

Red Tacton Based Decision Making Algorithm for Human Body Area Networks

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ABSTRACT

A cellular phone user count keeps on increasing globally and universal installation of corresponding wireless network increased as a whole. Present and futuristic healthcare applications. All the human beings will be able to send complete medical information from any location, apart from getting medical guidance remotely. Thus based on Wireless Body Area Network (WBAN) highly personalized signal monitoring system is proposed. The proposed allows the incorporation of diverse medical sensor via wireless connection and live transmission of the measured vital signals over public wireless networks to healthcare providers. The TOPSIS, Integer Linear Programming Fuzzy Logic are analyzed effectively. RedTacton is an innovative technology which makes the biological body into a secure transmission medium from one node of the body to another node. Red Tacton makes utilization of residually less electric field discharged on the skin of the human.

KEY WORDS: HEALTHCARE, COMMUNICATION, TOPSIS, SAFE TRANSMISSION.

INTRODUCTION

Information is obtained through a photonic electric field sensor which is associated with an electro-optic crystal and a laser light. This is used to sense variations that are present in the miniature electric field. The electronic field which happens naturally on the human body is dispersed into the earth (Kumar and Ramesh 2019). Hence, it is remarkably weak and unbalanced. NTT has established a photonic electric field sensor which is used to permit the feeble electric fields by using a laser beam (Sen 2015). The data sense perimeter and the transmitter perimeter receive the signal from the crossing point. The information sensing perimeter intelligences the gesture. This triggers the transmitter perimeter if the data is existing and then leads the control signal (Yang 2015).

The transmitter circuit differs the electric field on the outward layer of our body. This modification in the electric field is sensed by the electro-optic device (Bogdanov et al. 2007). The output of the electro-optic sensor is specified to the detector circuit, which in turn given to the crossing point of the getting RED TACTON device.

1. Literature Survey: (Washiro et al. 2016) proposed that by evolving electric field antenna for electric inductive coupling the electric RFID communication via the biological body is achieved. By transmitting the power via the human hand, Passive human body communication is comprehended. By converting magnetic field to electric field, the RFID to human body communication can be adopted. Battery-less and rapid reaction is achieved in HBC with current RFID reader/writers and IC tags. It is small in size and transmission loss is low. But RFID communication is covered very small distance.

R. Rajarajeshwari, R. Meenakshi, S. Soundharya, G. Susmitha, R.C. Yuva bharathi proposed that in the era where monitoring of health has become a requirement, Red Tacton transceiver will be of excessive usage to public persons. The proposed system has capability to cover a wide range of advantages to patients, care taker, doctor

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and society through continuous monitoring. It also helps to give immediate aid to the patients when the doctor is remote through the nursing place. It is safe and Secure transmission and accuracy is improved and less time consumption and also reliable. But it gives less distance coverage of transmission and electrodes are partially grounded and also consumes high power and does not facilitate remote access to the patient.

(Govindaraajan et al. 2009). RedTacton is an upcoming technology which is used for networking of human area. This makes the technology more feasible by including biometric concepts and information reliability (Govindaraajan et al. 2009). Thus, among the trending technologies, RedTacton technology will reach great heights and will prove its noteworthy. It is also not dependent on ground it is installed. Unwanted high frequency signals interference is one of the drawbacks of this technology.

On body health tracking is a distance on the go monitoring network with a sensor crowd swaps health information with wearable hub. through HBC. b) HBC-HMI: Human Machine Interaction via energetically created HBC network through Human Machine Interaction. This is utilized for reliable data collection through the wearable Hub till a medical hub/device for supplementary specialist care (Maity et al. 2017). The emergence of affordable sensors with implantable body area networks with internet of things like Electrocardiogram, pressure sensor, diabetic sensors to keep an eye on essential body parameters. These sensor values are not accuracy and can be used only for bio medical application.

