

In the name of
ALLAH

The most gracious ,the
most merciful

RED TACTON



• RedTraction

Human Area Network

- ✓ Human society is entering an era of ubiquitous computing, when networks are seamlessly interconnected and information is always accessible at our fingertips
- ✓ In addition to the WANs (Internet) and LANs, there are applications best served by Human Area Networks. (HANs) that connect the last meter



NTT

Nippon Telegraph and Telephone Corporation

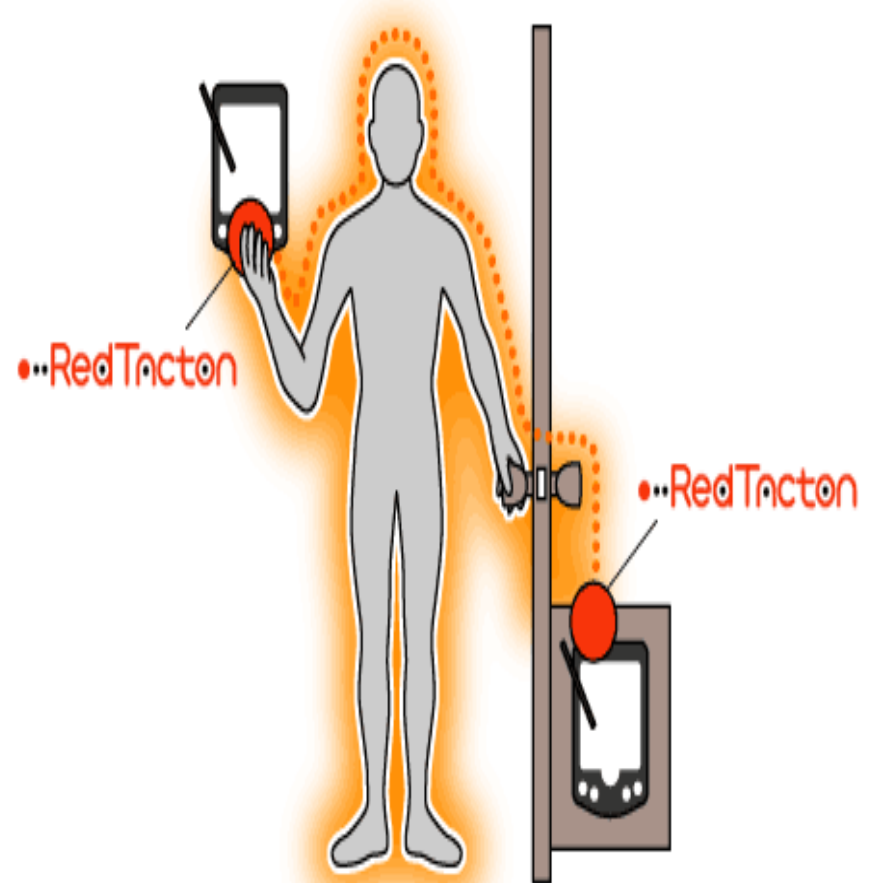
Key people:

- Norio Wada, President & CEO
- Satoshi Miura, chairman
- Industry, Telecommunications



What's RedTacton?

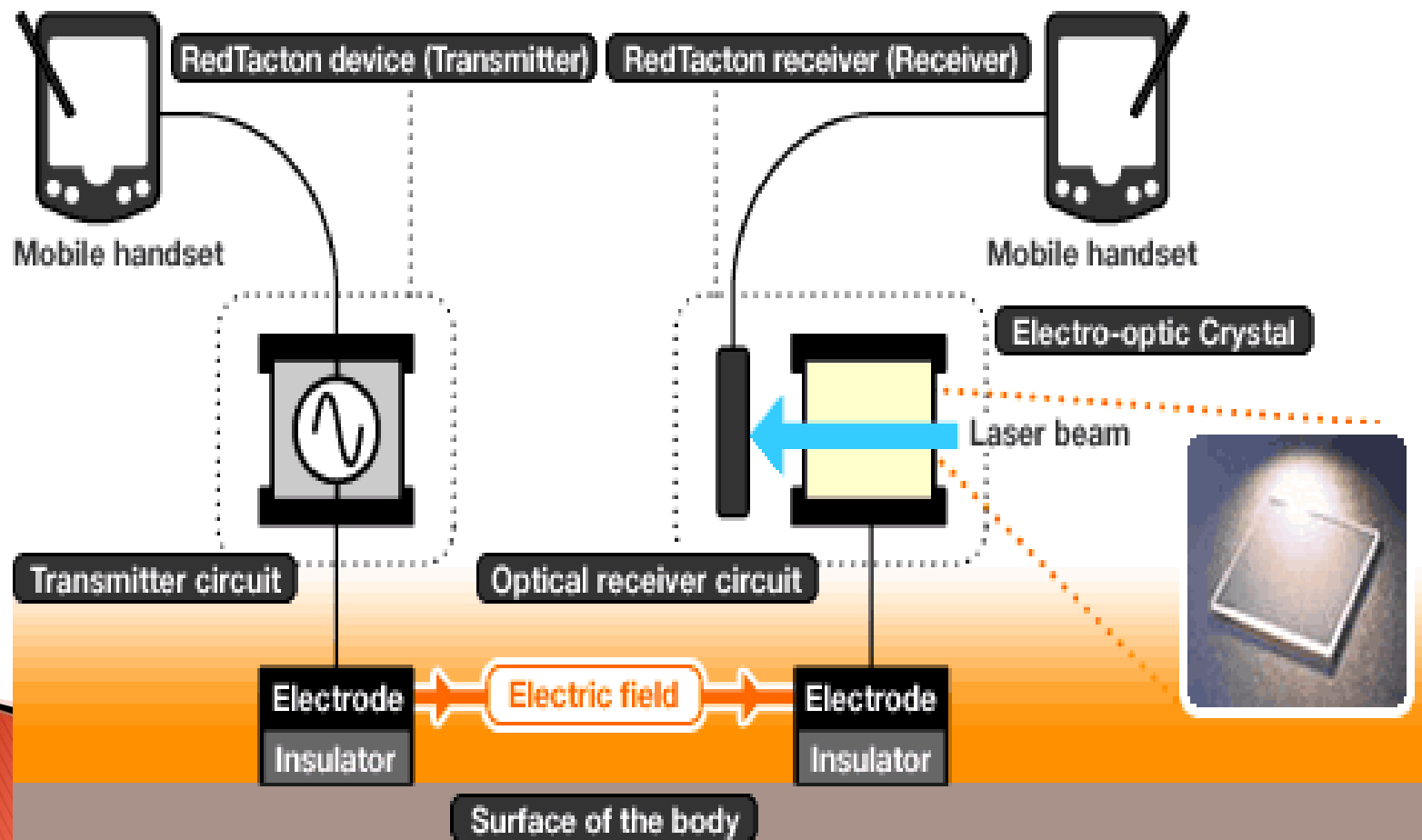
- ✓ RedTacton is a new Human Area Networking technology that uses the surface of the human body as a safe, high speed network transmission path.
- ✓ Technical





