An Industrial IoT Approach for Pharmaceutical Industry Growth

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Chapter 5

Accelerating data acquisition process in the pharmaceutical industry using Internet of Things

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5.1 Introduction

The Internet of Things (IoT) is a newly emerging paradigm in which sensors, actuators, transceivers, and processors communicate with each other. It has become ubiquitous across the globe and affects human life in incredible ways. It is an interaction between the digital and physical worlds with sets of sensors and actuators. The network of connected things such as household objects, industrial components, vehicles, perishable products, and electrical devices, along with Internet connectivity and dynamic data analytic capabilities improve human quality of life drastically. The networking and computing capabilities are embedded with any object, and the state of the object can be identified and changed from one state to another if required. Sensors and actuators assist in communicating with the physical environment. The data gathered from sensors have to be processed efficiently to derive useful inferences from the available data [1]. A sensor may be a microwave oven or a smartphone that can be considered as such if it provides inputs about the current state and the environment. An actuator is a device that has an impact on the environmental change, such as a sprinkler that turns on automatically and puts out flames, when activated by a temperature sensor. The processing of data can be done in a remote server or in the network itself. If any preprocessing of data is required, then it is performed either at the sensor or the proximate device. Later, the processed data are transmitted to a remote server. The processing and storage capabilities of IoT devices are restricted due to resource constraints such as energy, power, size, and computational capability. Communication among IoT devices is largely wireless because the devices are located in different locations.

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