Chapter 70
Big Data and IoT–Allied Challenges Associated With Healthcare Applications in Smart and Automated Systems

Mamata Rath
C.V. Raman College of Engineering, India

ABSTRACT

Most of the current smart applications are developed with basis on intelligent computing, most of which are implemented using big data analytics and much other advanced technology. With emerging technology, industrial and instructive improvements are causing greater changes in the lifestyle of people in smart cities and there is more chance of various health problems in urban areas. The way of life in metro urban areas with an expansive volume of people is similarly influenced by different applications and administration frameworks. In this way, the majority of the urban communities are transforming into smart urban areas by receiving mechanized frameworks in every conceivable segment. Therefore, there is more health-related issues and health hazard issues can be identified in urban areas. This article carries out a comprehensive survey of health care issues and improved solutions in automated systems using Big Data Analytics in smart cities integrated with IoT.

1. INTRODUCTION

Implementation of smart concepts like of smart homes, smart cities, and smart everything emerged the Internet of Things (IoT) as an area of inconceivable impact, prospective, and growth. The wide-scale dispersion of the Internet has been the main thrust for this developing pattern, to be specific the utilization of such worldwide communication foundation for empowering machines and brilliant articles to impart, coordinate, and take choices on genuine word circumstances. Nowadays, the evolution of the world of the Internet of Thing is promising the explosion of a number of devices connected to the

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Internet. According to Cisco analysts (Scarfo et al., 2018) there were more than 25 billion devices in 2015 connected and with a projection of more than 50 billion devices connected by 2020. Also, the new business paradigms that the Internet of Things technologies enable are producing a super-fast increase of machine-to-machine communications. This is a real market breakthrough moment that opens up a lot opportunities for enterprises and, generally speaking, for the whole society. Inherently, it increases dramatically the security problems, which could frustrate a sizeable part of Internet of Things' potential benefits that McKinsey valuates are very high. Indeed, a recent survey by HP reports that the 70% of devices contain vulnerabilities. The aim of this section is to provide an overview of current trends about cyber security concerns and a glimpse of what the future of the Internet of Things will bring.

Big data is used in several research areas related to healthcare, area-based services, satellite data usage, online advertising, and retail marketing. In the coming years, the Internet of Things (IoT) will increase the measure of data on the planet, and an exponential rise in big data will be seen. There have been a few review papers on big data in general and in diverse specialized fields, e.g., science, healthcare, geography, and the Internet. Unlike previous reviews in the literature, this paper takes a gander at recent advances in big data from a different view and with different arrangements, i.e., data types, storage models, investigation models, protection, data security, and applications.

2. BIG DATA AND IOT INCORPORATED APPLICATIONS

Internet of Things (IoT) is a transformational technology for electronic security frameworks. In numerous regards, business and private security items were forerunners to IoT and keep on sharing numerous critical qualities of the class. All things considered, the fast drop in cost for IoT gadgets and the billions of new IoT gadgets that are relied upon to be introduced in the following 5– 10 years make it a power to be battled with as far as how we consider electronic security frameworks and the market all in all. IoT additionally enhances the industry tasks in light of the fact that the most every now and again referred to shopper profit of IoT in the house is for security applications. By and large, the ascent of IoT increment value for security purchasers on the grounds that the financial aspects of the IoT industry will apply descending cost weight (Qiu et al., 2015) on security segments, even as they turn out to be more competent and give more highlights.

Regardless of how hard directions and the intricacy of human science makes improving in medication, the pace of advancement in social insurance is incredibly quick. Declarations and news astonish us consistently, regardless of whether we grew up perusing and watching sci-fi. Organizations have effectively printed out liver and kidney tissues; tweaked prosthetics and even medications endorsed by the FDA. IBM Watson's computerized reasoning gathers gigantic measures of data and plans the best treatment alternative for patients by checking all important medicinal examinations, and profound learning calculations will do much more. Advanced tattoos can gauge the significant health care parameters and essential signs to tell us when there's brief comment care of through our cell phones. Increased reality gadgets, for example, Hololens from Microsoft can extend advanced scenes on what we see and get ready specialists for troublesome strategies. Medicinal services development simply doesn't quit shocking people. In 2013, there were bits of gossip about new businesses reforming adherence control by embeddings microchips into sedate containers to give doctors a chance to check whether and when patients take them. We have been sitting tight for gadgets that permit holographic information input yet just oversimplified, toy-like contraptions have turned out to be accessible. Without extensive organiza-