

BSN- HEALTH MONITORING WEARABLE DEVICE

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ABSTRACT

The body sensing element network (BSN) is one among the foremost imperative technologies used in IOT-based trendy aid system. It's essentially a set of low-power and lightweight wireless sensing element nodes that are accustomed monitor the frame functions and surroundings. The most objective of project is to supply a secure IOT-based modern aid system mistreatment Body Sensing element network. BSN nodes are accustomed collect sensitive (life critical) data and will operate in hostile environments; consequently they need strict security mechanisms to stop malicious interaction with the system. At rest we tend to propose a secure IOT based mostly aid system called BSN-Care which might guarantee to evidently accomplish those needs. We aim to provide continuous patient observation, in-ambulatory, in-clinic and open surroundings monitoring.

Keywords: Internet of Thing, BSN, Data Privacy, WSN, Wearable Devices.

1. INTRODUCTION

70% of the world's population over six billion folks is predicted to measure in cities and suburbia. To survive as platforms that modify economic, social and environmental well-being, a town has to be sensible, i.e. one that "uses info and communication technologies to create the important infrastructure elements and services of a town administration, education, healthcare, public safety, land transportation and utilities. This is often technologically predicted on the rising web of thing (IOT) a radical evolution of this web into network of interconnected objects that not solely harvests info from the setting and interacts with the physical world. The new integrated Sensor-Actuator-Internet framework can type the core technology around that a wise town is going to be formed.

Rising the potency of attention infrastructures and medical specialty systems is one in every of the foremost difficult goals of contemporary society. In fact, the necessity of delivering quality care to patients whereas reducing the attention prices and equivalent time, coping with the nursing employee's shortage downside could be primary issue. IOT technologies square measure goal the event of sensible systems to support and improve healthcare and biomedical-related processes. In this article, initially we tend to address the many security needs in BSN Health observation wearable device. Then, we tend to propose a secure IOT primarily based aid system victimization BSN, which might guarantee to with efficiency accomplish those needs. In section II we tend to describe literature survey which has survey of the different paper supported doctor of theology health and wearable device. In section III we tend to gift definition of our paper. In section IV, we tend to gift our BSN- Health observation wearable device implementation and architecture. In section V, we tend to gift system design. In section VI we conclude our paper.

2. LITERATURE SURVEY

Jayavardhana Gubbi [1], offered plan concerning the communication and networking problems with an IOT, by distinctive spec for potential good town applications, then process and satisfying the corresponding performance metrics. Attributable to a spread of system protocols of wired, wireless and hybrid kind in an exceedingly dynamic

networking atmosphere, IOT presents totally different quality of service requirement from typical homogenized network. Prosanta Gope [2], offered many security necessities in BSN based mostly fashionable BSN, referred to as BSN-Care, which may guarantee to with efficiency accomplish those necessities. This paper describes concept of emergency case notification and response and navigation of nearby hospitals. Orlando Arias [3], offered the IOT manufactures are aware of the privacy and security implications, security in IOT devices is either neglected or treated as an afterthought. It Provide common IOT device design methodologies and possible pitfalls that may be encountered in the process. From second paper we got to know how to implement privacy and security in our paper by knowing deferent constrains of security and privacy encryption algorithms. This paper consist IoT secure protocols, network protocols and hardware based protection and also gives information about wearable device and security algorithms. Chakravorty [4] designed a mobile healthcare project called Mobicare in 2006. It provides a wide-area patient monitoring system that facilitates continuous and timely monitoring of the patients physiological status. There are issues about the security and privacy. Harvard Sensor Network Lab [5], during this design many sensors square measure placed on patient's body and sense the patient body And transmit it wireless to the end user device such as PDA, laptops and personal computer. Code blue's authors acknowledge the requirement of security. University of Virginia[6], this research is specially designed for patient health monitoring in the assisted-living and home environment sensor network. In this system, occurrence of attack which can leak resident's location.

2.1 PROBLEM DEFINITON

Current IOT and wearable device literature usually treats IOT from a network perspective or provides solutions that are inherently incompatible with the requirements of a manufacture. Few works are printed discussing the protection of IOT devices themselves. Within the medical field, many sensors to judge differing kinds of significant signs (i.e. heartbeat, body pressure, temperature, ECG and motion) are developed, so enabling the planning of innovative services able to well improve citizens tending.

3. SYSTEM ARCHITECTURE



Figure 1. Secure IoT-based Modern Health monitoring architecture

4. IMPLEMENTATION

BSN consists of in-body and on-body sensor networks. An in-body sensor network allows communication between implanted devices and base station. On the other hand, an on-body sensor network allows communication between wearable devices. In this paper, used wearable sensors, every device node is integrated with biosensors like heart rate, temperature etc. These sensors collect the physiological parameters and forward them to a organizer known as android app. This app works as a router between the BSN nodes and the central server known as BSN-care server, exploitation the wireless communication mediums like mobile networks GPRS. Besides, once the app detects any abnormalities then it provides immediate tuned in to the person that carrying the device. When the BSN-Care server receives data of an individual (who carrying the device) from app, then it feeds the BSN knowledge into its database and analyzes those knowledge data. Later on, supported the degree of abnormalities, it should act with the relations of the person, local physician or emergency unit of close-by tending center.



Figure 2:Arduino Uno board with temperature and heart rate sensor

Figure 2 is the arduino board., which consist analog and digital pins. It also consist microcontroller.arduino Uno board the main connectivity of the system is done through it . The BP sensor is connected to D2 pin. The Bluetooth is connected to the arduino to the transferring of data from sensor .The various information will be transferred from sensor to app and that app information will be transferred to doctors app. The information will be checked by the doctor and it will prescribe treatment for the same.

4. CONCLUSION

BSN Health Monitoring wearable device which is able to continuously monitor the patient's heart beat temperature and other critical parameters in the hospital and also described the security issues in healthcare applications using body sensor network. Subsequently, we found that even though most of the popular BSN based research projects

acknowledge the issue of the security, but they fail to embed strong security services that could be preserve patient privacy, Finally we proposed secure health monitoring wearable device using BSN.

5. REFERENCES

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