

INTERNET OF THINGS (IoT) IMPACT ON HEALTH CARE SERVICES IN HOSPITALS

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Abstract

Healthcare industry has become more profound than ever due to increasing competitors capable of leaving a global footprint and price pressures in regulated markets. With a cost reducing mentality of payers fabricated by the recent recession, companies need to innovate to survive in the market. The emerging and ultimate technology is known as Internet of Things (IoT) which is the combination of multiple technologies which can integrate both physical and digital worlds. The emergence of wearable devices, technology innovations such as Radio Frequency Identification (RFID), Near Field Communication (NFC), Wireless Sensor Network (WSN), WSN (Wireless Sensor and Actuator Network), cloud computing, mobile cloud computing, web services, Service Oriented Architecture (SOA), smart homes, Web 2.0, Web 3.0, and gateway technologies to seamlessly integrate cross-domain devices to reap benefits of innovations. The synergic effect of such technologies can be realized by using IoT and its applications. When such realistic integration of IoT with healthcare units is achieved, unprecedented quality in healthcare services can be achieved. This is the hypothesis which is the basis for taking up this research. Different approaches such as secondary research, primary research methods like structured survey and interview, and case study are used to investigate into the possible application of IoT to improve services in healthcare units.

Keywords: NFC, WSN, RFID, SOA, IoT, WSN, EHR, EMR, PHR, Tele Health.

Introduction

Healthcare is a domain where the focus is on healthcare services. It is inevitable for the health and well being of humans across the globe. It is vital area of research which has huge impact on mankind. In the age of digital world, healthcare domain needs to maintain details of patients. Towards this end many ways of maintaining patient details came into existence. According to Yang et al. there are three ways in which patient health record is maintained. They are known as Electronic Medical Record (EMR), Electronic Health Record (EHR), and Personal Health Record (PHR). The EMR is created and maintained by healthcare units while EHR is created and maintained within a community for the purpose of sharing it with other stakeholders. EHR can make use of EMR as well in the form of data source. PHR is usually initiated and maintained by individuals by preserving health details obtained from various healthcare units. It can include both EMR and EHR details. Many technologies came into existence to improve QoS in healthcare domain. The innovations include devices for health monitoring and equipment to diagnose diseases accurately besides applications that can help in storing and maintaining healthcare data. The usage of Information and Communication Technology (ICT) has been around in healthcare units. However, the recent technological innovation is IoT and utilizing it in healthcare domain can have unprecedented improvements in patient-centric healthcare services. This is the hypothesis which is the basis for this research work which aims at investigating IoT application in healthcare comprehensively.

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