How RedTacton works

- 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.



HOW RED TACTON WORKS

Red Tacton uses the human body as a path for the electrical signals that let computerised equipment communicate

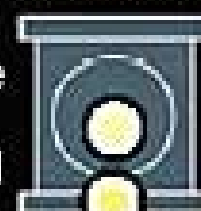


Transmitter worn on the body uses the body's electrical field to transmit digital messages.

Receiver can be attached to many types of device: laptop computers, PDAs, mobile phones, mpeg players.



Optical crystal and laser technology converts the changes in electric field back into a signal.



HOW IT COULD CHANGE OUR LIVES

In the simple act of shaking hands, two people (or more) can exchange electronic business cards.



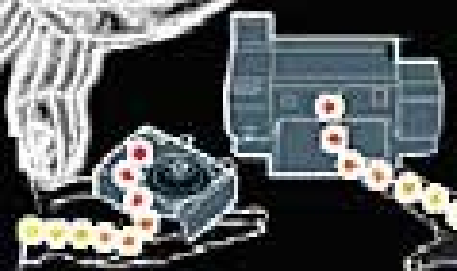
As the handle of a door is touched, Tacton security systems recognise the user and allow access if permitted.



Touching a Tacton mobile phone instantly transfers address book and call history and allocates billing.



Print from a digital camera by holding it and touching a printer.



