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Online Patient Health Monitoring Based on IoT and LabVIEW

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ABSTRACT: The accrued proportion of aging population can demand changes to health care systems in developing countries. Recently lots of aged people experience loneliness and psychological depressions, either as a result of living alone abandonment or due to no care from their children and relatives. The increasing requirement on the health sector is an inevitable and complicated process. Providing suitable healthcare services is essential for those elderly people, pregnant ladies, physically disabled person. Who may encounter various medical problems and conditions? Early detection and identification of diseases for treatment, and evaluation of the best alternatives can minimize the involved complications of daily activities for the aged people. Introduced an IOT devices are used in many fields which make the user's daily life more comfortable. These smart sensor devices are used to gather data will be regularly transferred to hospital database from which it is upload to hospital's web server continuously, doctor can monitor the patient condition from any place, making exact decision on the data collected and notifying the patient is that the difficult task within the iot. It reduces the headache of patient to visit the doctor every time to check body condition. Doctors and hospitals could make use of real data collected on the cloud platform to provide fast and efficient solution. It also could increase accessibility, efficiency, and also decrease the health expenses to improve the comfort and safety as well as management of daily routines of an elderly life.

KEYWORDS: Healthcare, IOT, Hospitality, Internet of Things, Early Detection, Patient Monitoring, LabVIEW

I. INTRODUCTION

Recent years have seen a rising in wearable sensors and these days many devices are unit commercially offered for private health care and activity awareness. A recent health care system ought to offer higher health care services to people at any time anyplace in a reasonable and patient friendly approach. Currently, the health care system going to change from a traditional approach to a modernized patients centered approach. In the ancient method the doctors play the most important role. For necessary diagnosis and advising they need to visit the doctor. There are unit 2 basic issues associated with 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 unravel these 2 issues the patient headed approach has been received. Recent info from world organization foretold that there'll be two billion older people by 2050. In addition, research indicates that above 89% of the aged people are likely to live independently. However, medical analysis found that higher than eightieth of the aged folks older than sixty fifth suffers from a minimum of one chronic diseases creating them to possess problem in taking care of themselves. Accordingly, providing a decent quality of life for aged people as become a serious social issue at this moment. The speedy proliferation of knowledge and communication technologies sanctioning innovative health care solutions and tools that promise in addressing the higher than challenges. Now, Internet of Things (IOT) has become one of the most powerful communication paradigms of the 21st century. In the IOT surroundings, all objects in our daily life become part of the internet due to their communication and computing capabilities. Heart rate is one amongst the basic physiological limits, essential for observance and designation 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. An

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enhanced healthcare monitoring system is described [1] that is smart phone based and designed to offer wireless approach and social support to participants.

