

# MOBILE TO PC DATA TRANSFER USING INTRA BODY COMMUNICATION

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## ABSTRACT

There is the new concept of RED TATCON which makes the human body as a communication network by HAN(Human Area Network) .This paper describe a model of HAN technology that enables communication by touching .Using transmitter embedded Red Tacton send a 5V pulse along the surface of the body. The human body send most of this electricity to the receiver. The receiver decode them to recover the data. A transmission path is formed automatically when a person comes into contact with a devices & communication between mobile to PC begins. Here human body acts as a safe ,high speed network transmission medium supporting IEEE 802.3 half duplex communication at 10Mbits/sec.

### Keywords:

*Human Area network, Red Tacton, Intra body communication.*

to complete with Bluetooth zigbee, Infrared ,UWB (Ultra wide band)& other wireless communication.

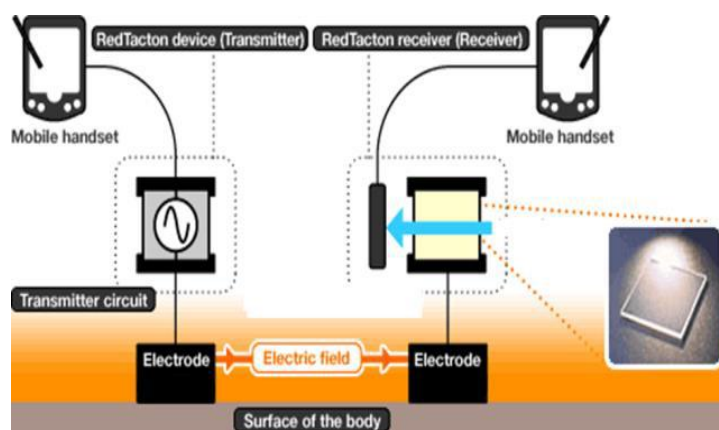


Fig 1 Red Tacton System

## I. INTRODUCTION

The concept of human body communication is completely distinct from wireless & infrared technologies as it uses the minute electric field propagated on the surface of human body. This technology was first proposed by Nippon Telegraph & Telephone Corporation(NTT in Tokyo).The transmiiter path is formed at the moment a part of the human body comes in contact with a Red Tacton Transreciever The ultimate human area network solution to all these constraints of conventional technologies is “Intra body “communication.In ubiquitous service (which imply communication between electronic devices embedded in the environment in close proximity to people).If we could use human body as an ideal wary communication medium because it would solve at a stroke all the problem including throughput reduction,loss security & high network setup cost .Touch & active gives Tacton & warn RED –A worm colour to emphasize warm & cordial communication .Io is gearing up

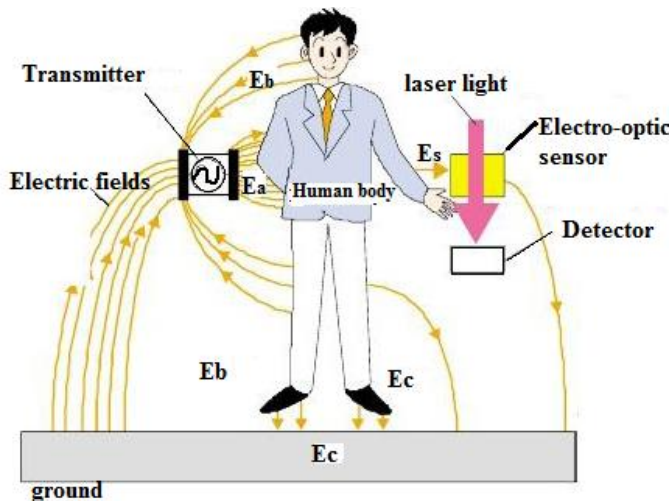


Fig 2 Overview of Red Tacton

A) Existing System:

Zimmerman was the first man who thinks that we can use human body as a medium for data transfer. The human body can work as a conductor itself so passing a small amount of amount of current through body will carry a data through it. The concept of intrabody communication was first proposed IBM in 1996. This communication mechanism was later evaluated & reported by several research groups around the world.