Source: The Times, London



Mechanism of communication with RedTacton

E_a

Electric field induced by the transmitter

E_b

Electric field returning to the ground of the transmitter

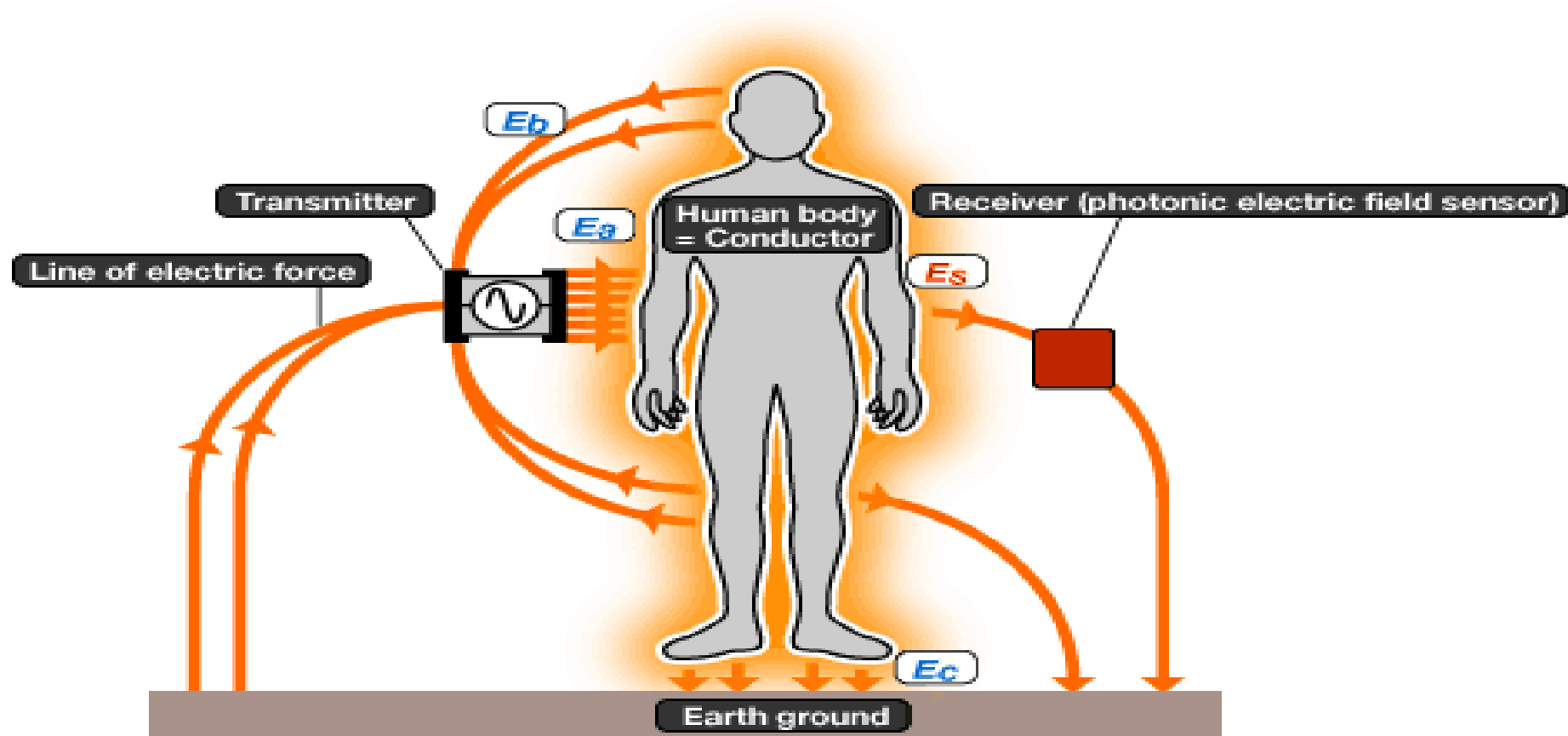
E_c

Electric field dissipating into the earth

E_s

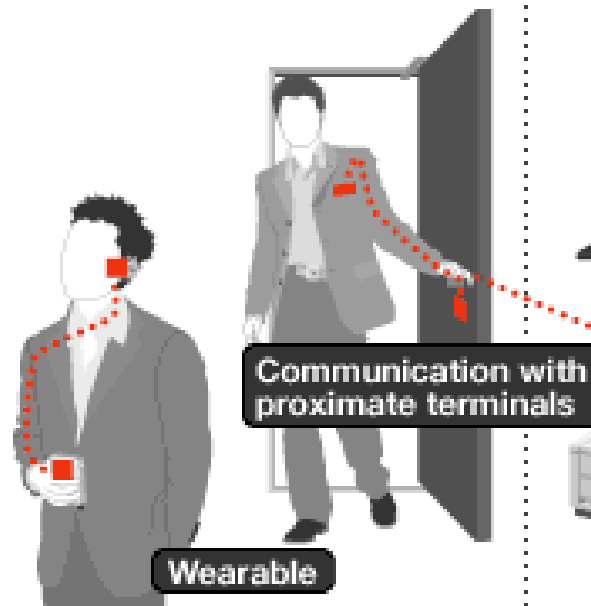
Detected electric field at the receiver

Use of the photonic electric field sensor



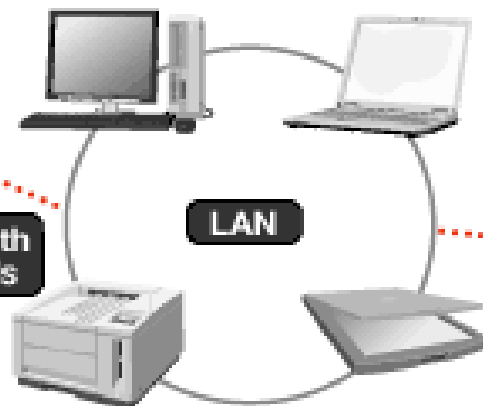
→ About Human Area Networks

Human Area Networks connect mobile terminals and devices within the human movement.



Human Area Network

LANs in offices and houses.



LAN Local Area Network

Internet connects terminals to remote servers.



Internet Wide Area Network

↓
●●RedTacton



Three 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!



Touch : Communication with just a touch or a step!

