

IoT Based Senior Citizen Monitoring

Siva Rohith K¹, Mrs. S. Shenbagavadivu², Jeeva D³, Karthick P⁴, Manoj A⁵

UG Student, Department of Information Technology^{1,3,4,5}

Assistant Professor (Se L. G), Department of Information Technology²

SRM Valliammai Engineering College, Chennai, India

Abstract: *Monitoring numerous medical indicators and post-operative data is crucial. The use of internet of things (IoT) technology in healthcare communication to obtain patient medical parameters in nearby and remote locations has been modified. This project's primary goal is to wirelessly communicate the patient's health monitoring parameters. These input data are uploaded to a cloud server and sent to a computer and a mobile device for the benefit of family and doctors. The internet of things has emerged because of improvements in information and communication technology (iot). Since they are used in a variety of medical fields (including monitoring in real time, patient information management, and healthcare administration), iot technologies are convenient for doctors and patients in the contemporary healthcare setting. The network of bodily sensors.*

Keywords: Sensors, node MCU, Arduino, Ubidots, IOT Technology

I. INTRODUCTION

The latest model, known as the IoT, is a digital phenomenon that improves market efficiency, affects how we live our daily lives, and strengthens the effectiveness of legislation. When the IoT first began, Ordinary objects are more intelligent and play a big part in the infrastructure environment. This thriving integrated system is a promise to pursue a broad range of technical, commercial, and social applications, from a typical clever street lamb to a challenging city, or else from an efficient manufacturing gadget to an intricate clever factory. IoT has significantly improved and had considerable effects on the healthcare systems in one important area. The use of IoT and other information and communication technologies in the field of healthcare research has shown several advantages of ongoing health monitoring. An IOT-based solution Although it lacks the ability to modify safety parameters, it has a fall detection accelerometer as well as a continuous voice alarm for effective safety alarm. We-care, a wireless IoT-ready solution, was created to help seniors live in better conditions .This makes patients accessible to medical experts and trained carers while assisting them in tracking and gathering vital information. Although it lacks the ability to modify safety parameters, it has a fall detection accelerometer as well as a continuous voice for an effective safety alarm. We-care, a wireless IoT-ready solution, was created to help seniors live in better conditions makes patients accessible to medical experts and trained carers while assisting them in tracking and gathering vital information.

II. LITERATURE SURVEY

The proposed system has undergone extensive research and references across numerous articles and conference papers over the course of the last ten years. IOT, AI, and other areas are the subjects of study and survey recommendations. These sources are presented below, along with a more thorough analysis of them. [1]. Fall Detection Model Enabled by the Internet of Things and Deep Learning for Smart Homecare – In order to detect falls in older persons receiving home care using smart technology, a new IMEFD-ODCNN model has been developed. The IMEFD-ODCNN architecture enables intelligent IoT devices to DL algorithms are used in smart homes to identify falls when they occur. The proposed IMEFD-ODCNN model goes through several stages of processing, including data collection, pre-processing, feature extraction using Squeeze Net, parameter adjustment using SSO, and classification using SSOA-VAE. An immediate notice is sent to the hospital administration and carers after the fall is detected. The use of the SSO algorithm to choose the Squeeze Net model's hyperparameters and the SSOA algorithm to change the parameters of the VAE model significantly enhances the performance of fall detection as a whole. A substantial number of simulations are run using the UR fall detection dataset. [2]. We-Care: An IoT-based Health Care System for Elderly People -There is growing interest in creating solutions for the elderly living assistance in a society with an accelerated population

ageing. The Internet of Things is a brand-new reality that is fundamentally altering our way of life. It also holds the potential to drastically transform modern healthcare by providing a more individualised, proactive, and collaborative approach to treatment. In order to connect these two crucial subjects, this study offers an IoT- ready solution for elderly living assistance that can track and record patients' vital signs as well as offer mechanisms for setting off alarms in case of emergencies. this work offers an IoT- ready solution for elderly living assistance that can track and record patients' vital signs and have mechanisms in place to sound alerts in an emergency.

