Chapter 7
AI-Based Internet of Things (AIoT): Applications of AI With IoT

Dharma Teja Singampalli
Sagility, India

Anil Audumbar Pise
Siatik South frica, South Africa

ABSTRACT

The internet of things (IoT) allows information from multiple sensory elements to be successfully communicated to an IoT hub/control center, where it can be used for monitoring, diagnosis, and assistance, as well as intelligent decision-making. Data gathered from patients, medical equipment, hospitals, ambulances, recovery centers, nursing homes, and other facilities can be used to assist in the development of smart environments for the elderly and infirm. Regular monitoring of patients' vital signs, appointment scheduling, after-care assistance, geriatric support, vulnerability analysis, disease diagnosis, and priority management are all possible in these smart environments. In addition, numerous potential issues and inconsistencies with the IoT-H approach are frequently highlighted. As a result of this chapter, current and future researchers interested in the subject will have a deeper understanding of the various field of feasible IoT-H implementations that will need to be studied in order to fully understand the impact and effect on any of those numerous IoT applications.

INTRODUCTION

Artificial intelligence (AI) and the IoT are connecting physical items and devices by encouraging physical objects and devices to see, hear, and think. Physical objects or devices can "speak" to one another and communicate their decisions through the exchange of information. Products that were previously unintelligent are becoming intelligent as a result of technologies such as the IoTs, which connect previously unintelligent objects to the internet through a variety of embedded devices, communication protocols,

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sensor networks, internet protocols, and applications. There are various types of AI-based IoT, i.e., AIoT-enabled healthcare services used in the medical industry: electronic health and telecare networks; diagnostic, preventive, and other associated technologies. There are also plans to install rehabilitation and monitoring equipment. Wi-Fi body area networks and radio frequency recognition systems, for example, contribute to the system's operation but are not required for its overall operation. While research in related fields has shown that remote health tracking is feasible, the potential benefits in a variety of situations may be even more significant to consider in light of the findings, which should be investigated further. When remote health surveillance is used to track non-critical patients at home rather than in the hospital, it can help to reduce the demand for hospital resources such as physicians and beds. It could be used to improve access to healthcare for remote communities or to allow elderly people to stay in their homes for longer periods of time. The prospect of increased access to healthcare services while reducing the strain on healthcare institutions is a positive development. This is critical given the global shortage of healthcare workers and emerging infectious diseases. Furthermore, it has the potential to empower individuals by giving them greater control over their own well-being at all times. As a result, populations are shifting to self-care options, which have the potential to make health care more sustainable by reducing reliance on government interventions throughout the healthcare ecosystem. Figure 1 depicts a graphical representation of current IoT-based healthcare equipment in use in the healthcare sector.

Figure 1. IoT-based Healthcare Devices (Al-Dhief et al., 2020)