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A Survey on Health Monitoring System by using IOT

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Abstract: ***IOT devices is used in many fields which make the user's daily life more comfortable. These smart sensors devices is used to collect heartbeat which is used to assess the health condition of the patient. Communicating the collected information to the doctor, making exact decision on the data collected and notifying the patient is the challenging task in the IOT. This paper will give you a comparative study on health detection and monitoring of the patient.***
Keywords: IOT, Security, Tools

I. INTRODUCTION

Recent years have seen a rising in wearable sensors and today several devices are commercially available for personal health care and activity awareness. A recent health care system should give better health care services to people at any time anywhere in an affordable and patient friendly way. Currently, the health care system going to change from a traditional approach to a modernized patients centered approach. In the traditional way the doctors play the major role. For necessary diagnosis and advising they need to visit the doctor. There are two basic problems related to this approach. Firstly, the health care professionals must be in place of the patient all the time, the patient remains admitted in the hospital, wired to bedside biomedical instruments, for a long period. In order to solve these two problems the patient oriented approach has been received.

Recent information from United Nations predicted that there will be 2 billion older people by 2050. In addition, research indicates that above 89% of the aged people are likely to live independently. However, medical research found that above 80% of the aged people older than 65% suffers from at least one chronic diseases making them to have difficulty in taking care of themselves. Accordingly, providing a decent quality of life for aged people as become a serious social issue at that moment. The rapid proliferation of information and communication technologies is enabling innovative healthcare solutions and tools that promise in addressing the above challenges.

Now, Internet Of Things (IOT) has become one of the most powerful communication paradigms of the 21st century. In the IOT environment, all objects in our daily life become part of the internet due to their communication and computing capabilities. Heart rate is one of the fundamental physiological limits, essential for monitoring and diagnosis of patients. To keep people effective and healthy, a readily accessible modern health care system is proving to be effective in saving costs, reducing illness and prolonging life. In this paper, an enhanced healthcare monitoring system is described, that is smart phone based and designed to offer wireless approach and social support to participants.

II. INTERNET OF THINGS(IOT)

Internet of Things (IOT) driven health and wellness monitoring system enables remote and continuous monitoring of people, with applications in chronic conditions, such as obesity, hypertension, diabetes, heart failure, stress, preventive care and wellness. Medical care and healthcare represents one of the most attractive application areas for the IOT. Digitization and the increasing connectivity between devices, citizens and their meaningful way. Smart manufacturing becomes the norm in industry 4.0, where intelligent machines are network so they can exchange and respond to data to independently manage industrial production. The internet of things is a transformational concept. In 1999, Kevin Ashton, co-founder of the Auto-ID Center at the Science Institute of Technology, envisioned an Internet of Things based on RIFD chips that could enable "things" to communicate with each other. IOT breaks the confines of traditional computer networks and establishes connections directly with objects in the physical world. The core concept of this phenomenon is that IOT allows for "things" to connect to the Internet, ranging from the significant –airplanes, elevators, solar panels, medical equipment-to the mandate-toys, soap dispensers and porch lights.

The IOT paradigms can play a significant role in improving the health and wellness of subjects by increasing the availability and quality of care, and grammatically lowering the treatment costs and frequent travel. The IOT driven healthcare system employs networked by biosensors to simultaneously collect multiple physiological signals and wireless

connectivity to share or send gathered signals directly to the cloud diagnostic server and the caregivers for further analysis and clinical review. Further, the IOT enabled remote monitoring applications can significantly reduce travel, cost and time in long-term monitoring applications.

In the health and wellness monitoring environment, the IOT has emerged as one of the most powerful information gathering and sharing paradigms for personalized healthcare systems, ambient assisted living, uses posture detection, and activity recognition. Compliance with treatment and medication at home and healthcare providers is another important potential application. In this paper, the core concept is based on IOT, the information sensed from the sensors are gathered and transmitted to the smart phone through IOT.

