

## SECURE AND SAFETY HEALTH CARE MONITORING BASED ON IOT

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### ABSTRACT

In this paper we have Propose the secure and safety health care monitoring system based on IoT . Internet of things serves the healthcare and plays a wide range of healthcare monitoring applications. Network sensor devices either worn on the body or embedded in living environments , making possible of gathering rich information to evaluate physical and mental health condition of the patient. This proceeding system consists of temperature and gyro sensor for monitoring temperature condition and patient moment. Then monitoring parameter uploads the information gathered on IoT. Redtacton concept is implemented for safe and secure health monitoring purpose by passing these collected information to the doctor and making an accurate decision on the collected data and notifying the patient is an challenging task in the Internet of things .

**Keywords :** Gyro sensor , Temperature sensor , arduino uno chip , Redtacton .

### 1.INTRODUCTION

The IoT is generally considered as connecting objects to the Internet and using that connection for control of those objects or remote monitoring. IoT plays vitae roles on educations, Business, Entertainment, Social Networking, Shopping, E-Commerce etc. The upcoming new mega trend of Internet is Internet of Things (IoT). Visualizing a world where several objects can be sensed, communicated and share information over a Private Internet Protocol .The interconnected objects collect the data

at regular intervals, analyze and uses to initiate required action, providing an intelligent network for analyzing, planning and decision making. The complete concept of IoT stands on sensors , gateway and wireless network which enable users to communicate and access the application or information. It may be among all the regions , no place that the IoT offers more prominent guarantee than in the field of health awareness. As a saying goes "Health is wealth" it is exceptionally crucial to make utilization of the innovation for better

wellbeing. Consequently it is obliged to add to an IoT framework which gives secure health awareness checking.

### 1.1 INTERNET OF THINGS

The Internet of Things (IoT) is the network of devices which allows things to connect, interact and exchange data. IoT involves extending Internet connectivity beyond standard devices, such as desktops, laptops, smartphones and tablets, to any range of traditionally dumb or non-internet-enabled physical devices and everyday objects. Embedded devices with technology can communicate and interact over the Internet, and they can be remotely monitored and controlled. The definition of the Internet of things has developed due to convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems. The traditional fields of embedded systems, wireless sensor networks, control systems, automation including home and building automation, and others all contribute to enabling the Internet of Things.

### 1.2 HOW IoT WORKS

An IoT ecosystem consists of web-enabled smart devices that use embedded processors, sensors and communication hardware to collect, send and act on data which they acquire from their environments. IoT devices share the sensor data which they have collected by connecting to an IoT gateway or other edge device where data is either sent to the cloud to be analyzed or analyzed locally. Sometimes, these devices

communicate with other related devices and act on the data they get from one another. The devices do most of the work without any human intervention, although people can interact with the devices – for instance, to set them up and give them instructions or access the data. The connectivity, networking and communication protocols are used with these web-enabled devices which are largely depend on the specific IoT applications deployed.

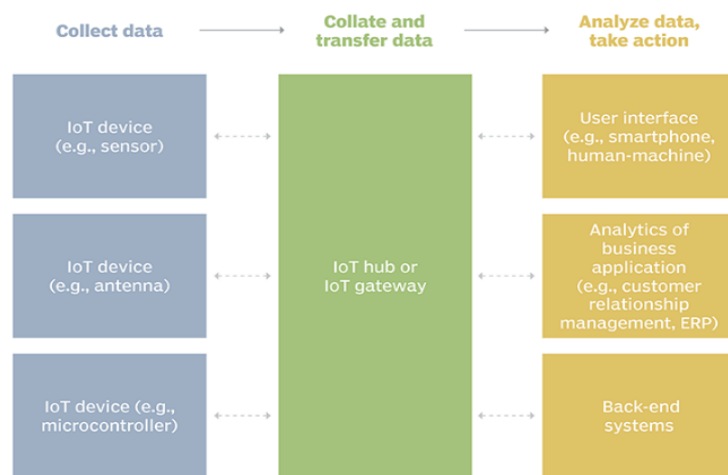


Fig1.2: Example of an IOT system

### 1.3 BENEFITS OF IoT

The internet of things offers a number of benefits to organizations, enabling them to: monitor their overall business processes;

- improve the customer experience;
- save time and money;
- enhance employee productivity;
- make better business decisions;

IOT encourages companies to rethink the ways they approach their businesses, industries and markets and gives them the tools to improve their business strategies.

