Red Taction [HAN]

Wi-Fi

Bluetooth

LAN

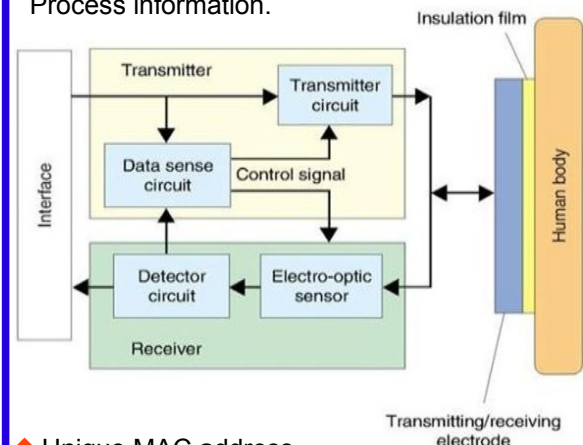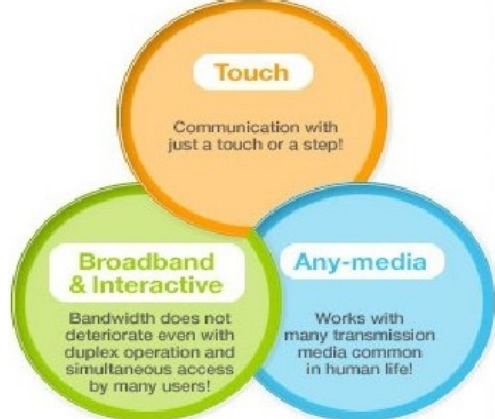Ethernet

Utilizes a point to point network - **pico net** that allows information to be exchanged between two trasceivers Without the need for a server to store or Process information.

Insulation film

Transmitter

Transmitter circuit

Interface

Data sense circuit | Control signal

Human body

Detector circuit | Electro-optic sensor

Receiver

Transmitting/receiving electrode

- ◆ Unique MAC address
- ◆ Operations is triggered by natural human action
- ◆ No need to insert smart cards, connecting cables, tune freq..
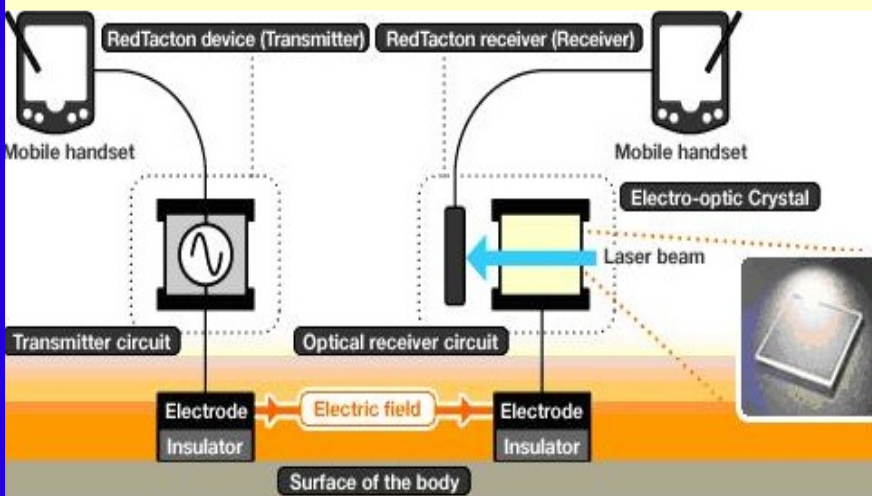- ◆ Each comm occurs in separte channels

Transceivers are programmable and we can decide what to share with whom and what devices you communicate with.

Functional Features:

Touch
Communication with just a touch or a step!

Broadband & Interactive
Bandwidth does not deteriorate even with duplex operation and simultaneous access by many users!

Any-media
Works with many transmission media common in human life!

