INTERSECTION AND COHERNCE BASED SYNCHRONIZATION FOR BODY SENSORS NETWORK

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ABSTRACT
In this research done we have conducted study which aims at identification of problems related to health network, Where are based on human body sensor network technologies, in paper we have found that the main problem faced ether than energy power consumption is time delay. The signal must maintain their shape as weak as must reach on same time line to the control room. The problem occur due to multiple reasons .One the main reason is capturing of signals start occurring at different times.

KEYWORDS:-*Time synchronization, Wireless body sensor network (WBSN)*

I. INTRODUCTION

Internet of things is a scenario in which objects, animal or people are provided with unique identifiers and the ability to transfer data over a network without required human or human to computer interaction. It is concept that makes body network possible. These sensors have application in medical field. When attached or ingested with human or animal body, they can capture human bio medical vital signal of the subject, these bio signals may captured from special/target part of human body like heart. The signal from heart are called Electrocardiogram (ECG) Body sensor network (BSN) are distributed system where biosensors nodes are distributed in different positions to collect health data from the human body and deliver the information to a remote medical centre. Due to medical data regulations security of body sensor network (BSN) is very important .Biosensors nodes BSN have limited features and traditional security technologies need upgrading in context of Wireless sensor network are providing interface for the disabled integrated patent monitoring diagnostics also drug administration in hospitals monitoring movements and internal process of insects or other small animals Tele-monitoring of human physiological data and tracking and monitoring doctors and patents inside a hospitals. The body sensors network are composed of some biosensors nodes which are micro scale electronic equipments integrated with biosensors and wireless transceivers. These biosensors nodes are implanted in the human body, and are designed to measure divers physiological values including blood pressure, electrocardiogram , blood oxygen level, activity recognition . In BSN ,a wireless micro network formed by biosensors nodes, can provide with two convenient services one is automated continuous human monitoring the other is intelligent treatment , such as drug delivery that can execute injection of drug automatically. Wireless sensors to e-health have the regulation of E-health. E-health refers to healthcare practice supported by electronic processes and communication because data exchanged in e-health contain a great deal of sensitive health information the health insurance portability and accountability mandated that e-health data must be protected [1].

II. ORGANIZATION OF PAPER

This paper will discuss about the issues and problems related to development of body sensor network and it also discusses about coherence and intersection. In the research gaps section in which we will

discuss about how to build a solution which is based on fuzzy logic for committing refresh data to the monitoring system. In the conclusion section in which we will use coherence metric checks the shape reliability of signal like ECG also discusses about the intersection method of time series for synchronization and reducing time lag and last but not least this paper will discuss about future direction along with proposed algorithm which will work on the time lag and aligning the signals.

III. LITERATURE SURVEY

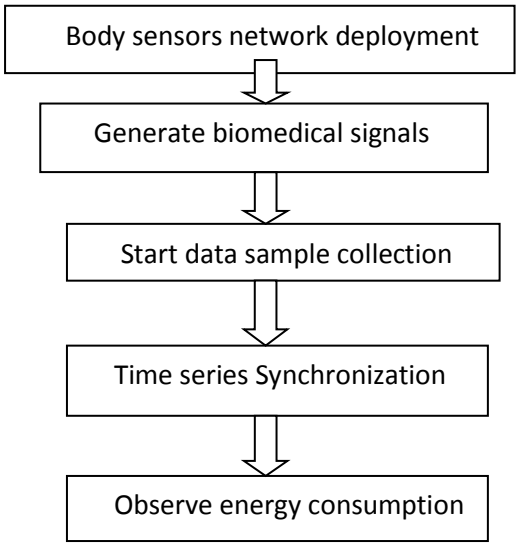
Huawei Zhao[1] They proposed An Energy Efficient Key Management Scheme for Body Sensor Network .In this paper the have authors build Body sensor networks (BSNs) in distributed way where biosensor nodes are fixed in different positions to collect health data from the human body and deliver the information to a remote medical centre. Due to medical data regulations, security of BSNs is very important. However, the operational resources of biosensor nodes in BSNs are very restricted, and traditional security technologies are not directly applicable to BSNs. Due to characteristics of biosensors, time synchronization and low-energy communication are two challenging problems for BSNs. In this paper, a fuzzy commitment technology with weak time synchronization mechanism for keys negotiation has been developed, with a multi hop route key management scheme proposed for efficient energy consumption management, including an energy-based multi hop route choice method. Security analyses and performance evaluation have been provided to validate the proposed scheme. Wireless body area networks consist of wireless sensor nodes attached to the human body to monitor vital signs such as body temperature, activity or heart-rate. The network adopts a master-slave architecture, where the body-worn slave node periodically sends sensor readings to a central master node. Unlike traditional peer-to-peer wireless sensor. networks, the nodes in this biomedical WBASN were not deployed in an ad hoc fashion. But were positioned at particular target body part to build a network topology(Mesh). Typically in WBSN a network is centrally managed and most of the communications are single-hop but multi hops also may occur. To reduce energy consumption, all the sensor nodes are in standby or sleep mode until the centrally assigned time slot is assigned. Once, a node joined a network, there is no possibility of collision within a cluster as all communication is initiated by the central node and is addressed uniquely to a slave node. To avoid collisions with nearby transmitters, a clear channel assessment algorithm based on standard listen-before-transmit (LBT) was used. Using single-hop communication and centrally controlled sleep/wakeup times leads to significant energy reductions for this application compared to more flexible network MAC protocols such as 802.11 . As duty cycle was reduced, the overall power consumption approaches the standby power. **Mohammed Mana [3],** They proposed Trust Key Management Scheme for Wireless Body Area Networks. In this paper researchers tacked about advances in wireless sensor networks and embedded computing technologies and miniaturized of pervasive health monitoring devices .In addition to providing continuous monitoring and analysis of physiological parameters, the recently pro- posed Wireless Body Area Networks (WBAN) incorporates context aware sensing for increased sensitivity and specificity. A number of tiny wireless sensors, strategically placed on the human body, create WBAN that can monitor various vital signs, providing real-time feedback to the user and medical personnel. The wireless body area networks promise to revolutionize health monitoring. Since, the sensors collect personal medical data, security and privacy are important components in this kind of networks. It is a challenge to implement traditional security infrastructures in these types of lightweight networks, since they are by design limited in both computational and communication resources. **Hussein Mamaghanian[4]** They proposed Compressed Sensing for Real-Time Energy Efficient ECG Compression on Wireless Body Sensor Nodes. In this paper the author tacked about Wireless body sensor networks (WBSN) that hold the promise to key enabling information and communications technology for next-generation patient-centric Tele-cardiology or mobile cardiology solutions. Through enabling continuous remote cardiac monitoring, they have the potential to achieve improved personalization and quality of care, increased ability of prevention and early diagnosis, and enhanced patient autonomy, mobility, and safety. However, state-of-the-art WBSN-enabled ECG monitors still fall short of the required functionality, miniaturization, and energy efficiency .Among others, energy efficiency can be improved through embedded ECG compression, in order to reduce airtime over energy-hungry wireless links. In this paper the researchers quantify the potential of the emerging compressed sensing (CS) signal acquisition/compression paradigm for low-complexity