B) Drawbacks of Existing System:

All those reported technologies has two limitation.

- 1) The operating range was limited to a few centimeter through the body
- 2) The top communication speed was only 40bits/sec

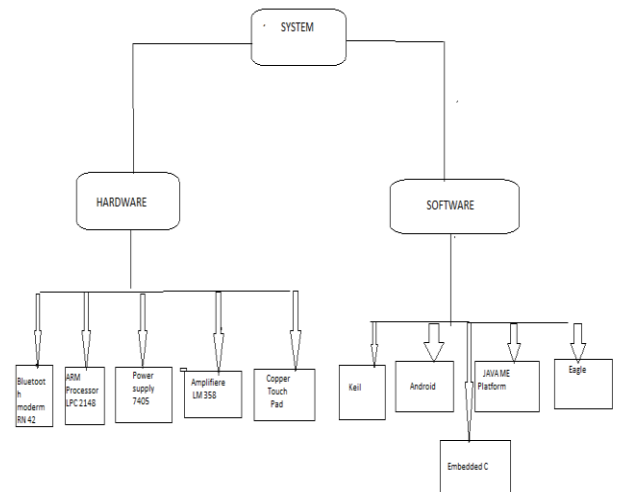
C) Proposed System:

These limitation were overcome by future innovation by NTT located in Tokyo ,Japan by photonic electric field sensor called "RED TACTON". Author has reworked on past system & develop electro-optic sensor free system using OPAMP as a transmission medium supporting IEEE 802.3 full duplex communication at 10Mbits/sec communication is possible using any body surfaces such as hans, finger, arms ,feet ,face ,legs etc.

III THE PROPOSED SYSTEM:

A) System Overview:

The above system will be divided into the following submodules or section.



B) Block Diagram

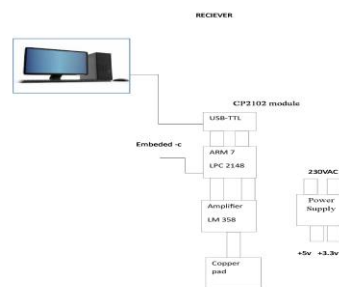
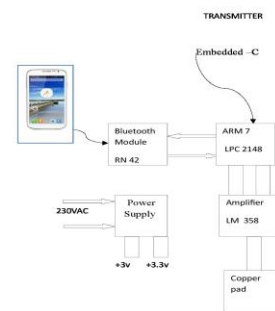


Fig 4 Block Diagram of Purpose System

C) *RED TACTON?*

• **Why Named RED TACTON?**

The name Red Tacton was chosen for this technology because ,”touch act on” meaning action triggered by touching”& the colour red to convey the meaning of warmth in communication

• **What is RED TACTON?**

Red Tacton is a new human Area Networking technology that uses human body as a safe high speed network transmission path. The first practical HAN between body electronic devices & PCs or other network devices embedded in the in the environment via a new generation of user interface based on totally natural human action such as touching ,holding ,sitting ,walking or stepping on a particular spot.

D) *Working Principle:*

The working of the system as below

1. The Red Tacton transmitter induces a change in electric voltage typically 0-5 Volt on the surface of the body.
2. The Red Tacton receiver senses changes in electric field on the surface of the body caused by the transmitter.
3. It relies on the principle of op-amp as voltage comparator varies according to the changes in the weak electric field.
4. It detects the changes in the voltage level properties of received signal using op-amp as voltage comparator and converts the result into an TTL signal in a detector circuit.

E) *Features:*

Red Tacton has three main functional feature

• **Touch**

Touching,gripping,sitting,walking,stepping & other human movement can be trigger for unlocking or locking ,starting or stopping equipment or obtaining data communication starts. When terminal carried by th user or embedded in devices are linked in various combination according to the users.