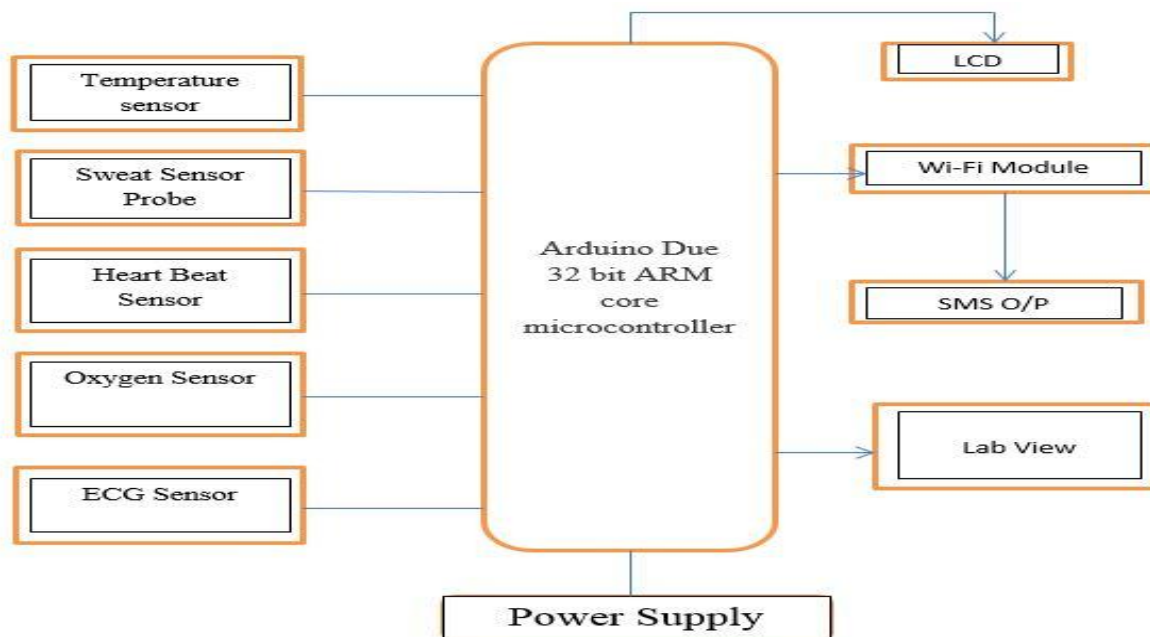


Fig.1 Architecture of Healthcare Monitoring System

IoT based health care is heterogeneous computing system of apps and wearable devices that connect patients and healthcare service providers remotely. The collected clinical data are stored in mobile apps and transmitted to the central database server immediately or periodically through the Internet. In case of emergency the H2U healthcare system can send alarm or can trigger alert to the doctor as well as to their relatives and caregivers for the rapid action of that particular end user. Once the alert message is triggered the physician can be ready for an emergency backup for the patient and in the meantime the physician can also review the patient's clinical reports from the submitted medical information of the patient's database that is already stored in the cloud. Figure 1.1 shows the interconnection platform and services management to support large daily clinical reports like blood pressure (BP), blood sugar, heart rate, body temperature, body weight, etc. that are recorded and saved in the mobile app and central database of elderly healthcare system. The system is composed of many useful functions such as insurance, first aid, emergency support, symptoms checker, assistance, medical report, and medication.

II. INTERNET OF THINGS (IoT)

Internet of Things (IoT) driven health and wellness monitoring system enables remote and continuous monitoring of patients, with applications in chronic conditions, such as obesity, hypertension, diabetes, heart failure, stress, preventive care, and wellness. Medical care and health care represents one among the foremost enticing application areas for the IoT. Smart manufacturing becomes the norm in the industry, 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 Centre at

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the Science Institute of Technology, envisioned an Internet of Things based on RFID chips that could enable “things” to communicate with each other.

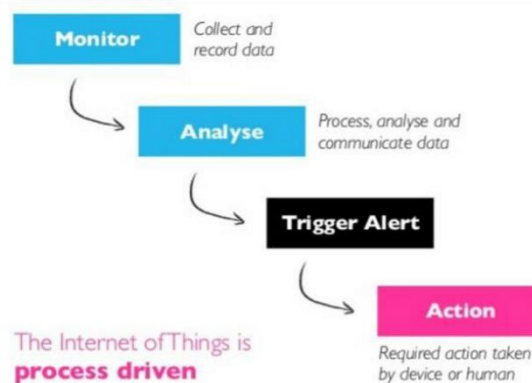


Fig.3 IOT Process Flow

IoT breaks the confines of traditional computer networks and establishes connections directly with objects in the physical world. The main 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 will play a big role in raising the health and wellness of subjects by increasing the supply and quality of care and grammatically lowering the treatment prices and frequent travel. The internet of things (IoT) driven health care system employs networked by biosensors to at the same time collect multiple physiological signals and wireless to share or send gathered signals on to the cloud Diagnostic server and also the caregivers for additional analysis and clinical review. Further, the IoT enabled remote observation applications will considerably scale back travel, price and time in future observation applications. In the health and welfare watching atmosphere, the IoT has emerged as one of the most powerful information gathering and sharing paradigms for personalized healthcare systems, ambient assisted the living, uses posture detection, and activity recognition. Compliance with treatment and medicine reception and aid suppliers is another necessary potential application. In this paper, the core concept is based on IoT, the information sensed from the sensors are gathered and transmitted to the smartphone through IoT. Patients better understand their health problems, predict the type of diseases and guide the patients as to when and where to consult doctors under which departments of the hospital.

III. LITERATURE SURVEY

Vandana Milind Rohokale et al [1] planned a cooperative IoT approach for the upper health observation and management of rural and poor human being’s health parameters like pressure (BP), hemoglobin (HB), blood sugar, abnormal cellular growth in any a part of the most element of the IoT is that the RFID system. RFID will mechanically determine the still or moving entities. The most aim of IoT is to observe and management objects via web. Advantage of this paper is amplify and forward technique however the energy savings achieved at the low threshold worth. Demerit of this paper is authentication and authorization is required for IoT Systems.

R.S .H. Istepanian et al [2] mentioned the potential advantages of victimization m-IoT in non-invasive aldohexoselevel sensing and also the potential m-IoT based mostly design for polygenic disorder management. Expect to realize intelligent identification and management during a heterogeneous property surroundings fromthe mobile aid perspective. These non-invasive aldohexose observation sensors ar primarily connected onto the skin, which, because the largest and outer organ of the body, accounts for 10–15% of the body mass and has one in every of very



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cheap metabolic rates, therefore having comparatively low wholesome needs. advantage of this paper rising integrated technique are going to be explored and investigated towards generating a stronger performance within the physiological signal capture of the non-invasive aldohexose observation device. Demerits of this paper low dependability of the non-invasive aldohexose observation.

Antonio J. Jara, Miguel et al [3] this work presents AN interconnection framework for mobile Health (mHealth) supported the web of Things. It makes continuous and remote sign observation possible and introduces technological innovations for empowering health monitors and patient devices with web capabilities. It additionally permits patient observation and management by remote canthers, and private platforms like tablets. In terms of software system, this interconnection framework presents a unique protocol, referred to as YOAPY, for AN economical, secure, and ascendible integration of the sensors deployed within the patient's personal surroundings. Deserves of this method it makes continuous observation, feasible and secure. Demerits of this method is it cannot be extended as a generic formula for various platforms; this needs AN ad-hoc version of YOAPY for every sign. A physician and an ancillary set of evaluations is always required, to determine the specific cause of the anomalies.

