MOBILE TO PC DATA TRANSFER USING HUMAN AREA NETWORK

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I. 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 sends most of this electricity to the receiver. The receiver decodes 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.
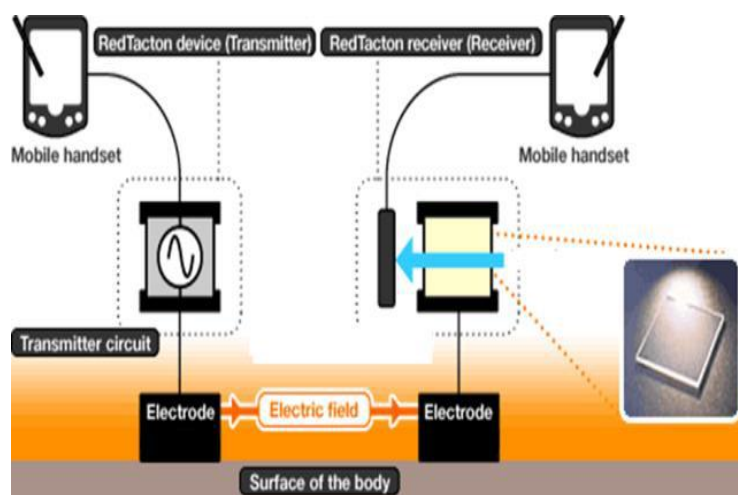
Fig 1 Red Tacton System

II. 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 transmitter 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 color to emphasize warm & cordial communication .Io is gearing up to complete with Bluetooth zigbee,Infrared ,UWB (Ultra wide band)& other wireless communication.
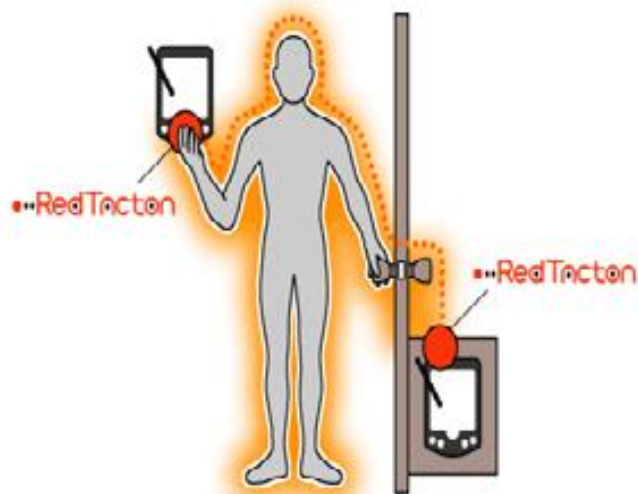

Fig 2 Overview of Red Tacton

III. BACKGROUND OVERVIEW

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 have two limitations.

1) The operating range was limited to a few centimeters 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.

IV THE PROPOSED SYSTEM:

A) System Overview:

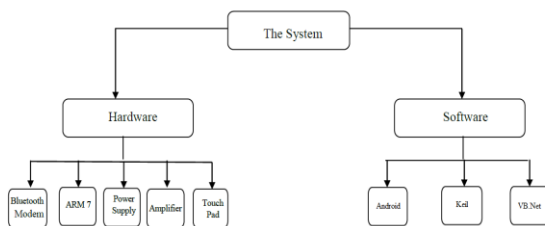The above system will be divided into the following sub modules or section.
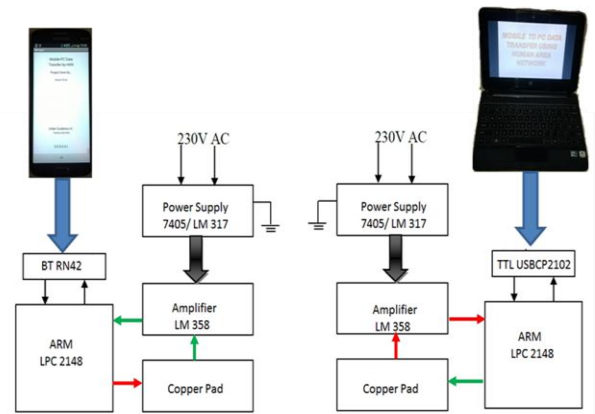
Fig 3.Systems overview

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 color 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.

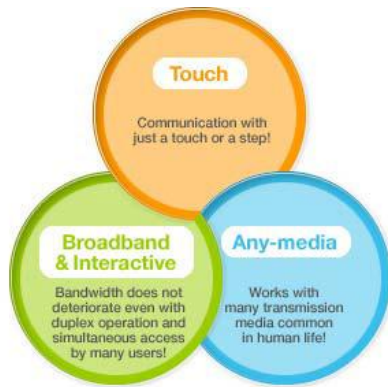### E) Features:

Red Tacton has three main functional Feature

Fig 5 Features of RED TACTON

- 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 the user or embedded in devices are linked in various combinations 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 important 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

F) *Comparison with Other Technologies*

	Evaluation criteria	Wireless				Infrared data communication	RED TACTON
		Wireless LAN	Close range wireless	Contactles IC cards	Passive wireless ID tag		
Communication performance	Transfer speed	E	P	P	P	P	E
	Performance deterioration during periods of consegation	E	P	P	P	P	E
	Duplex data transfer	E	E	E	P	E	E
User convenience	Data configuration at initiation of communications	E	E	P	P	E	E
	Tasks required at time of each communication	E	E	P	E	P	E
	Synchronization with user behavior	P	P	E	E	P	E

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, Red Tacton 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].

V. 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

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VI. 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

Red Tacton has a wide range of unique new functional features and enormous potential as a Human Area Networking technology [8]. 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.
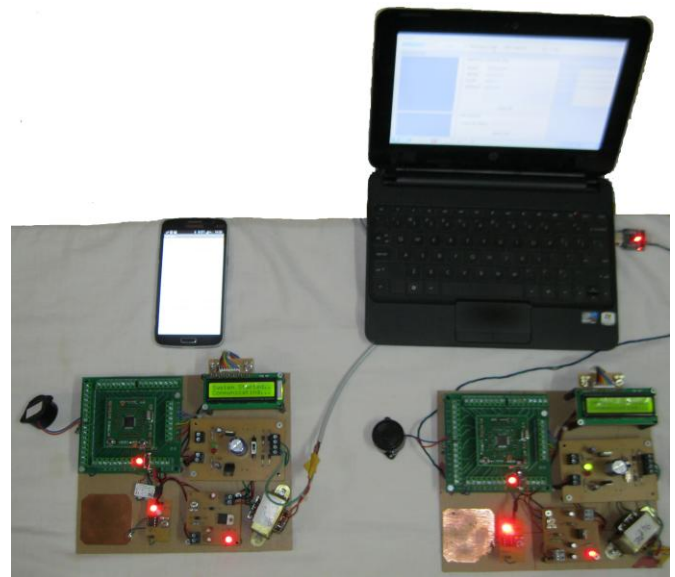
VII. RESULT

FIG 6 RESULT OF PROPOSED SYSTEMS

VIII. CONCLUSION

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, and 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. In the near future, as more and more implants go into bodies, the most important application for body-based networking may well be for communications within, rather than on the surface of, or outside, the body. An intriguing possibility is that the technology will be used as a sort of secondary nervous system to link large numbers of tiny implanted components placed beneath the skin to create powerful onboard or in-body computers. So we can conclude that this technology will change the future of wireless communication.

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