Chapter 6
A Visual Framework for an IoT–Based Healthcare System Based on Cloud Computing

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ABSTRACT

With the support of clinical mobility solutions and other innovative IoT technologies, as well as next-generation healthcare facilities, IoT can automate patient care workflow. Health practitioners can transform the way they notice illness and diseases in patients using connectivity protocols such as Bluetooth LE, Wi-Fi, as well as other sophisticated protocols. They can also invent novel methods for treating patients across several healthcare professions. As a result, a digital system lowers healthcare costs by reducing unwanted appointments, employing higher-quality resources, and optimising resource allocation and planning. This paper aims to highlight the importance of an IoT-based Cloud-compatible health system not only to illustrate and track health actors but also to improve health services. A cloud-based IoT architecture is proposed where medical data can be securely exchanged with the consent of patients and other healthcare providers.

INTRODUCTION

More than a billion humans use the net each day to examine the material, ship and acquire emails, get the right of entry to multimedia resources, play online games, and socialize. Furthermore, the net is projected to function as an international platform for connecting bodily things, or 'Things,' taking into consideration new approaches to working, engaging, entertaining, and living. The Internet era has grown pervasive in our culture, infiltrating all elements of our life, and it's far extra correct to consult it as want in preference to a convenience. Kevin Ashton coined the phrase "Internet of Things" to signify the developing global, Internet-primarily based totally facts structure (Atzori, Iera, and Morabito, 2010). The Internet of Things (IoT) envisions a destiny wherein anything/anyone/any provider can be connected with the use of appropriate facts and conversation technology, ushering in a technological revolution in regions together with domestics, clever houses, healthcare structures, commodities tracking, and logistics. The Internet of Things consists of ideas from ubiquitous, ambient, and pervasive computing, that have grown over the preceding a long time and feature now reached a factor of maturity. The Internet of Things (IoT) is anticipated as a community of billions of humans, things, and machines that speak with each other and are invisibly linked with sensors and actuators, making it beneficial in regular life. The 'Internet of Things,' functions as an international platform to hyperlink bodily items, things, and human beings, permitting new techniques of working, communicating, engaging, entertaining, and living will rule the future (Ashton, 2009). Everything you wear, drive, examine, or see, in addition to the humans you meet and the places you visit, may be linked, addressed, and managed remotely as a part of the Internet of Things (IoT). As the fee of IoT gadgets, cell phones, and community connections maintains to fall, it's far clean that the whole thing and absolutely each person is attached 24 hours an afternoon over a wi-fi community.

The manner people acquire facts will certainly regulate as the verbal exchange era grows quicker, extra widespread, and much less costly. The use of the RFID-primarily based totally sensor era, in addition to different associated technologies, is accelerating Internet of Things innovation and growth. This new incorporated RFID Sensor-Internet structure may be the cornerstone for constructing a clever environment. The statistics may be exchanged throughout systems and apps to offer a unified operational image of an international wherein unrestricted 'Things' can be handled (Roy Want, 2004). The Internet of Things (IoT), which guarantees clients a clever, rather networked international with an extensive variety of interactions, employs the concept of object hyperlinking. By attaching item tags with URLs as meta-gadgets to real items or places, item hyperlinking seeks to deliver the net into the actual international. Massive quantities of statistics created through some of the assets can be saved in the 'Cloud,' wanting extra pc strength to get right of entry to it stably and sincerely. Carrying individuals from their homes to health facilities for frequent check-ups are quite tough in today's world (Juels, 2006). Interoperability, artificial intelligence machine-to-machine connection, information exchange, and data transmission are all facilitated by the Internet of Things, making patient care delivery more efficient. There are multiple difficulties, such as queueing, commute time, and the patient's vulnerability to numerous illnesses moving through this polluted environment. As a result, the medical firm focuses on in-home healthcare services, where patients can receive medical examinations in the privacy of their own homes.

The medical sector is collaborating with the data and communication technology industry to develop models that save time, improve accuracy, and are compatible across platforms, which can benefit both clinical facilities and patients (AT&T, 2011). Variations in physiological indices in the human body, including heart rate, oxygen saturation, body temperature, blood pressure, and so on, are frequently con-

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