Red Tacton Technology

K. Subbulakshmi, S. Ramya, M. Jasmine

Abstract: All user friendly services need technologies that allow communication among people and object in a more closer proximity. This is possible through a distinct wireless technology called as – RED TACTON TECHNOLOGY. It is a human area networking technology, which was initially developed by Robbin Gaur Jind. This paper explains in detail about the working of technology and why it must be chosen over other technologies. We all know that wireless technologies like Bluetooth and infrared are over-rated now-a-days .Now researchers are trying to advance a new path for transmission of signals called Human Area Networking. This networking uses our body as a transmission medium to transfer data. It uses the electric field generated on the surface of the body. It detects the user’s physical movements and performs tasks according to the instruction given. When the transceiver comes in contact with the human body a transmission path is formed. Red Tacton works through shoes and clothing as well. Communication through body surfaces such as the hands,torso,feet,face,legs can be made possible using this technology. The human body itself acts as a transmission medium supporting half duplex communication at 10Mbps. Sensor equipped with an electro optic crystal and laser light is the major component of transceiver. Even communication plays an important role in the field of networking which has resulted into creation of many tools such as card readers in ATM pin .but the existing methods are not secure enough so if this technology is implemented in a right way then this can make all the control systems more secure and user friendly where human body acts as the only medium for transmission of data.

Keywords -RedTacton,Networking Technology, Transmission, Electroopticcrystal, Transceiver

I. INTRODUCTION

Communication in today’s world has become easier. People can convey and receive information from around the globe within seconds with the help of cellphone. Internet allows users to gather or download huge amount of data from even remote areas. All these technologies have made human communication and interaction more ambient. Wearable computers too are hectic and can get entangled. Wireless communications have started to overshadow the existence of such computers and other wired devices such as PDAs. Wireless communications over small range suchas Bluetooth(IEEE 802.11b)facesome problems in out comessas the signals can be intercepted in a crowded locality [1-5].

In addiontothis,therepresent modeofcommunicationfaces severechallengefromupcoming modeofcommunication whichisnothingbutus,the humanbeings.all the existing technologies are suffering from signal interception which plays a major problem in networking .with communication security playinga major role authentication and authorization is required.In order to support this requirement many tools have been created such as card readers in ATM,pin codes .but there was drawback that these tools were not fraud proof, we moved to biometric type of systems where the fingerprints and retina scans of the user helps him in accessing control .so we have seen that there are many methods followed all over the world. This paper is organized as follows : Section I describes about Red Tacton , Section II discusses about red tacton .Section III explains the working principle .Section IV discusses about features of red tacton . Section V discusses about the application in several aspects.In section VI comparison is done . In section VII future scope is discussed .section VIII gives the conclusion for this technology [6-8].

II. REDTACTON

The NTT labs in Japan are working on this challenging method known as the REDTACTON TECHNOLOGY. RedTacton represents action triggered by touching in this technology the human body serves as the medium for communication. This would be an advantageous way of implementing humanareanetworkasitcouldsortout allproblemssuchasreductioninthroughput, security problems,highnetwork setupcostsandseveralotherissues. Humanbodygenerates asmallelectricfieldwhichactsasthe transmittingmediumfordata.Inthis,smallchipcontaininga transmitterandreceiverito sendandreceivedataareembedded inourbody. Theinstantourbody partcomes in contact with theRedTactontransceiver,itisformstransmission path. The terminalsareeitherembedded intedevicesorsorcecarriedby theuseritself.In fig .(a) shows the schematic of the Red Tactontechnology Communicationcan bethrough any par ofthebody such ashands,legs orarms orany part ofthe body thistechnologyhastwolimitationswhichare1.range ofoperation throughthebodywasmightedofewtens of centimeters 2.highest communication range was only40Khbits/seconds. These were because of the use of electrical sensors. Electricalsensorconsistsoftowolines-1signalline and 1groundline [9-11].

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III. WORKING PRINCIPLE

Fig(b) explains the working principle of Red Tacton Technology.

The data sense circuit and transmitter circuit receive signals from the interface. The transmitter will now induce small electric field on human body surface. The data sense circuit detects the signal and in the presence of the data, it sends control signals to the transmitter. The transmitter circuit gets activated by this signal. The electric field on the surface of the body is varied by the transmitter circuit, which is identified by the electro-optic sensor. A transistor or photonic electric field sensor will be setup as the sensor for the electric field on the receiver part. This sensor detects the electric field and signal will be processed in receiver as well. This processed signal is the data to be downloaded. The signals, as the digital signals, depend on the variations in the induced electric field. As the electric field reduces very mild, high sensitivity sensing technologies are used in the receiver part. Apart from the electric field induced, there will be other small or unstable electric fields on the surface of the body. These will be natural and will be automatically sent back to earth [12-15].

IV. FEATURES OF RED TACTON

A. Touch Feature

In this, communication is done with a simple touch. Physical movements such as walking, gripping, touching are all used as triggers for various processes of the equipment. These processes include START and STOP of the equipment, data retrieval, locking and unlocking data.

