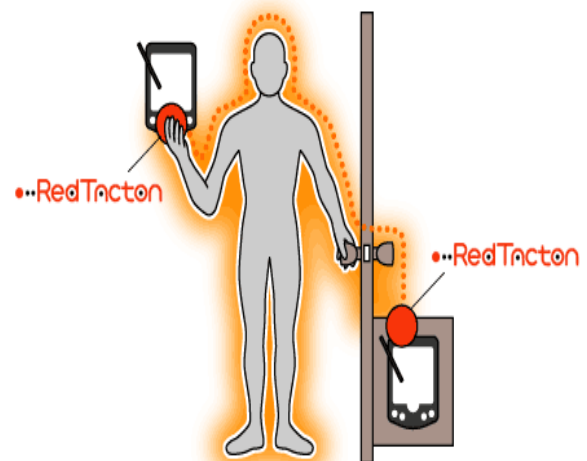
RedTacton is a new Human Area Networking technology that uses the surface of the human body as a safe, high speed network transmission path.

RedTacton 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 RedTacton transceiver. Physically separating ends the contact and thus ends communication.

Using RedTacton, communication starts when terminals carried by the user or embedded in devices are linked in various combinations according to the user's natural, physical movements.

Communication is possible using any body surfaces, such as the hands, fingers, arms, feet, face or legs. RedTacton works through shoes and clothing as well. RedTacton employs a proprietary electric field/photonics method, which surpasses the other methods in terms of communication distance, transfer speed, and interactivity.



**Figure 1. Communication network**

## 2. WORKING PRINCIPLE:

- “RedTacton” takes a different technical approach. Instead of relying on electromagnetic waves or light waves to carry data.
- RedTacton uses weak electric fields on the surface of the body as a transmission medium.
- “RedTacton relies upon the principle that the optical properties of an electro-optic crystal vary according to the changes of a weak electric field”.
- A RedTacton transmitter couples with extremely weak electric fields on the surface of the body.
- The weak electric fields pass through the body to a RedTacton receiver, where the weak electric fields affects the optical properties of an electro-optic

crystal.

- The extent to which the optical properties are changed is detected by laser light which is then converted to an electrical signal by a detector circuit and Signals are processed in the receiver circuit and the data is downloaded.

RedTacton can also achieve duplex communication over the human body at a maximum speed of 10 Mbps.

