Chapter 1
IoT and Healthcare: Study of Conceptual Framework and Applications

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ABSTRACT

Internet of things (IoT) defines a network of virtual reality objects, software, and other technologies for the purpose of connecting and exchanging data with other devices and applications on the internet. The 'object' may refer to a connected medical device, a biochip transponder (think livestock), a solar panel, a connected motor with sensors that notify the driver of a number of potential problems (fuel, tire pressure, necessary adjustments, and more), or any object, sensory, competent to collect and transfer data over the network. The use of IoT technology is extensive, as it is flexible in almost any technology that can provide relevant information on its performance, and even environmental conditions that need to be monitored and remotely controlled. Other uses include the integration of IoT technology in hospital beds, provided with smart beds, equipped with special sensors to detect vital signs, blood pressure, oximeter, and body temperature, among others. This chapter attempts to explore and understand as how IoT is used in the healthcare sector.

INTRODUCTION

The term Internet of Things often delegates network connectivity and computing power to objects, sensors, and everyday objects that can be considered computers, and these devices deliver data with minimal human intervention. A situation in which one can generate, share, and make available. But there is no single definition of the universe.

DOI: 10.4018/978-1-6684-3533-5.ch001

Figure 1. IoT Framework

The Internet of Things has many complex ideas that are integrated in different ways. The idea of assembling computers, sensors and networks to monitor and control devices has been around for decades. However, with the recent integration of many technologies market trends, the Internet of Things is approaching a widespread reality. These include free communications, widespread acceptance of IP-based networks, computing economics, miniaturization, advances in data analytics, and the rise of cloud computing. IoT implementations use different communication models, each with its own characteristics (Stankovic, 2014). The four common communication types defined by the Internet Architecture Board include Device-to-Device, Device-to-Cloud, Device-to-Gateway, and Back-End-Data-Sharing. These models emphasize the flexibility of how IoT devices connect and provide value to users. As speculation and IoT styles become a reality, it may be necessary to rethink the impacts and challenges of the world where the most common Internet connections come from offline activities, rather than being actively involved in content. A potential sign of this "connected world" effect is an agreement for the general purpose of the Internet itself, which does not impose environmental restrictions on applications or services that can use the technology. A good implementation of IoT devices promises to change many aspects of the approach we live in. Among consumers, new IoT products are popular internet-enabled devices, home automation components, and energy management devices, and people are thinking of a safer and more efficient "at home". Some personal IoT devices are similar healthcare monitoring and healthcare devices and medical devices that are enabled over the network and changing the way healthcare services is delivered (Zhang et al., 2019). This technology is beneficial to both people with disabilities and the elderly and promises to enable independence and improved quality of life at a reasonable cost (Abawajy and Hassan, 2017). IoT systems such as connected cars, intelligent transportation systems, and sensors installed on roads and bridges are approaching the concept of "smart in city" that helps reduce traffic congestion and power consumption. IoT technology transforms access to information in agriculture, industry, and energy production and distribution, offering the potential to evaluate production execution using networked sensors. However, there are many challenges to the IoT that need to be considered and