

Chapter 3

Smart Internet of Things (IoT) Applications

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ABSTRACT

The internet of things (IoT) is the new buzzword in technological corridors with most technology companies announcing a smart device of sorts that runs on internet of things (IoT). Cities around the world are getting “smarter” every day through the implementation of internet of things (IoT) devices. Cities around the world are implementing individual concepts on their way to becoming smart. The services are automated and integrated end to end using internet of things (IoT) devices. The chapter presents an array of internet of things (IoT) applications. Also, cyber physical systems are becoming more vulnerable since the internet of things (IoT) attacks are common and threatening the security and privacy of such systems. The main aim of this chapter is to bring more research in the application aspects of smart internet of things (IoT).

INTRODUCTION

The Internet of Things (IoT) is the arrangement of home appliances, vehicles, physical devices, and other things implanted with connectivity, actuators, sensors, software, and electronics which empowers these things to collect, connect and exchange data (Brown, 2016; ITU, 2019; Hendricks, 2015), making openings for more coordinate integration of the physical world into computer - based frameworks, resulting in reduced human exertions, economic benefits, and efficiency improvements.

The number of Internet of Things (IoT) devices increased 31% year - over - year to 8.4 billion within the year 2017 (Köhn, 2018) and it is evaluated that there will be 30 billion gadgets by 2020 (Nordrum, 2016). The global market value of Internet of Things (IoT) is anticipated to reach \$7.1 trillion by 2020 (Hsu & Lin, 2016).

Internet of Things (IoT) includes expanding web network beyond standard gadgets, such as tablets, smart phones, laptops, and desktops, to any extend of customarily stupid or non - internet - enabled physical gadgets and regular objects. Inserted with innovation, these gadgets can communicate and connect

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over the web, and they can be remotely checked and controlled. With the entry of driverless vehicles, a department of Internet of Things (IoT), i.e. the Internet of Vehicle begins to pick up more consideration.

APPLICATIONS

The broad set of applications for Internet of Things (IoT) devices (Vongsingthong & Smachat, 2014) is frequently partitioned into customer, commercial, industrial, and infrastructure spaces (Business Insider, 2015; Perera et al., 2015).

Consumer Applications

A developing portion of Internet of Things (IoT) gadgets are made for consumer use, including appliances with remote monitoring capabilities, connected health, wearable technology, home automation / smart home, and connected vehicles (Trak.in, 2016).

- **Smart Home:** Internet of Things (IoT) gadgets are a portion of the bigger concept of domestic mechanization, which can incorporate media and security systems, heating and air conditioning, lighting (Kang et al., 2017; Meola, 2016). Long term benefits might incorporate energy savings by automatically guaranteeing lights and electronics are turned off.
- **Elder Care:** One key application of smart home is to supply help for crippled and elderly people. These domestic frameworks utilize assistive innovation to suit an owner's particular disabilities (Demiris & Hensel, 2008). Voice control can help clients with mobility and sight restrictions whereas alert frameworks can be associated straightforwardly to Cochlear implants worn by hearing impaired users (Aburukba et al., 2016). They can moreover be prepared with extra security highlights. These highlights can incorporate sensors that screen for medical crises such as falls or seizures (Mulvenna et al., 2017). Smart domestic innovation connected in this way can give clients with more opportunity and a better quality of life (Demiris & Hensel, 2008).

Commercial Applications

The term "Enterprise Internet of Things (EIoT)" alludes to gadgets utilized in corporate and business settings. By 2019, it is evaluated that EIoT will account for 9.1 billion devices (Business Insider, 2015).

- **Medical and Health Care:** The Internet of Medical Things (IoMT) (also called the Internet of Health Things (IoHT)) is an application of the Internet of Things (IoT) for health and medical related purposes, data analysis and collection for research, and monitoring. The futurologist's vision seems to be that before soon you may share your movement, heart rate, work out levels, and other essential information collected by your mobile gadget along with your specialist. "More and more care will be delivered outside clinics and hospitals". This implies mobile gadgets - from smart phones to monitoring gadgets - will become to be progressively vital as the number of patients cared for at domestic or in sheltered accommodation or other community centers increases. Internet of Things (IoT) gadgets can be utilized to empower remote health checking and emergency notification frameworks. These healths observing gadgets can extend from heart rate and blood pressure monitors to progressed gadgets able to checking specialized implants, such as advanced hearing aids, Fit bit elec-

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