Chapter 3
Revolutionizing Healthcare:
IoT Powered Telemedicine Advancements

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ABSTRACT

In an age where healthcare and telemedicine have never been more crucial, the rise of IoT has enhanced free use of healthcare systems around the world. This is accomplished by improving the decision making with the help of accessible data, ensuring that monitoring and consultation of patients is carried out by remote means. In order to efficiently use IoT in healthcare, scalable modelling and effective management of the application plays a critical role. Scalable modelling in healthcare and telemedicine involves the development of systems and that can flexibly respond to changing needs, induce quality, accessibility, and value-for-money. Management of IoT applications in healthcare comes with many challenges such as handling patient data on time, secured medical data, remote, ensure proper amount of medicine is taken by the patient, disease tracking, etc. This chapter aims to guide the readers to understand and develop their own frameworks for the scalable models which adapt to the needs in healthcare and enable readers to explore the potential of IoT in telemedicine.

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1. INTRODUCTION

1.1 The Significance of Healthcare and Telemedicine

The healthcare business, often known as the medical or health economy, is a broad term for a system of exchange that includes several industries offering products and services for the treatment, care, and prevention of patients in aspects that are preventative, curative, palliative, and rehabilitative. This complex system includes the creation and marketing of goods and services meant to maintain and replenish well-being.

The healthcare industry may be broken down into three main categories in its current form: goods, financing, and services. To meet the healthcare demands of people and communities, further classification crosses several sectors and classes and depends on a varied cadre of highly skilled professionals and paraprofessionals. A healthcare system's efficacy is crucial for both advancing national advancement and relieving family obligations. Developing nations are coming to understand how important healthcare is to their economy and how it directly affects life expectancy. Due in large part to their abundance of highly skilled medical professionals and their unwavering dedication to the healthcare system, some of these countries have become strong competitors. Interestingly, throughout time, the expenses of medical care have decreased significantly in many of these nations (Trivitron Healthcare, 2019) (Haleem, A., et al. 2021) (Karjagi, R., & Jindal).

Telemedicine is defined as the use of a healthcare professional in a remote location to diagnose and treat patients. Using medical applications for fixed periodic visits improves the effectiveness of both healthcare professionals and patients by increasing the chances of follow-up, lowering delays, and boosting patient outcomes. Regular hospital visits can be costly, especially in rural regions, especially because of transport expenses. Fortunately, when telemedicine services are used via video conferencing or other virtual technologies, medical visits can be reduced. In this way, telemedicine saves time and money for both the patient and the health care provider. Additionally, due to its rapid and beneficial properties, it can help hospitals and clinics streamline their workflow. This innovative technology would make monitoring and managing discharged patients' rehabilitation easier. Telemedicine enables clinical services to utilize, information technologies, and video imaging to provide healthcare services at a distance. It also enables patients and doctors to work together on the treatment process. This technology, however, is meant to complement rather than replace physical counselling. Today, this technology provides a safe option for patients who are unable to visit a doctor or stay at home, particularly during a pandemic. In conclusion, both the healthcare industry and telemedicine are an integral part of our society and contribute to its growth.