

Chapter 5

Enhancing E–Government With Internet of Things

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ABSTRACT

Internet of things (IoT) brings unprecedented changes to all contexts of our lives, as they can be informed by smart devices and real-time data. Among the various IoT application settings, e-government seems to be one that can be greatly benefited by the use of IoT, transforming and augmenting public services. This chapter aims to contribute to a better understanding of how IoT can be leveraged to enhance e-government. IoT adoption in e-government encompasses several challenges of technical as well as organizational, political, and legal nature, which should be addressed for developing efficient applications. With the application of IoT in e-government being at an early stage, it is imperative to investigate these challenges and the ways they could be tackled. The chapter provides an overview of IoT in e-government across several application domains and explores the aspects that should be considered and managed before it can reach its full potential.

DOI: 10.4018/978-1-5225-7955-7.ch005

INTRODUCTION

The Internet of Things (IoT) creates an emerging new era of the Internet, in which machines and objects get connected and equipped with sensors, surpassing their traditional role to constitute dynamic actors of networked environments with novel services. The ubiquitous nature of IoT brings dramatic changes to the way we work and live, with an increasing adoption in various domains of personal and organizational activity. According to industry reports, IoT is a very promising technology and is predicted to flourish within the next years, as 127 new devices connect to the Internet every second (McKinsey, 2018). It is expected that more than 24 billion IoT devices will exist by 2020, which will be four times the world population, while by 2018 IoT penetration will cover half of the world population. Investments on IoT are predicted to reach \$5-6 trillion (Newman, 2017). More than half of major new business processes and systems will incorporate some elements of IoT (Gartner, 2017). As IoT advances it is applied in government and the public sector allowing for services that improve the lives of the citizens (IBM Industries, 2017). IoT can bring unprecedented benefits in government systems and services, making a shift from e-government to smart government, transforming G2C, G2B and G2G transactions and processes.

IoT-enabled government information systems and applications can extend the type and the quality of the services offered with innovative smart provisions in a wide spectrum of domains. IoT affects a number of sectors including health, transportation, environment, communications, security/safety, energy, defense and smart cities. In each of these sectors IoT can be used to provide e-government services that can be valuable and helpful to citizens, the society and the environment.

Security and safety are of critical importance to the society and can become even more significant if they are related to areas such as public health or the environment. IoT can allow for the effective treatment of security and safety needs of the public sector through the sensing, processing and communication capabilities of autonomous devices. Critical areas, in aerial, maritime and ground contexts, can be greatly benefited by being monitored with the use of IoT technology to facilitate appropriate and timely action. In particular, the use of mobile IoT devices can enable a wide range of activities related to security and safety, such as the surveillance and monitoring of areas, the detection of threats, the effective management of events, the fast response to emergency situations, the notification about security/safety alerts and the communication of current status to people. Such IoT empowered activities can be applied to a number of contexts such as border surveillance and control for trespassing, weather monitoring and forecasting for intense or dangerous phenomena, air pollution detection, fire detection in forests and rural areas, monitoring of water

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