energy effiecient ECG compression on the state-of-the-art Shimmer WBSN mote .More specifically, while expectedly exhibiting inferior compression performance than its DWT-based counterpart for a given reconstructed signal quality, its substantially lower complexity and CPU execution time enables it to ultimately outperform DWT-based ECG compression in terms of overall energy efficiency. CS-based ECG compression is accordingly shown to achieve a 37.1% extension in node lifetime relative to its DWT- based counterpart for "good" reconstruction quality

IV. RESEARCH GAP

From the systematic literature survey, It is clear that this is new thrust area for research due to energy constrains issues. The problem , However is that specific to body sensors and its application to health monitoring is that limited work has been found specially in area of building a secure key management with lowest possible energy consumption trade off. Typically in the previous work the researcher have tried to build a solution which based in fuzzy logic for committing refresh data to the monitoring system and the basic interpolation to overcome the time lag problem ,therefore, new methods additional parameters may be consider algorithm can help to improve the trade off between security and energy needs of body sensor network. This can be done by using technique that uses synchronization process to improve energy consumption efficiency while maintaining the shape of signal the best way is measure the signal for its quality shape using better measurement parameters like intersection and coherence.

4.1 Typically problem solving in WBSN



Phase1-Body sensors network deployment: is re an analytical devices use to convert biological response to electrical signal. The body sensor network basically distributed network where biosensors nodes are distributed in different positions to collect health data from the human body target parts.
Phase2 - Convert it from biological response. Generate biomedical signals when body sensor node are attached to a human body they collect the data from the body.
Phase3 - Start data sample collection : The next step is to collect data of human body vital statistics with the help of body sensor nodes and monitoring device.
Phase4 - Time series synchronization algorithm: In the forth phase run fuzzy commitment algorithm and improved time series synchronization.
Phase5 - Observe energy consumption factors: In the fifth phase observe energy consumption pattern while running the complete network setup.

V. CONCLUSION

Not all method of transmission of human body sensors maintain the shape as the signal may get distorted to due interference etc. Most of the previous methods are not vectorized and are iteration

based it which chance for improvement. More over data is to collected from multiple sources and must be secured with key management where may lead to high complexity of algorithms with large overhead delay or time log in sending and receiving time series data of respective biometric reading control stallion . There for there is sample option to simplify the process and reducing complexity and still maintain high security for future scope. We can use coherence metric that checks the shape reliability of signal like ECG in consumption with intersection method of time series for synchronization for reducing time lag and aligning the signals before they finally processed for health monitoring and algorithm check the energy consumption.

VI. FUTURE SCOPE

In this researcher work .we done a systematic study on the issues problem faced by the engineer for building body sensor networks, one of the main problem in this is time synchronization. When multiple sensors were together for sending the shape of signal as well delay are two main problem that need to be addressed. Hence, for future scope We suggest metrics like 'cohernce' may be used for checking the integrity of signal been transmitted over network.

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