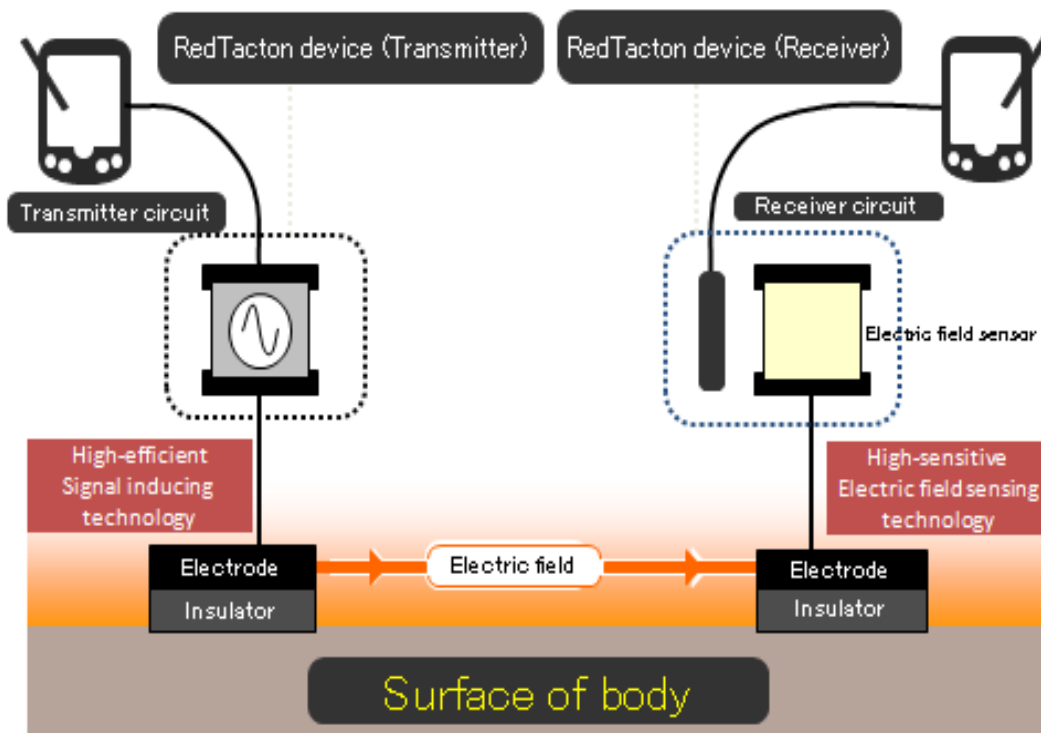


Figure 2. Principle of red tacton communication

**3. MECHANISM OF COMMUNICATION WITH RED TACTON:**

The transmitter sends data based on fluctuations in the weak electric field induced in the body.  
 The electric field is received using super-sensitive electric field sensing technology.  
 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 super-sensitive electric field sensing technology measures the weak electric fields induced by the super-efficient alternating electric field induction technology developed by NTT.

