# Chapter 6
# Cloud-IoT-Based Healthcare Applications: Case Study I-Seizure Prediction

**M. Abinaya**
https://orcid.org/0009-0000-4424-7812
*SRM Institute of Science and Technology, India*

## ABSTRACT

*The healthcare system is to transform because to the confluence of cloud computing and the Internet of Things (IoT), especially in the treatment of chronic illnesses like seizures. To improve patient care, this chapter explores the creation and use of a seizure prediction system that makes use of these technologies. The physiological characteristics of patients may be continuously and in real-time monitored by using Internet of Things devices such as temperature sensors, heart rate monitors, and wearable EEG sensors. The gathered data is sent to cloud platforms, where sophisticated machine learning algorithms interpret and evaluate it to provide extremely accurate seizure predictions. Personalized treatment plans and thorough health profiles are made possible by integration with Electronic Health Records (EHR), which further enhances the data. Pilot projects show how the system may enhance both operational effectiveness and patient outcomes. Prospective avenues for development encompass progressions in artificial intelligence, scalability, and implementation in various environments.*

DOI: 10.4018/979-8-3693-7225-8.ch006

## 1. INTRODUCTION

In recent years, the healthcare industry has been witnessing a profound transformation that has been driven by technological advancements, particularly in the areas of cloud computing and the Internet of Things (IoT). The implementation of these technologies has resulted in the introduction of novel approaches to long-standing problems, which has made it possible to provide health care in a manner that is more effective, responsive, and patient-centered .

Saheb, T., & Izadi, L,. (2019) Cloud computing in the medical field refers to the practice of storing, managing, and processing data by utilizing remote servers hosted on the Internet. Several benefits come along with this paradigm shift from traditional on-premises systems to cloud-based solutions. Cloud platforms offer scalable resources, which enables healthcare providers to manage large amounts of data without having to make significant initial investments in infrastructure Sultan, N. (2014). They also make it easier for different healthcare entities to collaborate and share data seamlessly, which improves the quality of care that is coordinated and the efficiency with which care is delivered Kuo, M. H. (2011). In addition, the adaptability of cloud computing makes it possible to incorporate sophisticated analytical tools and machine learning models, which in turn makes it possible to conduct real-time data analysis and predictive analytics.

The term "Internet of Things" (IoT) refers to a network of interconnected devices that are equipped with sensors, software, and other technologies to collect and share data. Wearable fitness trackers and smartwatches are also examples of Internet of Things devices that are used in the medical field. Other examples include sophisticated medical implants and remote monitoring systems. These devices continuously collect vital health information, including heart rate, blood pressure, glucose levels, and other measurements, and then transmit this information to cloud-based platforms for further analysis. Providing clinicians with real-time, actionable insights into patient health is one of the ways that the Internet of Things (IoT) in the healthcare industry improves patient monitoring, makes early diagnosis easier, and supports personalized treatment plans, Kashani, M. H et.al, (2021).

The convergence of the Internet of Things and cloud computing in the healthcare industry is poised to have a revolutionary impact on the sector. A proactive approach to health management is supported by these technologies because they make it possible to continuously monitor and analyze data about patients. Medical professionals can intervene earlier in the progression of the disease, tailor treatments to the specific requirements of each patient, and improve the overall outcomes for patients. In addition, the incorporation of these technologies results in increased operational efficiencies, which in turn enhances the quality of care Babu, et al. (2016).