[3]. IOT based Smart Health Care Medical box for Elderly People-IoT (Internet of Things) in the medical sector seeks to keep people safe, secure, and healthy, where as the major purpose of our project is to step-down the cost of healthcare in the upcoming future, the healthcare field is uninspiring in taking up IoT (Internet of Things) than the other fields. The iot-based smart healthcare system has been suggested here, and it will include a medicine box with intelligence connected to servers and sensors for regular health monitoring. The iot- based smart healthcare system has been suggested here, and it will include a medicine box with intelligence connected to servers and sensors for regular health monitoring. [4]. IoT Based Remote Health Monitoring System for Patients and Elderly People -With the help of simple-to-use applications for virtual and remote contacts with patients, Internet of Things technology is significantly increasing the accessibility and affordability of the health sector, which is helping it develop. By using IoT technology, it is feasible to get beyond the challenges that physically unstable patients have while trying to visit a doctor on a regular basis. It is possible to get around the challenges that physically unstable patients have while trying to physically consult a doctor on a regular basis by taking into consideration the capabilities of IoT technology. [5]. Internet of Things (IOT) Monitoring System for Elderly - By facilitating far easier-to-use applications for virtual and remote interactions with patients, Internet of Things technology is helping to expand the health industry by making healthcare much more accessible and inexpensive. The challenges faced by physically unstable patients in physically consulting a doctor on a regular basis can be overcome by taking into consideration the potential of IoT technology. This proposed method has a lot of potential and would enable elderly people to live healthily and safely at home even if the number of senior people worldwide is increasing.

III. METHODOLOGY

Technology for Sensor Networks

Body sensor network (BSN) technology is one of the most important technologies used in the lot-based modern healthcare system. It primarily consists of a group of wireless sensor nodes that are lightweight and low-power and are used to track the activities of the human body and the environment. BSN nodes need rigorous security measures to prevent unauthorised access to the system because they are used to gather important (life critical) information and may operate in hostile circumstances.

Storing the data in Cloud

The sensor node's raw data has been uploaded to the server. Users can get information from the server. Cloud storage plays an important role in improving the proposed solution's portability, interoperability, and accessibility by allowing it to work in areas without internet access. In the event of an Internet outage, data is temporarily stored on Online storage. Data from the archive is transferred to the server based on the availability of an Internet connection. Here is the architecture that enables the proposed solution to work in remote areas with no internet connection. Participation in the cloud improves the proposed architecture's accessibility, portability, and interoperability.

Deliver alerts to carers in urgent circumstances.

In contrast to IOT technology, data transmission speed is significantly slower. It will therefore be challenging to transfer the data at such time. establishing a threshold limit across all sensors. In order to track medical conditions without interfering with patients' daily activities, these sensors are applied to the human body. These health-related parameters are then transmitted to a doctor's server via IOT technology. These sensors are placed on the patient's body to monitor their health without interfering with their normal activities. Then, a doctor's server receives these health-related parameters using IOT technology. It collects and trains the data.

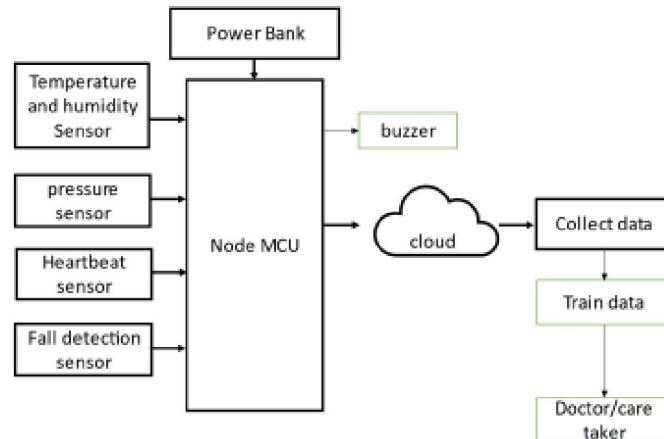


Fig 2 Architecture Diagram

IV. PROPOSED SYSTEM

The researcher created a health monitoring system using an Arduino microcontroller and a Body Area Sensor Network in this case (BASN). The sensors are employed in this experiment. Sensors for measuring the temperature, pressure, humidity, fall detection and heartbeat. They are situated as sensors. With IOT technology, these health-related parameters are then sent to the doctor's server in order to monitor the patient's health without interfering with their regular activities.

1. It is possible to set time-related events.
2. Setting the authentication level is possible.

V. OUTPUT RESULTS

It was created to keep track of health. This system demonstrates IoT architecture and a remote health monitoring architecture based on IoT. The Internet of Things and current health monitoring both have some issues. By establishing greater quality and a web-based security paradigm, new technologies could help to reduce them. This system outlines potential issues and difficulties. This project has covered new technologies and approaches that are already being utilised to enhance IoT applications.

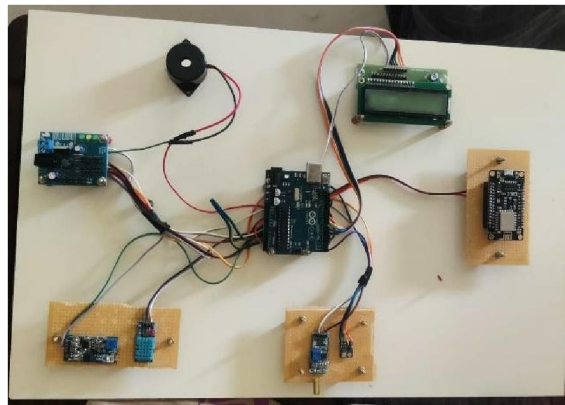


Fig 3 shows the sensors connection.

