Internet of Things: Evolution and its Applications

TREO Talk Paper

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Abstract

This research examines the emerging topic of Internet of Things (IoT) and its applications. The focus is on providing an overview of the key concepts of IoT and its application domains that would lay the foundation to explore research opportunities provided by IoT. In the next few years, the impact of IoT on the economy is expected to be significant. Consumer products, sensors and other objects can be combined with Internet connectivity to provide services. To offer better services, the enormous amount of data generated by the IoT devices needs to be analyzed and decisions made accordingly.

The data generated by IoT can be analyzed using various cloud services. The IoT services that are supported in the cloud fall under the cloud architecture known as Platform as a Service (PaaS). Microsoft Azure, Amazon Web Services and IBM Bluemix provide IoT platforms. These platforms allow IoT applications to be developed and tested in a simulated environment, facilitate actual IoT devices to be connected to the cloud for data gathering and interchange, and enable the collected data to be analyzed. Cloud computing therefore is an integral part of IoT deployment.

There are several application domains which will be impacted by the emerging Internet of Things. Some examples of applications include home IoT devices that collect data on electricity usage in residences, IoT devices used for analyzing traffic data, and devices known as Fitbits that monitor an individual's health. IoT would thus change the business model for some businesses such as those related to healthcare, finance, transportation and utilities.

Given its widespread applicability in numerous areas of business, IoT offers many opportunities for research. But, for those in the field of Information Systems, finding a niche in IoT to do research can be a challenging task. This research, while recognizing that there is more work to be done, hopefully provides a starting point to identify specific topics or areas of interest to those wanting to pursue IoT related research. It also describes the features of IoT platforms, offered by different vendors such as Amazon Web Services, Microsoft Azure and IBM Bluemix, that can be used for supporting the research. The initial review of literature indicates application development for IoT devices and analysis of data collected by IoT devices as two potential areas of thrust for IoT related research in Information Systems.