MATERIAL AND METHODS

Swift reduction in size with prize reduction of processing, and also availability of on body sensors given way to the development of Body Area Network (BAN). Wearable health monitoring is one such solution in which the sensor data are collected and sent to the healthcare assistant or doctor for continuous monitoring of sick/diseased people (De Cannière et al. 2009). Due to continuous and instantaneous monitoring of patient's energy drains soon and energy insufficiency raises.

Comparatively with WBAN, Human Body Communication (HBC) practically using very less amount of biological body as the communication medium to link the devices. This is the safest and efficient way to communicate. Due to the increasing health problems of humans, it is important to monitor the human health (De Cannière et al. 2009). The main progress in the health field is, monitoring the affected human's health without making any contact i.e, wireless.

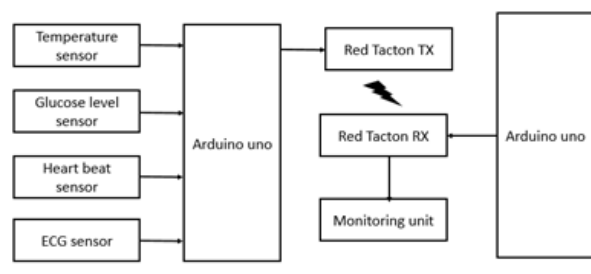
System Components:

Hardware

- Arduino Uno
- Temperature sensor
- Glucose level sensor

- Heart beat sensor
- ECG
- Red Tacton pair

Figure 1.1: Block diagram of proposed system



Software

Arduino IDE and Arduino c

RedTacton is considered as a great achievement to people which is given by NTT. For a business development process to be coordinated, with the most achieving promise, NTT is engaged to identify and open up the application part sooner.

Two-way communication is possible in the RedTacton electro-optic sensor. When the throughput is till 10Mbps, it is easy to achieve from a starting point to the ending point over the body. The data can be communicated and travelled through the user's clothes and belongings till the RedTacton device that is embedded in the floor (Cho et al. 2017). This will work out even if there is huge crowd of people and also if they're communicating at the same time. When the number of paired users' increases, the transmission path increases the number of unique channels.

1.3.1 . Advantages of Proposed System

- Between two arbitrary points in the body, high speed communication is possible.
- Data transfer is easier, safer, faster.
- Power consumption is less.
- The skin doesn't require a direct contact with the electrode.
- To connect with the minimum distance network, RedTacton technology is the best.
- Since we use our biological body as a media, there is no need to worry about security the issues.

RESULTS AND DISCUSSION

1.5. Comparison with Other Network Technologies:

The below diagram clearly displays the correct state of RecTacton with the other network technologies that are existing today.

For minimum distance communications, RedTacton is very helpful. When it is compared with wi-fi, it has great advantages. Wi-fi technology may lead to security threats since it can be very easily hacked by others (Cho 2017; Poonguzhali & Chakravarthy 2018). Hence, extra security measures need to be included in wi-fi communication.

But, RedTacton does not have any security problems like wi-fi. But the RedTacton technology needs physical connection for transmitting the data. It is strongly recommended than the wi-fi communication in order to avoid security threats (Wegmueller 2010).

Figure 1.2: Hardware set up Prototype of Proposed System

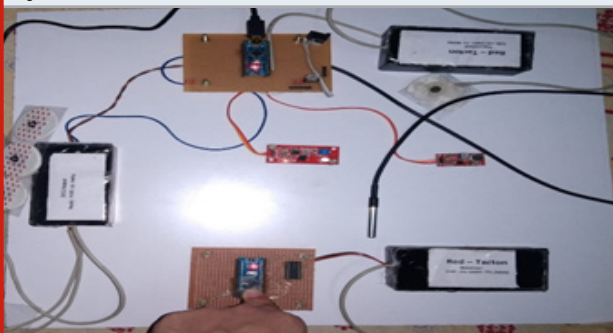


Figure 1.3: Connecting both the Arduinos with the system with the help of Arduino cable