#### **1.4 IoT SECURITY AND PRIVACY ISSUES**

The internet of things connects billions of devices to the internet and involves the use of billions of data points, all of which need to be secured. Due to its expanded attack surface, IoT security and IoT privacy are cited as major concerns. One of the most notorious recent IoT attacks was Mirai , a botnet that infiltrated domain name server provider Dyn and took down many websites for an extended period of time in one of the biggest distributed denial-of-service (DDoS) attacks ever seen. Attackers gained access to the network by exploiting poorly secured IoT devices. Because IoT devices are closely connected, all a hacker has to do is exploit one vulnerability to manipulate all the data, rendering it unusable. And manufacturers that don't update their devices regularly -- or at all leave them vulnerable to cybercriminals.

#### **1.5 IOT APPLICATION AREAS**

Near Field Communication (NFC), Radio frequency Identification (RFID), Machine-

to-Machine Communication (M2M) & Vehicle-to-Vehicle Communication (V2V) are the technologies by which IOT is being implemented exponentially. It is assumed that more than 50 billion IoT devices will be connected through internet. It is going to change human life, working style, entertaining ways and many more. IoT have many Applications Areas and domain of these application are increasing day by day. There are some examples on applications of IoT as follow:

- Smart Cities , Building & Home automation , Environmental Monitoring , Automotive Industry , Smart Retail , Smart Agriculture , Smart Industry , Energy Management , Healthcare Monitoring .

## **II. LITERATURE SURVEY**

**1. Tuan Nguyen Gia, Mingzhe Jiang, Amir-Mohammad Rahmani “Fog Computing in Healthcare Internet of Things: A Case Study on ECG Feature Extraction”, 2015 IEEE International Conference on Computer and Information Technology.**

Internet of Things technology provides a competent and structured approach to improve health and wellbeing of mankind. One of the feasible ways to offer healthcare

services based on IoT is to monitor humans health in real-time using ubiquitous health monitoring systems which have the ability to acquire bio-signals from sensor nodes and send the data to the gateway via a particular wireless communication protocol.

**2. Geng Yang, Li Xie, MattiMäntysalo “A Health-IoT Platform Based on the Integration of Intelligent Packaging, Unobtrusive Bio-Sensor and Intelligent Medicine Box”IEEE Transactions on Industrial Informatics- 2013.**

In-home healthcare services based on the Internet-of-Things (IoT) have great business potential; however, a comprehensive platform is still missing. In this paper, an intelligent home-based platform, the iHome Health-IoT, is proposed and implemented. In particular, the platform involves 1) an open-platform-based intelligent medicine box (iMedBox) with enhanced connectivity and interchangeability for the integration of devices and services, 2) intelligent pharmaceutical packaging (iMedPack) with communication capability enabled by passive radio-frequency identification (RFID)

**3. Antonio J. Jara, Miguel “Interconnection Framework for m-Health and Remote Monitoring Based on the Internet of Things” IEEE Journal On Selected Areas in communications, 2015.**

Communication and information access defines the basis to reach a personalized health end-to-end framework. Personalized health capability is limited to the available data from the patient. The data is usually dynamic and incomplete. Therefore, it presents a critical issue for mining, analysis and trending. For that reason, this work presents an interconnection framework for mobile Health (m-Health) based on the Internet of Things. It makes continuous and remote vital sign monitoring feasible and introduces technological innovations for empowering health monitors and patient devices with Internet capabilities.

**4. Lili Liu, Ioanis Nikolaidis “Smart homes and home health monitoring technologies for older adults: A systematic review” International Journal of Medical Informatics 91 (2016) 44–59.**

Around the world, populations are aging and there is a growing concern about ways that older adults can maintain their health and well-being while living in their homes. The aim of this paper was to conduct a systematic literature review to determine: (1) the levels of technology readiness among older adults and, (2) evidence for smart homes and home-based health-monitoring technologies that support aging in place for older adults who have complex needs. Results: We identified and analyzed 48 of 1863 relevant papers. Our analyses found that: (1) technology-readiness level for smart homes and home health monitoring technologies is low; (2)

the highest level of evidence is 1b (i.e., one randomized controlled trial with a PEDro score  $\geq 6$ ).

**5. S.Sivasakthi, A.Rajeswari “Wearable Sensors in Health Monitoring Systems” International Journal of Advanced Research in Basic Engineering Sciences and Technology-2017.**

Recent years have perceived an increase in the progress of wearable sensors for health monitoring systems. This increase has been due to several issues such as development in sensor technology as well as focused efforts on political and investor levels. In this system is about study of how the data is treated and processed. This paper provides latest methods and algorithms used to analyze data from wearable sensors used for physiological monitoring of vital symbols in healthcare services. This paper outlines the data mining tasks that have been applied such as prediction, anomaly detection and decision making when considering in particular continuous time series measurements and detailed about the suitability of particular data mining .