Introduction:

A new personal area networking technology which uses the surface of human body as the safe & high speed communication network by name HAN. It uses a weak electric field on the surface of the human body. Achive duplex communication over the human body at maximum speed of 10Mbps. Send and Accept data in digital format only. First proposed by IBM in 1996, and developed by NTT located in Tokyo.
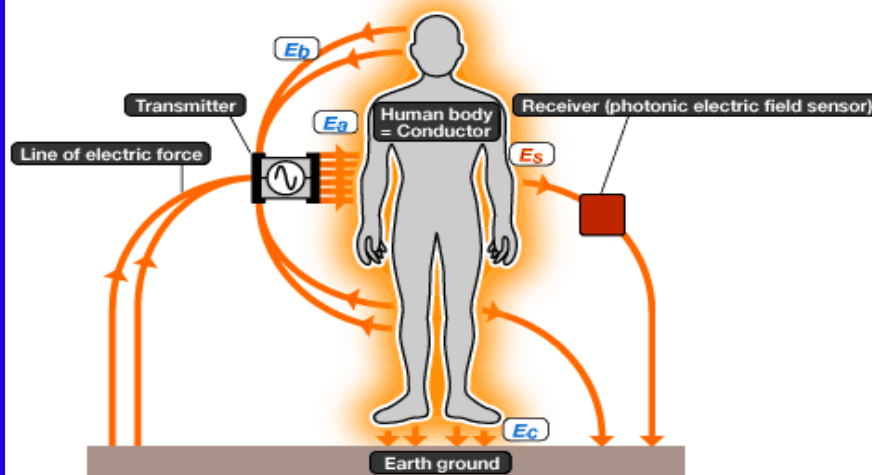

RedTacton device (Transmitter) | RedTacton receiver (Receiver)

Mobile handset | Mobile handset

Electro-optic Crystal

Laser beam

Transmitter circuit | Optical receiver circuit

Electrode | Insulator | Electric field | Electrode | Insulator

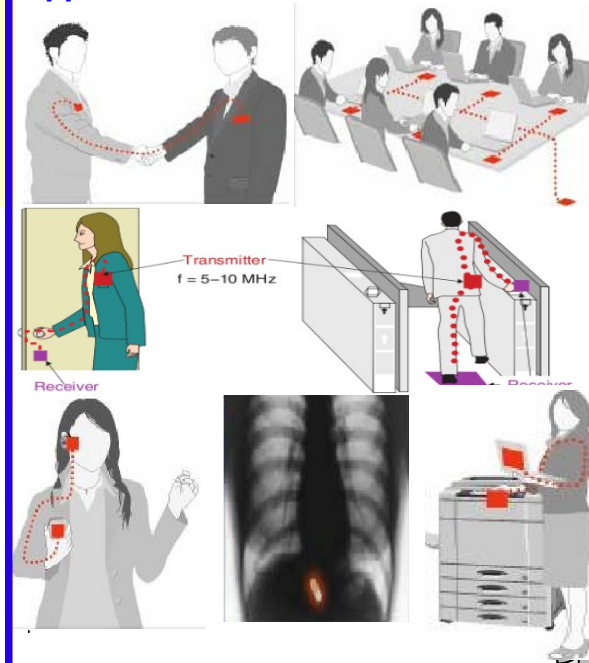Surface of the body

Mechanism:

$$Es = Ea - (Eb + Ec)$$

Tx'er: induces a weak electric field on the surface of the body
Re'er: senses changes in weak electric field, strength of the electric field involved is low. So it using a technique called **electric field photonics.**

Principle; detects changes in the optical properties of electro-optic crystal using a laser & converts the result to an electrical signal in an optical receiver circuit

E_b

E_a

Transmitter

Human body = Conductor

Receiver (photonic electric field sensor)

Line of electric force

E_S

E_C

Earth ground

Applications:

Transmitter f = 5–10 MHz

Receiver

Advantages:
- ✓ Throughput improved
- ✓ High security
- ✓ High speed
- ✓ Low setup costs
- ✓ Dat loss is less
- ✓ Mimimum amout of power(milli-volt range)
- ✓ Personalization of mobile phones...

Comparisons:
Wired: connectors and cables are a nuisance
Wireless: arriving signals can be intercepted
RedTacton-situated between wireless & wired

Conclusion:
Human society is entering an era of ubiquitous computing, where everything is networked. RedTacton is gearing up to compete with Bluetooth, Zigbee, IrDA, UWB.....

References:
[1] IEEE Internet computing, special issue on internet-based agents, vol 1, 1997.
[2] PC quest 2003(Edition Fef 2003).
[3] NTT(February 2005). "RedTacton: An innovative Human Area Networking technology"
[4] International Journal of Adavanced Research in Computer Science and Software Engineering, Vol 2, Issue 6, June 2012