

Chapter 2

A Collaborative Approach of IoT, Big Data, and Smart City

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ABSTRACT

During the last two decades, a number of new nations emerged and played their intense role in changing human lifestyle. The growing demand for smart city and big data stimulates innovation, and the development of new smart applications is becoming important. Internet of things comprises billions of devices, people, and services, and entitles each to connect through sensor devices. The economic development of a city leads to better life quality and improved citizen services. Thus, this chapter discusses the background of big data, IoT, and smart city. It also discusses the collaborative approach of all the above. The various related work and future research direction for implementing smart city with the concept of big data and IoT would be addressed in this chapter.

DOI: 10.4018/978-1-5225-6207-8.ch002

INTRODUCTION

Big data can be defined using five characteristics such as volume, velocity, veracity, variety and value and the major advantage of big data is, it stores numerous amount of data. Processing these large data are more complicated even when different processing tools are used. Millions and billions of data are created everyday by people be it on any social networking sites, finance, medicine, sensors, mobile applications and so on. due to the massive amount of the biological information, big data in biological processing become a common phenomenon in current industry and laboratories (Kamal et al, 2017). To manage, analyze and process all these data new processing methodologies, techniques and tools have to be used (Shukla et al., 2016). To improve the living standards of citizens government has come forward to make use of big data technology and smart cities is one of the project which is adopted by government to reduce the cost and improve the ease of living of citizens.

IoT connects all sensing, actuating and computing devices, collects the data and communicates it to various other devices using Internet (Yasir Mehmood et al., 2017). The major benefit of IoT is it connects people and things anywhere, anytime anyplace with anyone and everyone using internet. Applications like smart classrooms, smart cities, smart health are slowing emerging in software scenario. Mostly all companies are curios in developing projects which proves to improve the lifestyle and quality of citizens. In smart cities, analytics and IoT together play a vital role. These two approach helps to improve the infrastructure, transportation, parking system by reducing the traffic congestion, surveillance, electricity, health care, managing wastes by collecting the data from various devices like sensor, cameras connected in the cities. (Silva et al.,2017) Government of India has taken up new mission called smart cities, in which it aims to develop hundred cities all over the country with quality services that uplifts the quality of living and lifestyle of citizen.

Smart city applications generate huge amounts of date while big data systems utilize this data to provide information to enhance smart cities applications. The big data systems will store, process, and mine smart cities applications information in an efficient manner to produce information to enhance different smart city services. A smart city is one of concepts that argue intellectual and social capital should be considered alongside with city's tangible assets at the time of measuring the urban performance. Moreover, a city is considered to be smart when human and social capital with modern information work in conjunction to fortify the economic development of a municipality. A smart city uses digital technologies to enhance quality and performance of urban services, by carrying out the track of ill practices such as power theft and maintain security in public places (Solanki et al, 2016).

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