Touching



Walking



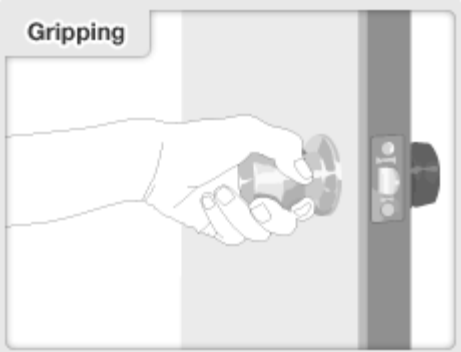
Stepping



Sitting down



Gripping

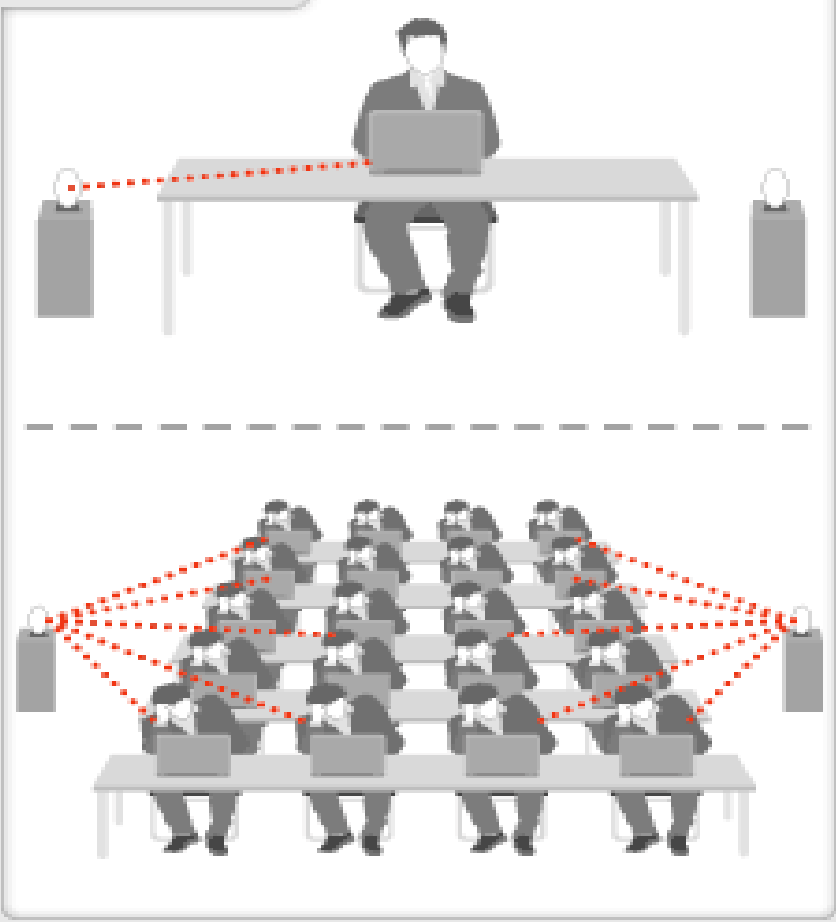




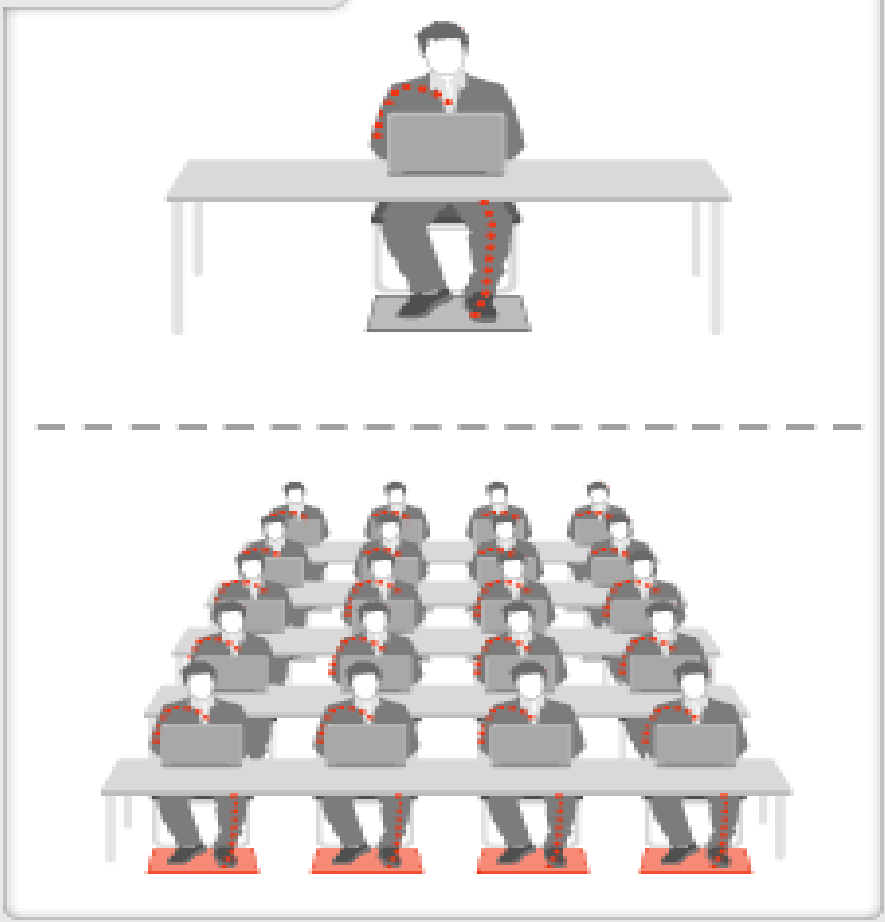
Broadband & Interactive :

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

Wireless LAN



RedTacton





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

Conductors

Signals travel along the surfaces of materials

Metal



Water



Wood



Glass, walls, etc.



