

IoT Based Healthcare Environment System

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Abstract- The Internet of Things (IOT) evolved in various application areas that include medical care or health care. This technology helps for the patients and doctors to forecast the a variety of diseases exactly and diagnose these diseases according to result, to development of Internet of Things (IoT) more sensors, actuators and mobile campaign have been deployed in to our daily life. The IoT of things has numerous applications in healthcare, from remote monitoring to smart sensors and medical device integration. It has prospective to not only keep patients safe and healthy, but to get better how physician distribute care as well. IoT data generated by multi-modal sensors or devices show great differences in formats, domains and types. The full application of this paradigm in healthcare area is a shared hope because it allows medical centers to function more knowledgeable and patients to obtain better treatment, data semantization in IoT, generous out flows, extensive techniques, including its backgrounds, existing challenges and open issues.

Keywords- Internet of Things, Remote monitoring, Large Data Set, Healthcare, Medical care, Smart Healthcare.etc.

I. INTRODUCTION

Medical care or health care is one of the major challenges of this world, it is estimated that approximately 40 billion population of this world suffer from different disease such as arthritis, asthma, cancer, COPD, diabetes , care for elderly people such as Heart Attack detection, Activity and Movement Recognition of elderly people and many more.

The past few years have witnessed that Internet of Things (IoT) has evolved a lot and continues to evolve in medical care and health care. This evolvement of IoT provides a platform to millions of people to get medical or health-related updates regularly for a smarter and good health daily life. Internet of Things has evolved a lot over the past few years and continues to evolve in every field including Household, Industrial, Medical or healthcare, Defence, etc.

The IoT sensors can use various types of connections such as RFID, Wi-Fi, Bluetooth, and ZigBee, in addition to allowing wide area connectivity using many technologies such as GSM, GPRS, 3G, and LTE. IoT will provides a means of smart cities , smart healthcare , smart homes and building , in addition to many important applications such as smart energy , grid , transportation , waste management and monitoring.



Fig.1 Iot -Medical care.

1. Real World Applications of IoT

The Internet of Things is the connection of heterogeneous objects embedded with intelligence, computing capabilities, a unique identifier and communication abilities which allows them to interact and exchange data.

- Smart Home, Wearable, Connected Cars industrial.
- Internet Smart Cities, IoT in agriculture Smart Retail.
- Energy Engagement, IOT in Healthcare.
- IoT in Poultry and Farming, IoT in healthcare.

The most popular topic concerning the health-care system in IoT. Health foundation such as hospitals, homes for the elderly, nursing homes, day centers, laboratories, outpatient clinics, etc. Health professionals such as physicians, dentists, psychiatrist, Nursing auxiliaries, midwives, paramedical, practitioners, physiotherapists, nursing practitioners, pharmacists, etc.

Health professionals are generally organized as self-employed professionals (except nurses and midwives). Finding the right business model for IoT applications is one of the current challenges for IoT, the combination with health care will only make this challenge more difficult. IoT is still an unknown area and health care is a complex sector with a lot of government involvement, which makes business model innovation in this sector difficult.

2. Clinical care

IoT-driven, noninvasive monitoring systems are used for hospitalized patients whose physiological status requires constant close attention. These monitoring systems take up sensors to collect physiological information which is scrutiny and stored using gateways and the cloud.



Fig. 2 Healthcare Eco system.

3. Remote Monitoring

The internet of things has plentiful applications in clinical care, from isolated monitoring to smart sensors and medical device combination. Require of complete access to efficient health monitoring systems may lead to lots of health risks go undetected, which is a problem being faced all over the world. But small, powerful wireless solutions connected via the IoT make it possible for monitoring to come to patients instead of vice-versa It has the potential to not only keep patients

protection and in good physical shape, but to improve how general practitioner deliver care as well. Healthcare IoT can also boost patient engagement and satisfaction by allowing patients to spend more time interacting with their doctors. The required to manage multiple connecting devices and a lack of ability of healthcare system with EHR systems.

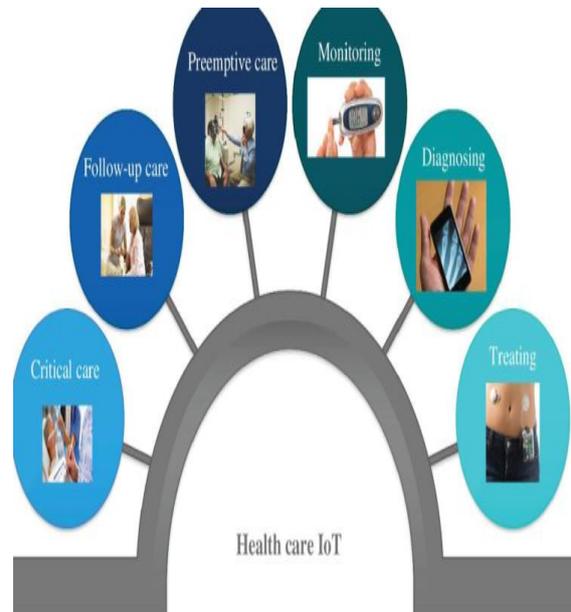


Fig.3 Health care IoT.