VikasVippalapalli1 et al [4] discussed A BSN (Body Sensor Network) is a special purpose network designed to operate autonomously to connect to various medical sensors and implants located inside and outside of the human body. Advantage is most useful in disaster management, but triage tagging would take time in a mass casualty disaster. Disadvantage is no ECG sensors was used. This work is done based on single person's data collection.

Thirumalasetty Sivakanth et al [5] comprehensive summary of reconfigurable device network for structural health observation. Time period and periodic structural health observation will scale back the chance of collapse and also the consequences of potential severe conditions. deserves of this paper is NFC technology to fetch patient complete data mechanically once doctor approaches patient. Merits low-cost moveable health sensing device, comprising of many sensors, capable of measurement the important attributes of an individual's body, Disadvantages is NFC and web of things, the medical services ought to be improved considerably by unendingly observation the patients, consolidating reports and alerting involved doctors just in case of emergencies.

Haobijam Basanta et al [6] The planned model allows users to boost health connected risks and scale back aid prices by aggregation, recording, analyzing and sharing massive information streams in real time and with efficiency. Advantage is older patients will simply wear the health sensing element all the time thereby permitting constant. Disadvantage is that the customers, patients and different health specialists got to consider some innovative and additional reliable ways. M. Minni Pamela Janet et al [9] proposes a secured Mobile Health care System victimization Wireless Body device Network (WBSN). The nodes of WBSNs embrace EKG sensors, encephalogram sensors, electromyogram sensors, BP sensors, Motion sensors, measuring instrument sensors etc. Advantage is consolidation of the intelligent low value device nodes unbroken in or on or round the flesh to observe the body functions. Demerit is secured health care system victimization wireless body device network has not been planned.

N.Vigna Vinod Kumar et al [7] mentioned the main security needs in BSN based mostly trendy aid system. After, we have a tendency to propose a secure IoT based mostly aid system victimization BSN, referred to as BSN-Care, which may with efficiency accomplish those needs. Advantage during this paper is security and also the privacy problems in aid applications victimization body device network (BSN). Disadvantages is fail to introduce sturdy security services that would be preserve patient privacy.

Yo-Ping Huang et al [8] planned AN predict bound variations of diseases supported the symptoms that a patient according. This suggested resolution combines abstract style and technique of multi criteria higher cognitive {process} (MCDM) analytic hierarchy process (AHP) with fuzzy triangular priority weights to manage the uncertainty of inexactness and ambiguity that resulted from the relative priority scales of varied factors of diseases advantage



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is analyzed and determined complicated issues, and evaluated the most effective possible resolution from various conflicting goals.

IV .CONCLUSION

In this survey, various mechanisms and algorithms were discussed for healthcare monitoring using IOT. Multi criteria decision making (MCDM) analytic hierarchy process (AHP) overcomes the disadvantages of other 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, and low power consumption. By this, the accurate and effective monitoring of patients is possible. Wireless sensors data will be transferred to server using IOT with secure.

REFERENCES

- [1] Rohokale, V. M., Prasad, N. R., & Prasad, R. (2011, February). A cooperative Internet of Things (IoT) for rural healthcare monitoring and control. In *Wireless Communication, Vehicular Technology, Information Theory and Aerospace & Electronics Systems Technology (Wireless VITAE), 2011 2nd International Conference Of* (pp. 1-6). IEEE.
- [2] Istepanian, R. S., Hu, S., Philip, N. Y., & Sungoor, A. (2011, August). The potential of Internet of m-health Things "m-IoT" for non-invasive glucose level sensing. In *Engineering in Medicine and Biology Society, EMBC, 2011 Annual International Conference of the IEEE* (pp. 5264-5266). IEEE.
- [3] Jara, A. J., Zamora-Izquierdo, M. A., & Skarmeta, A. F. (2013). Interconnection framework for mHealth and Remote monitoring based on the internet of things. *IEEE Journal on Selected Areas in Communications*, 31(9), 47-65.
- [4] Vippalapalli, V., & Ananthula, S. (2016, October). Internet of things (IoT) based smart health care system. In *Signal Processing, Communication, Power and Embedded System (SCOPES), 2016 International Conference on* (pp. 1229-1233). IEEE.
- [5] Thirumalasetty Sivakanth* and S. Kolangiammal Design of Iot Based Smart Health Monitoring and Alert System 9(15), 2016, pp. 7655-7661 © International Science Press.
- [6] Huang, Y. P., Basanta, H., & Singh, A. (2017). Assessing Health Symptoms on Intelligent IoT-based Healthcare System.
- [7] Kumar, N. V. V. A Secure IoT-Based Modern Healthcare System Using Body Sensor Network.
- [8] Yo-Ping Huang Effective Social Network Sentiment Mining Model for Healthcare Product Sales Analysis