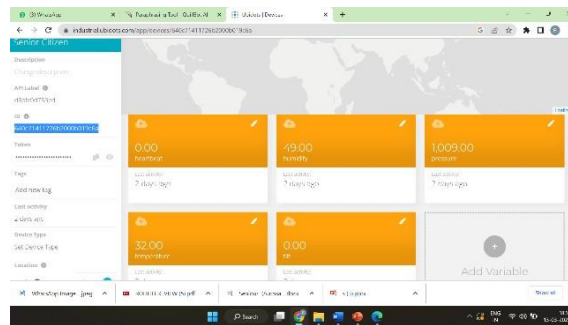


Fig 4 shows the output(persons data)

VI. CONCLUSION

The Internet of Things has numerous uses in various industries. Body wireless sensor network IoT is already intended for (BWSN). It was created to keep track of health. This system displays the architecture of the Internet of Things and the Remote, as well as IoT-based health monitoring. Both the Internet of Things and current health monitoring have flaws. By establishing greater quality and a web-based security paradigm, new technologies could help to reduce them. This system outlines potential issues and difficulties. This project has covered new technologies and approaches that are already being utilised to enhance IoT applications. using the internet of things to check health. IoT and current health monitoring have certain issues. By obtaining greater quality and a web-based security paradigm, new technologies may be able to reduce them.

VII. FUTURE SCOPE

To combat such situations, medical IoT devices and applications can collect vital data and transmit it to doctors and health personnel for real-time tracking. Furthermore, these mobile applications and IoT devices can send notifications regarding a patient's critical conditions regardless of location or time

REFERENCES

- [1] Darshan K R, Ananda Kumar K R-“A Comprehensive Review on Usage of Internet of Things (IoT) in Healthcare System” Department of Computer Science & Engineering, SJBIT, Bengaluru .Visvesvaraya Technological University, Belagavi Karnataka, India.
- [2] Ngo Manh Khoi, Saguna Saguna, Karan Mitra and Christer A° hlund- “System for IReHMo: An Efficient IoT-Based Remote Health Monitoring Smart Regions” Lule°a University of Technology Skellefte°a , Sweden©2015 IEEE .
- [3] Punit Gupta1, Deepika Agrawal2, Jasmeet Chhabra3, Pulkit Kumar Dhir4- “ IoT based Smart HealthCare Kit” Jaypee University of Information Technology .Himachal Pradesh, India©2016 .
- [4] Juha Petäjälärvi, Konstantin Mikhaylov, Matti Hämäläinen, Jari Inatti-“ Evaluation of LoRa LPWAN Technology for Remote Health and Wellbeing Monitoring” Centre for Wireless Communications Department of Communications Engineering, University of Oulu, Finland.
- [5] J. Hernandez, D. McDuff and R. W. Picard, "Bio watch: Estimation of heart and breathing rates from wrist motions," Pervasive Computing Technologies for Healthcare (Pervasive Health), 2015 9th International Conference on, Istanbul, 2015.
- [6] S. Fallet and J. M. Vesin, "Adaptive frequency tracking for robust heart rate estimation using wrist-type photoplethysmographic signals during physical exercise," 2015 Computing in Cardiology Conference (CinC).
- [7] A. Holzinger et al., "Perceived usefulness among elderly people: Experiences and lessons learned during the evaluation of a wrist device," 2010 4th International Conference on Pervasive Computing Technologies for Healthcare, Munich, 2010.
- [8] V. M. Rohokale, N. R. Prasad and R. Prasad “A Cooperative Internet of Things (IoT) for Rural Healthcare Monitoring and Control.” in Proc. 2011 2nd Int. Conf. Wireless Communication, Vehicular Technology, Information Theory and Aerospace and Electronic Systems Technology, Chennai, 2011.

- [9] Joshi, G. P., Acharya, S., Kim, C. S., Kim, B. S., & Kim, S. W. (2014). Smart Solutions in Elderly Care Facilities with RFID System and Its Integration with Wireless Sensor Networks. International Journal of Distributed Sensor Networks, 2014.
- [10] S. D. Bersch, C. M. J. Chislett, D. Azzi, R. Khusainov and J. S. Briggs, "Activity detection using frequency analysis and off-the-shelf devices: Fall detection from accelerometer data," 2011 5th International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth) and Workshops, Dublin, 2011, pp. 362- 365.