Dielectric

Signals pass through materials

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



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

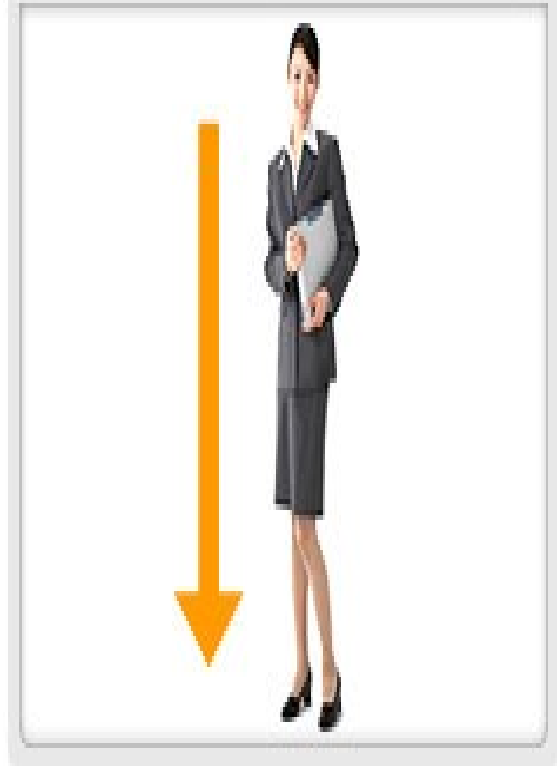
Conductor+dielectric

Combinations of traveling along and passing through materials

Metal body and tires



Surface of the body and shoes/clothing



❖ Limitations



Application Fields



One-to-one services

Touch

Elimination of human error

• An alarm sounds automatically to avoid accidental medicine ingestion

➤ Risks





Application Fields

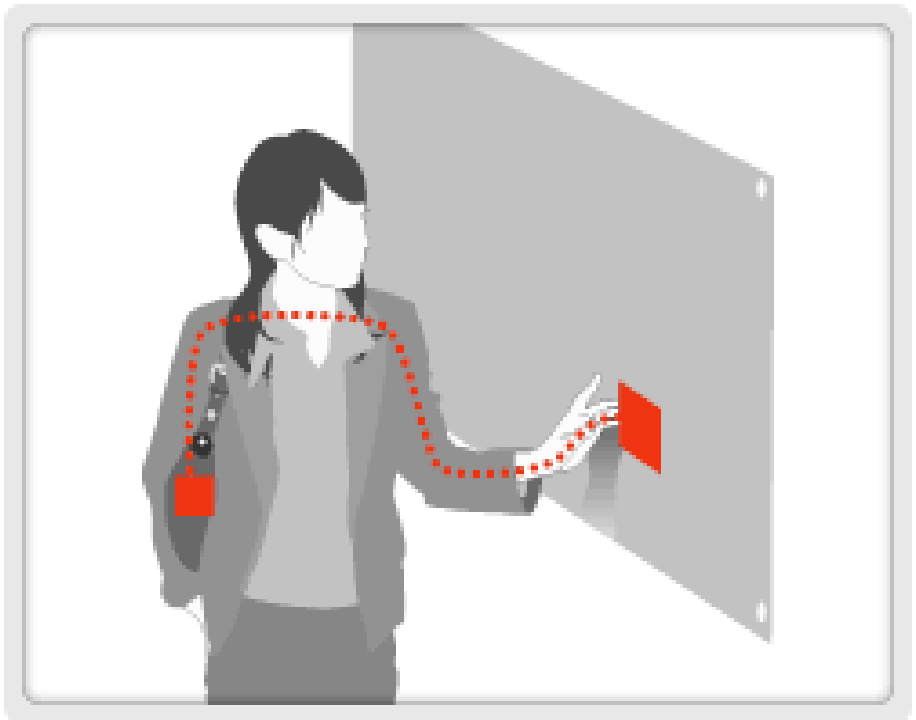


One-to-one services

Touch

Marketing applications (context awareness)