**III. PROPOSED SYSTEM**

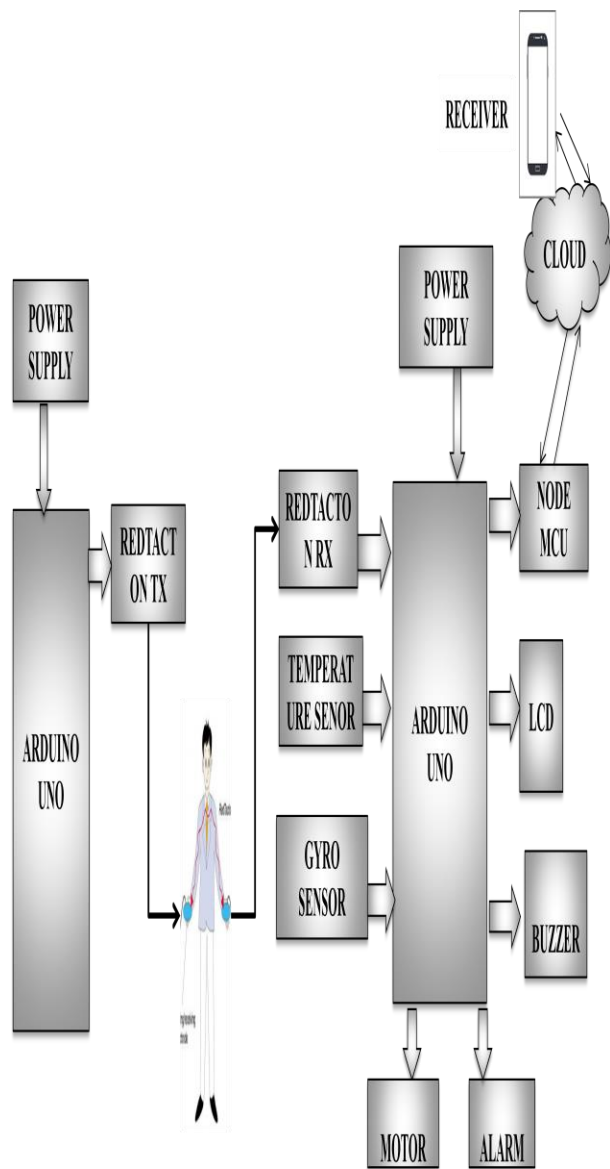
Proposes the secure health care monitoring system based IOT technology. Proposed

system consists of wearable sensors like temperature and gyro sensor for monitoring the patient parameters like temperature and patient body moment. The measured information are monitored through IOT and displays on LCD display .For the purpose of safety and secure monitoring, Redtacton technology is implemented which is installed on doctor and patient. Before the doctor enters patient room the details about the doctor is displayed on LCD and also uploaded to IOT.The main idea of this system transmitting the data through the webpage to continuous monitoring of the patients over internet. In this system we used arduino uno Microcontroller it collects the data from the sensors and sends the data through IOT. The Protected data sent can be access anytime by the doctors by typing the corresponding exclusive IP address in any of the Internet Browser at the end user device (ex: Laptop, Desktop, Tablet, Mobile phone). The Microcontroller is connected to IOT. LCD is connected to microcontroller to display the transaction process and healthcare data.

**ADVANTAGE**

High efficiency , High security and Authorized access only.

**3.1 PROPOSED BLOCK DIAGRAM  
TRANSMITTER SIDE / RECEIVER  
SIDE**



**VII. CONCLUSION**

In the wide use of internet, this work is used to implement the internet technology to establish a system which would communicate through internet for better health monitoring. Internet of things is expected to rule the world in various fields but more benefit available in the field of healthcare monitoring. Hence present work is done to design an IOT based safety and secure healthcare monitoring system. This system can be installed with the wearable sensors for monitoring patient health condition. Microcontroller picks up these health parameter data and send it through the internet. Redtacton technology is implemented for safety and secure health care system.

**VIII. REFERENCES**

1. Tuan Nguyen Gia, Mingzhe Jiang, Amir-Mohammad Rahmani “Fog Computing in Healthcare Internet of Things: A Case Study on ECG Feature Extraction”, 2015 IEEE International Conference on Computer and Information Technology .

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4. Lili Liu, IoanisNikolaidis “Smart homes and home health monitoring technologies for older adults: A systematic review” International Journal of Medical Informatics 91 (2016) 44–59.
5. S.Sivasakthi, A.Rajeswari “Wearable Sensors in Health Monitoring Systems” International Journal of Advanced Research in Basic Engineering Sciences and Technology-2017.