III. IOT APPLICATIONS OF HEALTHCARE

Infirmity/Condition	Sensors used: Operations: IOT Roles/Connections
1. Diabetes	A non-invasive opto-physiological sensors.
2. Wound analysis for advanced diabetes patients	A smartphone camera: image decompression and segmentation.
3. Heart rate monitoring	BLE and Wi-Fi connect smart devices through an appropriate gateway.
4. BP monitoring	A wearable BP sensor: Oscillo-metric and automation inflation and measurements.
5. Body temperature monitoring	Wearable body temperature sensor; skin based temperature measurement
6. Wheel chair management	WBAN sensors(eg: accelerometers, ECG and pressure)
7. Cough detection	A built in microphone audio system in the smartphone
8. Remote surgery	Surgical

IV. RELATED WORKS

A. A Reliable IOT system for personal healthcare devices

In this paper, describes a reliable one M2M based IOT system for healthcare devices .In the proposed one M2M based IOT system for personal healthcare device is constructed, and evaluated in various experiments. Some personal healthcare device data is too precious to lose due to system failures under u-healthcare environments. However, until now, few studies have focused on fault tolerance health data services. Therefore, it proposed a fault tolerance algorithm for the reliable IOT system in which gateway on the same layer in the system combine to form a daisy chain for fault tolerance at the level, and a gateway stores a backup copy of the previous gateway positioned immediately ahead of the gateway in the daisy chain. It may system get suffer a serious performance degradation from conversion process.

B. Tensor Decomposition for Monitoring Multi-person breathing beats with commodity WIFI

Breathing signal monitoring can provide important clues for health problems, compared to existing techniques that require wearable devices and special equipment's, a more desirable approach is to provide contact free and long term breathing rate monitoring by exploiting wireless signals . This experimental study shows that tensor beat can achieve high accuracy under different environments for multi person breathing rate monitoring data's are not secured, if multiple users can use single WIFI it leads to slow in speed.

C. Real time Tele-monitoring of patients with chronic Heart failures using a smart phone

This paper describes the smart phone based system for real time tele-monitoring of Physical activity inpatience with chronic heart failure. It proposed monitoring in the real world that examines its requirements, privacy implications, usability and other challenges**.** Enquanted by the participants and health care providers. Although the system was designed for tele-monitoring individuals with CHF, the challenges, privacy considerations.

D. A Wireless Health Monitoring System Using Mobile Phone Accessories

This paper presents the design and prototype of wireless health monitoring system using mobile phone accessories. It focuses on measuring real time Electro Cardio Gram(ECG). And heart rate monitoring using a smart phone case with the increasing number of

Cardiac patients world wide, this design can be used for easily deduction of heart disease. Disadvantage of this method, patient data's collected by the phone even though it is not secured.

E. Accurate Heart Rate Monitoring During Physical Exercises Using PPG

Challenging task of heart rate estimation from the Photo Plethysmo Graphic(PPG) Signal , during intensive physical exercises, is tackled in this paper. Additionally, an offline version of the HRE stimulation algorithm that uses viter by decoding is designed for scenarios that do not require online HR Monitoring. Disadvantages of this system, implementation is complex.

F. Smart Self Regulatory Health System

Healthcare industry has proven its technically abundant applications at other industries with the help of many concepts like IOT and cloud computing. It has transformed its techniques by using intelligent gadgets that can be acquainted with patients in different configurations. This commences the preferences of using IOT based smart devices to deliver more valuable data to the patient.

G. A novel IOT based health monitoring system using LPC2129

The focus on this paper is to implement IOT based health monitoring transportable system for the measurement of the heart rate and body fat, using LPC2129 Arm processor Development board. This paper describes a transportable system with wireless transmission capabilities.

H. An IOT based E-Health Monitoring system using ECG signal sign in or purchase to view full text

An IOT based healthcare system implementation scheme using Hidden Markov model(HMM) chain and Electro-Cardiogram(ECG) sensors within the context of E-health. Intervention for Cardio Vascular Disease (CVD) patients thereby enhancing medical services for such patients.

I. IOT based application for E-health an improvisation for lateral rotation

Internet of Things has penetrated into our day to day activities in one way or the other IOT application provides a huge opportunity for application in health care system, improving patients quality life. The combination of embedded systems, sensors and actuators associated with constant monitoring of patients.

J. Real time patient monitoring system based on Internet of Things

The remote monitoring systems include, vehicle or assets monitoring, kids/pets monitoring fleet management, water and oil leakage, energy grid monitoring etc. Critical condition of a patient by processing sensors data and instantly provides push notification.

K. IOT based patient information monitoring system by using RFID technologies

Wireless body Area Networks (WBANs) and Radio frequency identification are important components of IOT systems. The combination of embedded systems, sensors and actuators associated with constant monitoring of patients.

V. CONCLUSION

In this paper, various mechanisms and algorithms were discussed for healthcare monitoring using IOT. This system overcomes the disadvantages from the existing mechanism by making it a more efficient method to monitor the health parameters of patients. This system has the advantage of less cost, less analysis, time, low power consumption. By this, the accurate and effective measurement of heart rate of patients is possible and makes an efficient system in the field like medical. Wireless sensors data will be sent to server using IOT with secure.

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