➤ Touch advertising and receive information





Application Fields



Intuitive operation

Touch

Broadband
& Interactive

 Touch a printer to print

- Display PC screen on projector
- Songs from PC to players



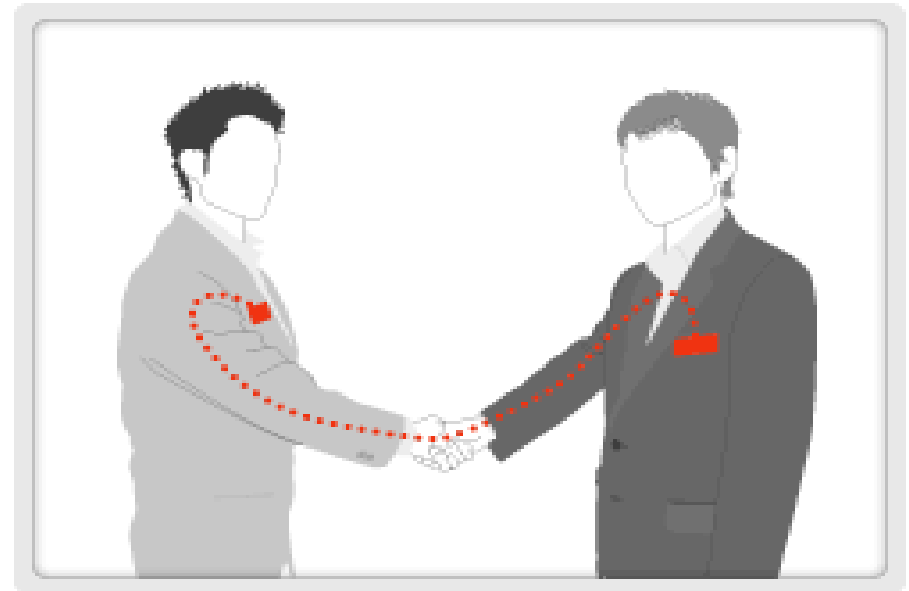


Application Fields

Instant private data exchange

❖ Instantaneous private network
via personal handshake

- ❖ Group photo to individuals
- ❖ In meetings





Personalization

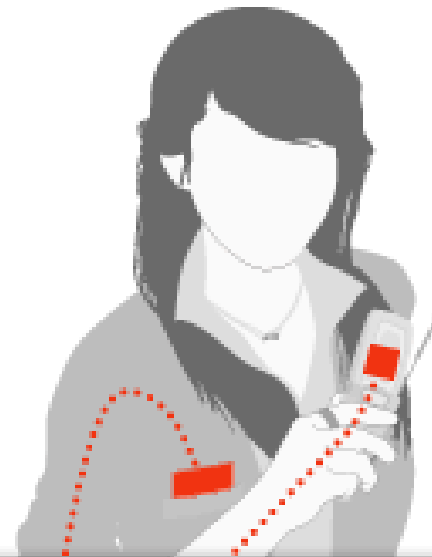
Touch

Broadband
& Interactive

Personalization of mobile phones

➊ Just touching a phone makes it your own

- PC configured by touching mouse
- Room temp & lighting customized





Application Fields



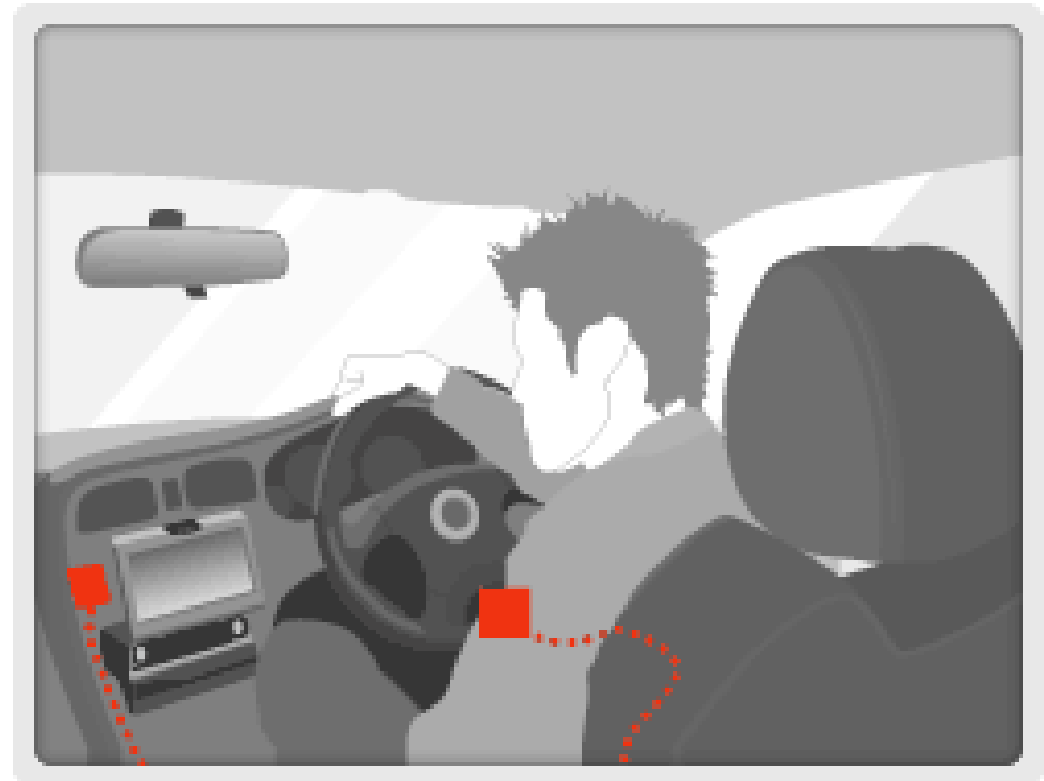
Personalization

Touch

Broadband
& Interactive

Personalization of automobiles

Just sitting in the seat triggers the car to load all its presets, just the way you like.