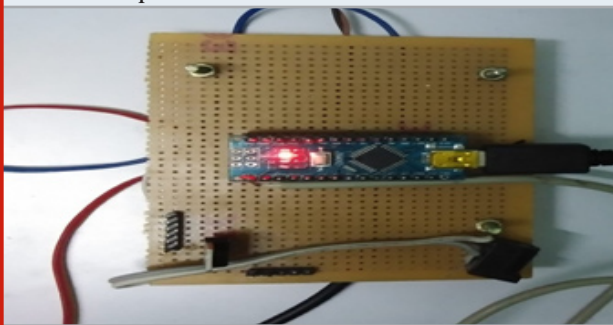


Figure 1.4: Output Values of Various Sensors

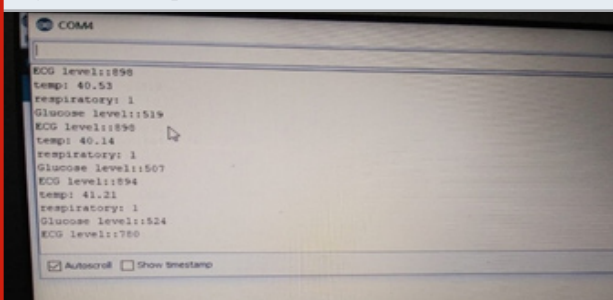


Figure 1.5: Realtime Measurement of the values

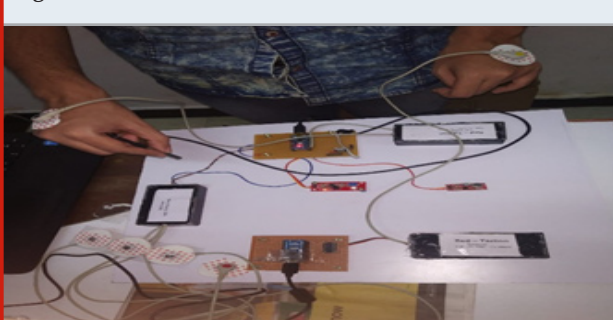
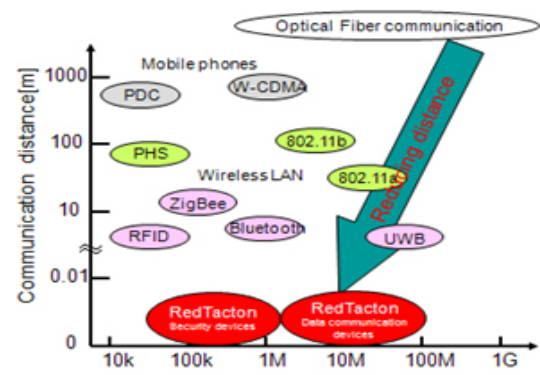


Figure 1.6: Comparison with other Systems of Communication



CONCLUSION

Hence a novel approach support system has been developed for the global population ages, for senior citizens and the dangerous situation people (Sen 2016; Poonguzhali 2016). Development project presented in this article suggests, to read the health condition of the patient. Easily and quickly doctor can response for that readings from the patient (Poonguzhali 2016). No need to waste his time just he can touch the body of the patient then the read data should be share to the doctor. A new system is planned for a commercial launch by Nippon Telegraph and Telephone Corp. This system is used to relieve the user from searching their belongings for ID cards or keys (Poonguzhali 2018). Without even taking the card out, the user can very easily enter the room just by making contact with the door knob or standing on a particular place. This is done because, the data is triggered to travel through the belongings of the user. This can be implemented in many other ways in future like ticketing gate, authorized cabinet etc. This system is used to enhance security (Kumar et al. 2019; Poonguzhali and Chakravarthy 2018). It is also used in car systems to make sure that the drivers alone can open the car by touching the door provided that the key is placed in the driver's belongings. Hence, evolution of RedTacton technology is a great achievement that will be implemented in many fields in future.

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