• **Broadband & Interactive:**

Interactive communication is possible at a maximum speed of 100Mbps.Transmission speed does not deteriorate in congested area where many people are communicating at the same time because transmission path is

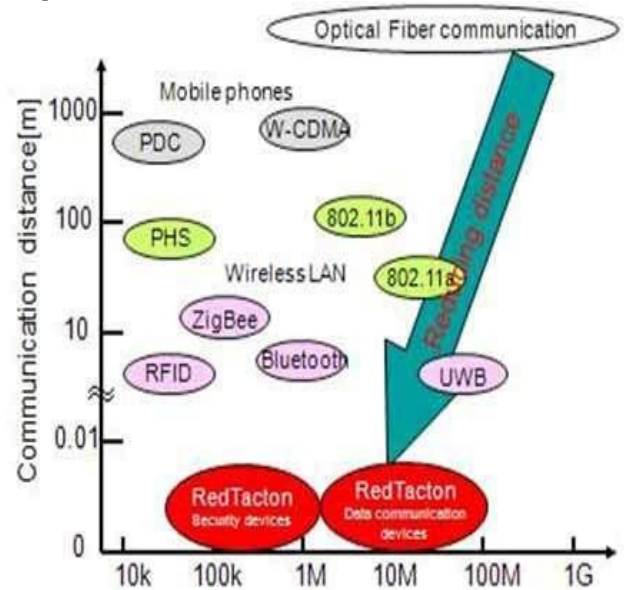
human body surface itself.Due speed ,device drivers can be downloaded instantly & execute program can be send.

• **Safety:**

Human safety is also omportant issue .The transmitting & receiving copper pad of the RED TACTON Transreciever are passing 0-5V,0.1mA.The body of person acting as transmission medium is completely in safe limit

- 1) Personalization
- 2)Touching Application
- 3)Automobile Application
- 4)Wireless Headset
- 5)Conference System
- 6) Security Application
- 7)User verification& unlocking
- 8)Automatic Access log

E) *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[3]. Wired communication transmits data between two connection points, so interception

is difficult and security can be considered to be high. However, connectors and cables are a nuisance. Taking the above points in account, RedTacton is situated directly between wireless and wired communication. In other words, RedTacton allows for easy connection without connectors, while at the same time allowing transmission of data only between two contact points. It thus has the feature of being difficult to intercept[8]. But Red Tacton employs a proprietary electric field/photonics method, which surpasses the other methods in terms of communication distance, transfer speed, and interactivity[6].

#### IV. SCOPE & APPLICATIONS

- 1) One-to- one service
  - An Alarm
  - Touch Advertising
- 2) Intuitive Operation
  - Touch a printer to print
  - Instant private data exchange
- 3) Personalization
  - Touching Application
  - Automatic Application
  - Wireless HeadSet
  - Conference System
- 4) Security Application
  - User Verification Unlocking
  - Automatic Access Log

#### V. ENHANCEMENTS

##### A. Limitations

As generally all systems have some limitation, here are some listed for the proposed system...

- 1) It has no compelling applications that aren't already available.
- 2) Too costly.
- 3) It can be useful within few meters.
- 4) Effects on human body is still under research.

##### B. Advantages

This system has certain advantages also as listed...

- 1) High-speed communication is possible between two arbitrary points on the body.
- 2) Body-based networking is more secure than broadcast systems, such as Bluetooth which have high range of about 10 meters.
- 3) Network congestion due to fall in transmission speed in multiuser environments is avoided.
- 4) Superior than Infrared technology
- 5) Use of minimum amount of power (3.3 Volts, 0.01 mA)
- 6) Communication by just a Simple Touch

- 7) No need of smart cards, connect cables, tuned frequencies
- 8) Transmission speed does not deteriorate in congested areas where many people are communicating at the same time.

##### C. Future Modifications

RedTacton looks remarkably like a big pot of kryptonite is said to allow over 1 Gbps of data through the 10 human hands or feet. Telecom giant 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.

#### VI. CONCLUSION

We investigated the principles and characteristics of intrabody communication with the op-amp and microcontroller. Based on the change in electric field distribution among a human body, transceivers, and the earth ground, we introduced a simple model that describes the intrabody communication system.

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