Application Fields



New behavior patterns

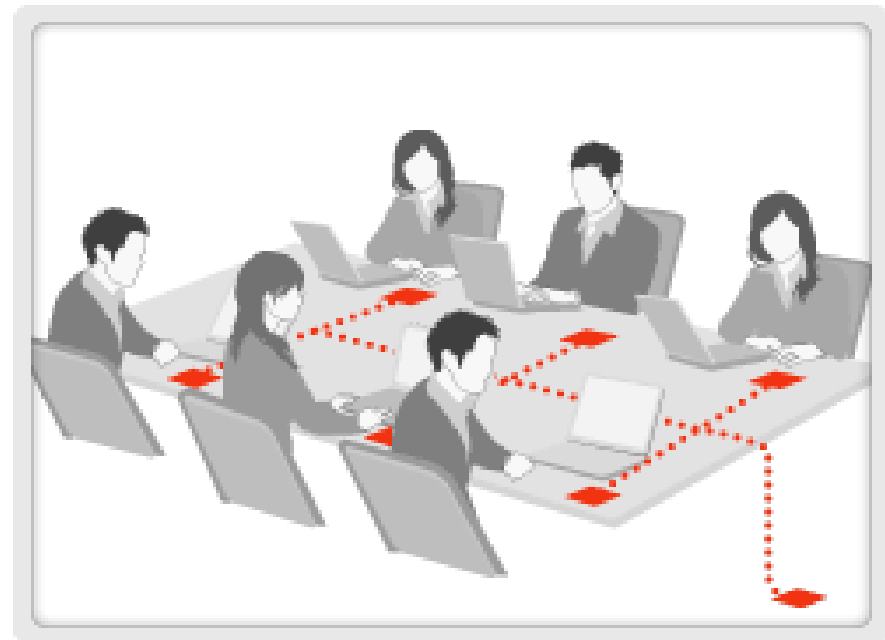
Broadband
& Interactive

Any-media

Conferencing system

Connect to the network just by putting
a lap-top on the table

✓ Eliminates electric
wiring





Application Fields



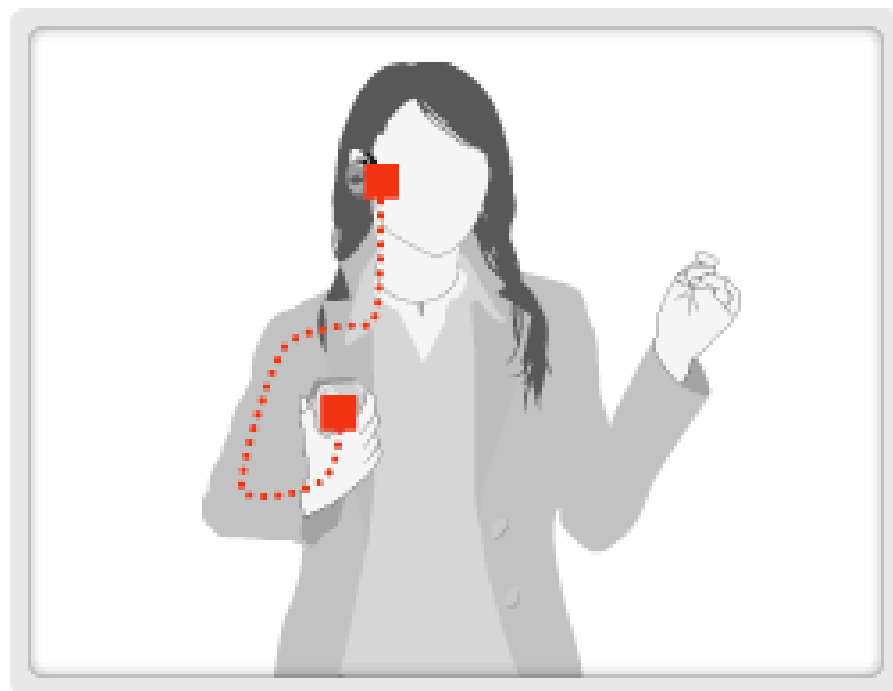
New behavior patterns

Broadband
& Interactive

Any-media

Wearable

 Wireless headset





Application Fields



Security applications

Touch

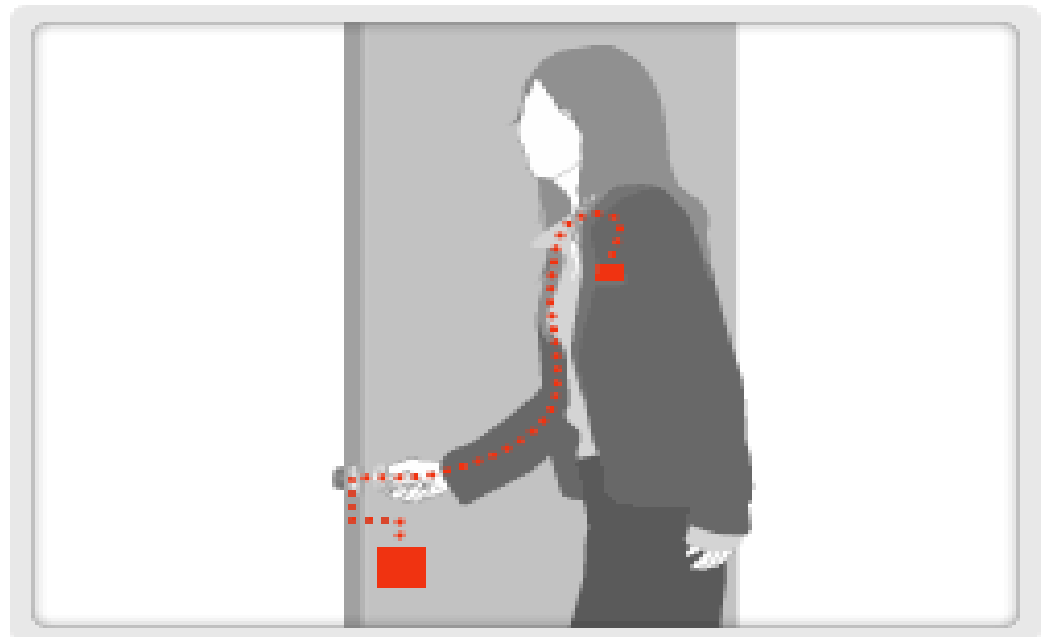
Broadband
& Interactive

Any-media

User verification and lock management at entrances

• User verification and unlocking with just a touch

❖ Car door lock/unlock





Application Fields



Security applications

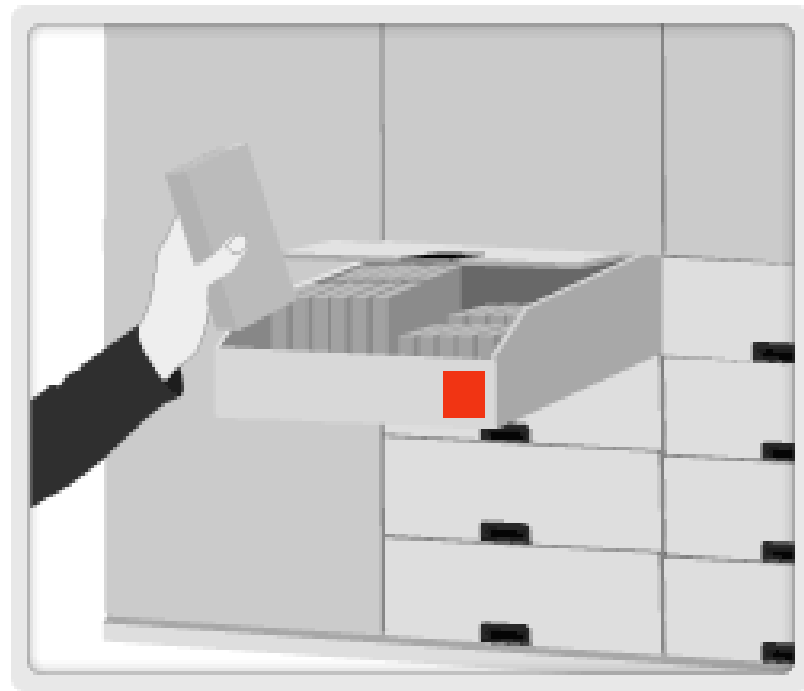
Touch

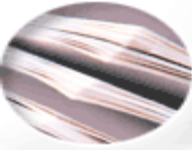
Broadband
& Interactive

Any-media

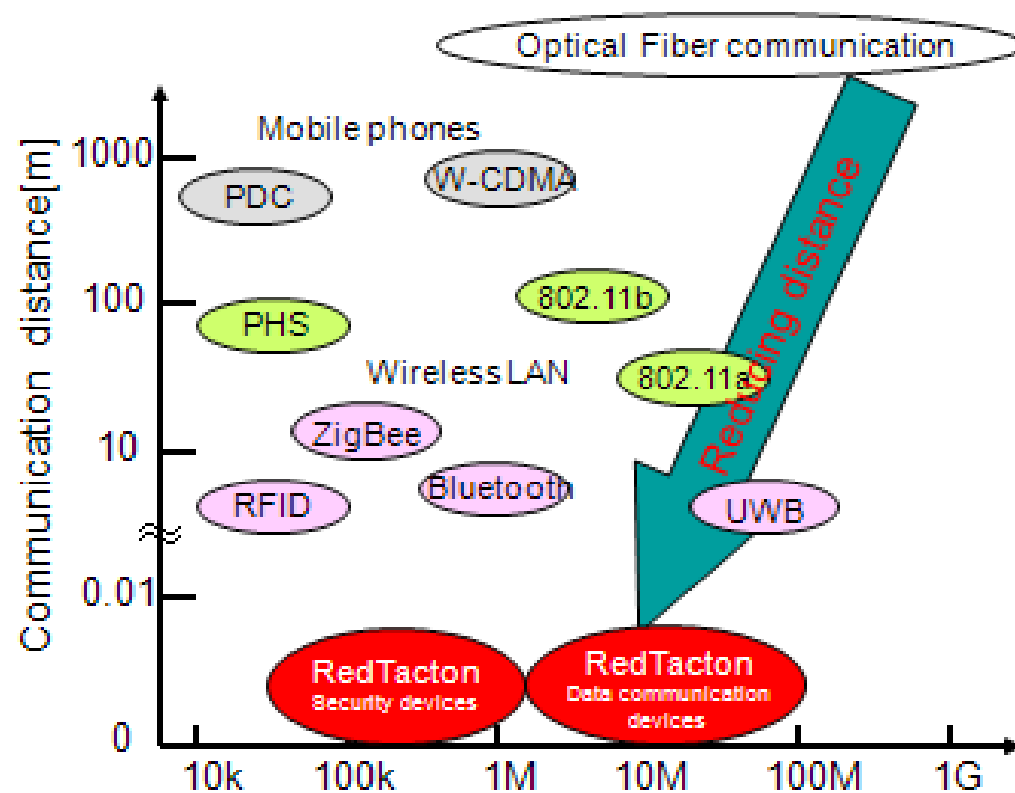
Confidential document management

- Automatic access log for confidential document storage.





Comparison with other network technologies



small PCMCIA card-sized prototype RedTacton transceiver

- Transmission rate: 10Mbps
- Protocol: TCP/IP
- Transmission method: Half-duplex
- Terminal interface: PCMCIA





Prototypes



Portable Card-Size Transmitter

- Transmission rate: 230Kbps
- Protocol: Proprietary protocol
- Transmission method: Unidirectional

Embedded Receiver

- Transmission rate: 230Kbps
- Protocol: Proprietary protocol
- Transmission method: Unidirectional
- External device interface: 10/100BASE-T, RS232C





Prototypes

Embedded Receiver

- Transmission rate: 10Mbps
 - Protocol: TCP/IP
 - Transmission method: Half-duplex
 - External device interface: 10BASE-T



USB Transceiver

- Transmission rate not yet determined
(in testing stage)

Note:

Microsoft last year patented a system for "transmitting power and data using the human body". It's based on the IBM concept, but MS sees the technology being used primarily for power, rather than data transfers.

“Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road.”

--Bill Gates

Conclusion

- ▶ I conclude that, when we compare Red Tacton with other technology present today it can give a better performance over others.
- ▶ And we can say that to connect the network with in short distances Red Tacton is best.
- ▶ In this technology there is no problem of hackers as our body is itself a media.

References:

- ▶ redtacton.com
- ▶ www.google.com
- ▶ [digit magazine](#)
- ▶ Physorg.com

ANY
QUERIES?

THANK YOU

JAZAKALLAH

ABDUL AZEEZ

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