

# Emergence of IoT in Healthcare Industry: Towards Sustainable Digital Health Systems

Sarika Kumari Shaw <sup>1</sup>, Jayati Lahiri Dey <sup>2</sup>

<sup>1</sup>Ph.D CIS Research Scholar, Dept of CIS, Raiganj University, West Bengal, India

<sup>2</sup>Asst. Professor, Dept of CIS, Raiganj University, West Bengal, India

E-mail: ld.Jayatii@gmail.com

## Abstract

A vast and multilayered infrastructure of ubiquitous computing technologies and applications is emerging. The Internet of Things (IoT) makes smart objects the ultimate building blocks in the development of cyber-physical smart pervasive frameworks. The IoT has a variety of application domains, including health care. The Internet of Things infrastructure allows connections between different entities, such as human beings (patients, medical staff, etc.), medical devices, intelligent wheelchairs, wireless sensors, mobile robots, etc. The IoT revolution is redesigning modern health care with promising technological, economic, and social prospects. Again Nations have developed their plans for sustainable development, including social, environmental, and economic aspects. Internet of things (IoT) has been introduced as the next wave of innovation. However, there is still little evidence of progressing IoT in developing countries. Therefore, making policies for investors and tech entrepreneurs is much needed. This chapter surveys advances in IoT-based healthcare technologies and reviews the state-of-the-art network architectures/platforms, applications, and industrial trends in IoT-based healthcare solutions. Addresses various IoT and eHealth policies and regulations to determine how they can facilitate economies and societies in terms of sustainable development; and sheds light on how policymakers can implement policies to use the IoT for achieving sustainable development.

**Keywords:** Sustainable IoT, sustainable development, IoT, health care, policy-making, networks, architectures, platform, services, applications.

**This is a limited preview of the chapter.**

To read the full-text chapter, get access by purchasing this chapter or consider buying the complete book. If your library has subscription to EBSCOhost, this chapter including other chapters of the book can be accessed through your library.

This chapter is a part of the book, '*Advances in Business Informatics empowered by AI & Intelligent Systems*'

ISBN: 978-81-957322-0-3 (ebk); ISBN: 978-81-957322-1-0 (pbk);  
ISBN: 978-81-957322-2-7 (hbk)

Book DOI: <https://dx.doi.org/10.46679/9788195732203>

The book is available via CSMFL Bookstore, Amazon, Google Play Books, EBSCOhost & EBSCO eBooks

## **VII. Conclusion**

Digitalization defines the path towards a smart Green Planet by providing solutions and enhancing sustainable development. Integration of IoT, big data management, and artificial intelligence have already provided solutions to enhance healthcare provision in a manner that complements existing offerings by using mobilizing the capability of the IoT. This chapter surveys various elements of IoT-based healthcare technology and presents various healthcare-based architectures and structures that support access to the IoT backbone and facilitate medical information transmission and reception. IoT can automate the workflow of patient care by using healthcare mobility solutions. Data movement, machine-to-machine communication and interoperability have made healthcare sectors more productive. With the integration of IoT, patients and healthcare professionals can save time. The increase in the use of smartphones is helping patients to consult doctors at any given time and, in turn, saving money as they do not have to visit hospitals anymore. IoT will be integrated into nearly all sectors of healthcare. From prescribing medicines to offering the best services in ambulances, IoT will change the face of the healthcare sector. As technology has become an essential part of daily life, IoT too will upgrade the existing healthcare system and provide faster and better services. So we can conclude that the emergence of IoT in healthcare enhances the sustainability of health.

## **Acknowledgement**

We would like to express our deepest appreciation to Dr P.K. Paul and other faculty members of the Dept. of CIS, Raiganj University, WB, India for all their guidance and support.

## **References**

- Atzori, L., Iera, A., & Morabito, G. (2014). From “smart objects” to “social objects”: The next evolutionary step of the internet of things. *IEEE Communications Magazine*, 52(1), 97–105.  
<https://doi.org/10.1109/mcom.2014.6710070>
- Bansal, P. (2005). Evolving sustainably: a longitudinal study of corporate sustainable development. *Strategic Management Journal*, 26(3), 197–218.  
<https://doi.org/10.1002/smj.441>

- Barbash, G. I., & Glied, S. A. (2010). New Technology and Health Care Costs — The Case of Robot-Assisted Surgery. *New England Journal of Medicine*, 363(8), 701–704. <https://doi.org/10.1056/nejmp1006602>
- Dash, S. P. (2020). The Impact of IoT in Healthcare: Global Technological Change & The Roadmap to a Networked Architecture in India. *Journal of the Indian Institute of Science*, 100(4), 773–785. <https://doi.org/10.1007/s41745-020-00208-y>
- Höller, j., Tsiatsis, V., Mulligan, C., Karnouskos, S., Avesand, S., & Boyle, D. (2014). From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence. Amsterdam, The Netherlands: Elsevier.
- Kortuem, G., Kawsar, F., Sundramoorthy, V., & Fitton, D. (2010). Smart objects as building blocks for the Internet of things. *IEEE Internet Computing*, 14(1), 44–51. <https://doi.org/10.1109/mic.2009.143>
- Mitchell, M., & Kan, L. (2019). Digital Technology and the Future of Health Systems. *Health Systems and Reform*, 5(2), 113–120. <https://doi.org/10.1080/23288604.2019.1583040>
- Paul, P. K., & Dey, J. L. (2017). Data Science Vis-à-Vis efficient healthcare and medical systems: A techno-managerial perspective. *2017 Innovations in Power and Advanced Computing Technologies (I-PACT)*. <https://doi.org/10.1109/ipact.2017.8245148>
- Paul, P.K., Bhumali, A., Aithal, P. S. (2017) Allied Medical and Health Science and Advanced Telecommunications: Emerging utilizations and its need in Indian Healthcare System in Current Trends Biotechnology and Chemical Research, 7, 27-30
- Riazul Islam, S. M., Kwak, D., Humaun Kabir, M., Hossain, M., & Kwak, K.-S. (2015). The Internet of Things for Health Care: A Comprehensive Survey. *IEEE Access*, 3, 678–708. <https://doi.org/10.1109/access.2015.2437951>
- Rong, G., Mendez, A., Bou Assi, E., Zhao, B., & Sawan, M. (2020). Artificial Intelligence in Healthcare: Review and Prediction Case Studies. *Engineering*, 6(3). <https://doi.org/10.1016/j.eng.2019.08.015>
- Sayani, S., Muzammil, M., Saleh, K., Muqet, A., Zaidi, F., & Shaikh, T. (2019). Addressing cost and time barriers in chronic disease management through telemedicine: an exploratory research in select low- and middle-

- income countries. *Therapeutic Advances in Chronic Disease*, 10, 204062231989158. <https://doi.org/10.1177/2040622319891587>
- Shu, Q., Wang, R., Chen, Q., Liu, Y., & Qin, Y. IOT. (2010) Gateway: Bridging wireless sensor networks into Internet of Things. in Proc. IEEE/IFIP 8th Int. Conf. Embedded Ubiquitous Comput. (EUC), 347-352.
- Zarei, M., Mohammadian, A., & Ghasemi, R. (2016). Internet of things in industries: a survey for sustainable development. *International Journal of Innovation and Sustainable Development*, 10(4), 419. <https://doi.org/10.1504/ijisd.2016.079586>
-