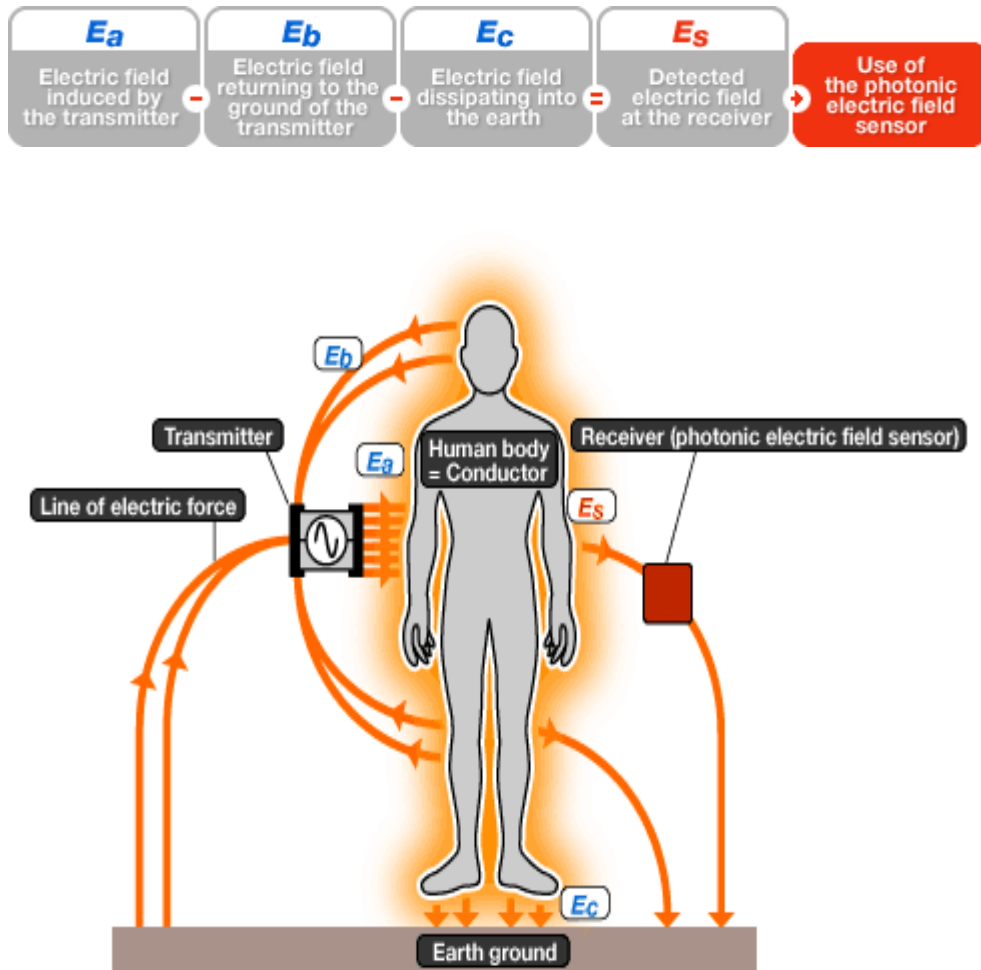


Figure 3. Mechanism of Communication of red tacton

#### **4. FEATURES:**

**4.1 TOUCHING:** Touching, gripping, sitting, walking, stepping and other human movements can be the triggers for unlocking or locking, starting or stopping equipment, or obtaining data.

#### **4.2 BROADBAND AND INTERACTIVE:**

Duplex, interactive communication is possible at a maximum speed of 10Mbps. 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.

**4.3 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.

#### **5. APPLICATIONS:**

##### **5.1 One-to-One services:**

With the ability to send attribute data from personal information devices worn on the body to computers embedded in the environment, one-to-one services could be implemented that are tailored to the individual needs of the user.

##### **5.2 Intuitive operation of personal information devices:**

Communication is triggered by totally natural human actions and behavior, so there is no need to insert smart cards, connect cables, tune frequencies, or any of the other inconveniences usually associated with today's electronic devices.

##### **5.3 Device personalization:**

Setup, registration, and configuration information for an individual user can all be uploaded to a device the instant the device is touched, eliminating the need for the device to be registered or configured in advance.

##### **5.4 New behavior patterns:**

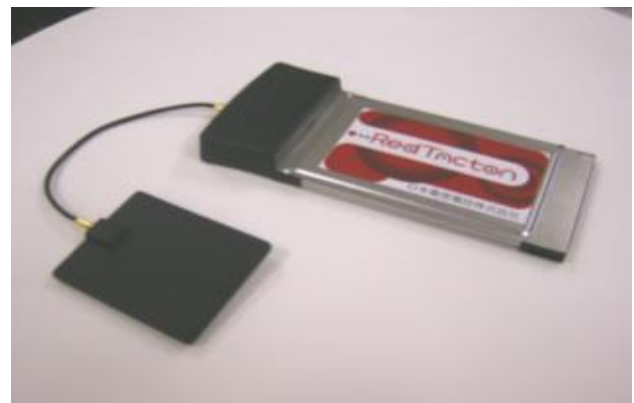
Tables, walls, floors and chairs can all act as conductors and dielectrics, turning furniture and other architectural elements into a new class of transmission medium. For example, a user could have instant access to the Internet merely by placing a laptop onto a conductive tabletop.

##### **5.5 Security applications:**

RedTacton could be installed on doors, cabinets and other locations calling for secure access, such that each secure access could be initiated and authenticated with a simple touch. At the same time, all the transaction details and relevant user attributes (personal identity, security clearance, etc.) could be logged by the security system.

#### **6. FUTURE DEVELOPMENTS:**

RedTacton has a wide range of unique new functional features and enormous potential as a Human Area Networking technology. NTT is committed to quickly identifying and opening up those application areas with the the most commercial promise for RedTacton, a business development process to be coordinated under NTT's Comprehensive Producer Function program.



**Figure 4. RedTacton PC card prototype**

## 7. CONCLUSION:

•Technology is making many things easier. RedTacton is a form of exciting new technology Human Area Networking. We have developed a transceiver that uses the human body as a data transmission medium based on an electric-field sensor that uses an electro-optic crystal and laser light. Using this transceiver, we succeeded in achieving 10BASE communication in accordance with IEEE 802.3 through a human body from one hand to the other hand. While our immediate objective is to implement a RedTacton system supporting two-way intra body communication at a rate of 10 Mbit/s between any two points on the body, our longer term plans include developing a mass market transceiver interface supporting PDA's and notebook computers while continuing efforts to reduce the size and power consumption of the transceiver to enhance its portability. NTT is committed to using its comprehensive commercialization functions to bring this research out to the marketplace quickly as possible while moving ahead with tests and trials in collaborations with commercial partners as necessary.

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