4. Wireless Sensor Network (WSN)

Wireless Sensor Network (WSN) is an essential enabling technology of IoT. It connected a number of sensor devices and actuator nodes in to a network via wireless communication. Gateways are information hubs which collect sensor data, scrutinize it and then communicate it to the cloud through wide area network (WAN) technologies.

Ubiquitous Sensor Network (USN) is an extension of the WSN integrated with an application system of the IoT. The application requirements for low cost, high number of sensors, fast deployment, long lifetime, low maintenance, and high quality of service are considered in the specification and design of the platform and of all its components. Wireless sensor networks (WSN) are well suited for long-term environmental data acquisition for IoT representation.

Gateways can be designed for trial or home settings. In home settings, they may be part of larger connectivity resource that also manages energy Homecare remuneration both the healthcare providers and their patients for the providers, a repeated monitoring system, distraction and other systems. This incorporates the

network into an elevated level system through a network gateway.

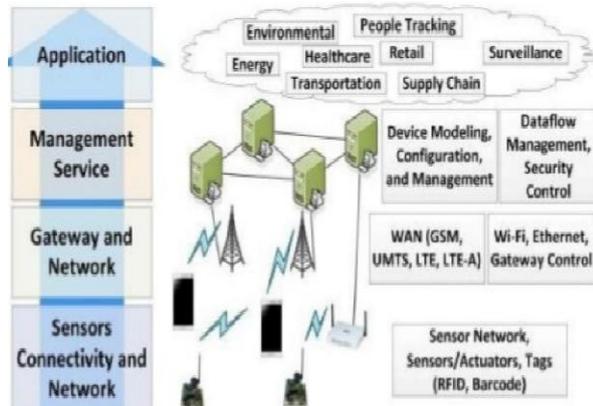


Fig.4 WSN in Healthcare.

II.CONCLUSION

In this paper make understandable, the long predicted IoT revolution in healthcare is already underway, new use cases are raising, they continue to address the urgent need for affordable, accessible care. In Modern propensity is facts for that data semantization in IoT have become an essential part of daily life. It provides possibilities for knowledge interaction and sharing the IoT building blocks of automation and machine-to-machine communication continue to be established. The adding together of the service layer forms the wide-ranging IoT infrastructure. This revolution is characterized by providing end-to-end processing and connectivity solutions for IoT-driven healthcare. The IoT has the prospective to enable extensions and development to fundamental services in transportation, education, healthcare logistics, security, utilities, and other areas, while providing a new ecosystem for application development.

REFERENCES

- [1]. H. Sundmaeker, P. Guillemin, P.Friess, S. Woelffle, " Outlook on Future IoT applications," Vision and Challenges for Realising the Internet of Things: European Commission - Information Society and Media DG, March 2010, pp:189.
- [2]. Mikhail Simonov, Riccardo Zich, Flavia Mazzitelli. Personalised healthcare communication in Internet of Things.
- [3]. Ashton, K. (2009). That "Internet of Things" Thing. RFIJ Journal, 4986. Retrieved from <http://www.rfidjournal.com/articles/view?4986>
- [4]. Geng, H. (2017). Internet of Things and Data Analytics Handbook. John Wiley & Sons.
- [5]. Minerva, R., Biru, A., & Rotondi, D. (2015). IEEE- Towards a Definition of the Internet of Things (IoT).
- [6]. van Limburg, M., van Gemert-Pijnen, J. E. W. C., Nijland, N., Ossebaard, H. C.,
- [7]. Hendrix, R. M. G., & Seydel, E. R. (2011). Why business modeling is crucial in the development of eHealth technologies. Journal of Medical Internet Research. <http://doi.org/10.2196/jmir.1674>
- [8]. Wikipedia.(2016).Smart device. Retrieved November 23, 2016, from https://en.wikipedia.org/wiki/Smart_device
- [9]. Barnaghi, P.; Wang, W.; Henson, C.; Taylor, K. Semantics for the Internet of Things: Early progress and back to the future. Int. J. Semant. Web Inf. Syst. 2012, 8, 1–2.
- [10]. Gubbi, Jayavardhana, et al. "Internet of Things (IoT): A vision, architectural elements, and future directions." Future Generation Computer Systems 29.7 (2013): 1645-1660