B. Broadband Feature

The ideal speed using this method is 10 Mbps for broadband communication, which is constant for full-duplex communication. The speed of communication will not be affected even in case of multiple communications since the transmission of signal takes place through human body.

C. Anymedium

Besides human body, there are several other conductors which can be used for communication.

Fig(c) explains the features of red tacton technology in a diagrammatic form.

V. APPLICATIONS

A. An alarm sound to avoid accidental medicine intake

A red tacton transceiver is placed in the medicine bottle which transmits the information about the medicine. When the user picks the wrong medicine, an alarm is triggered. The alarm buzzes only when the user comes in actual contact with the medicine bottle.

B. Touch advertising and information reception

The attribute of the consumer is displayed automatically when they touch or stand in front of the advertising panel they are interested in.

Fig(d) explains the various applications of red tacton technology.

C. Payments made easy

Our phone numbers are stored in various shops and billing starts automatically when our transmitter comes in contact with their receiver.
D. Advanced car features
Theseaposition andsteeringwheelheightareadjusted automaticallyaccodingtodriver'sdesirejustbysettinginthecar[5].The driver'shomeisalsotsetdestinationinthecar navigation system. Driver'sfavoriteongsalsoplayedas soonasheerrentsthcar.

E. Conference system
Byembeddingan electricallyconduitsheetonthehtable the networkconnection inourlaptopisinitiatedsoonasthetable laptopisplaced on thetable. Changeinsheetpatterns enables to segmenttheableintosubnets

F. Security application
WhentheusercarriesaRedTacton supporting deviceinhis pocketandtouchesthedoorknob, hisidentity isverifiedand the door is unlocked. It can be made more secured by includingpersonalverification toolssuchasfingerprints or otherbiometricsinmobileterminal.

G. Military applications
One red tacton transceiver can be placed in the un which is programmed to the other transceiver that is with the soldier. In this way only that particular soldier can fire the weapon. This reduces the misuse of stolen weapons and decreases the black marketing of weapons [16-18].

VI. COMPARISON WITH OTHER NETWORKS

In Fig.(e) the comparison of this technology is done with other existing technologies. When compared withwiredtransmission RedTactonrequires higherrateofphysicalconnection fordatatransmission when moreusertyotretrievedatafrom thesingle sourcethe physicalconnections become difficultbutitwouldnotaffect the securityofthedata.

Hence we infer that Red Tacton technology lies in between wireless andwiredcommunication. Itprovidesmaximum security anddataHenceweinferthatRedTactontechnology liesinbetweenwirelessandwiredcommunication. Itprovides maximum securityand data transfer without the use of physicalconnections thesecurityishigh andthedatais transferred only between twocontactpoints. Transferwithout thereuseofphysicalconnectionsthesecurity ishigh andthedata is transferredonlybetweentwocontactpoints.Fig(e)gives thecomparison of redtactontechnology with otherwireless technologies.

ADVANTAGES
1. Data transfer is faster and easier through this technology
2. Datalossduringtransfersisless
3. Useofminimum amountofpower(ofsomemillivolt range)
4. Securityismore
5. Lesscharging
6. Itdonotrequiretheelectrode tobeindirectcontact withtheskin
7. Thetransceiversareprogrammable andwe candecide what tosharewithwhom andwhat devices youcommunicatewith.
8. Noproblemofhackers.itisveryhardtopickupstray electronicssignalsradiatingfromthebody.

DISADVANTAGES
1. It will be comparatively expensive
2. Continuous use of this technology may cause harm to the bodyasituseselectricfieldsontothesurfaceofthe body [19,20].

VII. FUTURE DEVELOPMENTS
WhenausercarryingaRedTactondeviceoranyspecialcard walkthroughrailwayverification gate, the data will pass throughtheuser'sclothingorshoes whichcanunlockthegate . It has manyother futureapplicationsuchas personalized cabinets which opens for authorized person, choosing our favourite channels by television remote controls, unlocking car doors with our personalized keys which does not allow access to outsiders. It ensuresthatalonely the driver can opentheircarbytouchingthedoors the keys areintheirpockets . It has otherbenefits likeshar ingfilesor imagesamonggroupofpeoplewithoutanydelay .When it comes to securing personal informationsuchasbankdetails, important passwords RedTactonplaysavitalroleby providingdatabasedonthe service. In this technology data can be transferredatspeedof10mbps. Inthiswaywireless data transmission and communication in future is taken to differentheightsbyprovidingmore security and abundant features.

VIII. CONCLUSION
Red Tacton technology is an advanced method in human area networking. It uses human body as the transmission path based on the electric field sensor which uses a laser light and electro optic crystal. While the present objective of this technology is to introduce a network supporting two way Intra-body communication between any two points on the body a rate of 10mbps, the longer term plans include to enhance the portability by bringing down the size and also by decreasing the power consumption.
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