Sensor Web Standards and the Internet of Things

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ABSTRACT

Sensors are a key enabler in the realization of an Internet of Things; they empower us to better understand the state of the world around us and to discover and glean information about objects and actions that drive that world. Many of the objects we associate with the Internet of Things are sensor-based systems, contain sensors as key components (e.g. buildings, vehicles, appliances, etc.), or require sensors in order to be discovered and located. The measurements and information from those sensors are what provide much of the Internet of Things with meaningful data. RFID chips, QR codes, and other technologies facilitate tagging, identifying, and locating objects, but making the presence of these tagged objects and their associated information known to the broader world ultimately requires sensors such as RFID readers and mobile device cameras and standard mechanisms for describing and disseminating that information. Keeping the importance of sensors in mind, this presentation explores the applicability of the Open Geospatial Consortium (OGC) Sensor Web Enablement (SWE) standards to help build and drive the Internet of Things by standardizing the way in which sensors and sensor data are described, discovered, accessed, and controlled. SWE provides extensive support for describing the location of sensors and their observations, and this location information is a key aspect of data within the Internet of Things, allowing both human users and intelligent objects to know where they are, what they do, and what objects and data are available around them. This presentation describes how SWE-based sensor description and location information and the spatial relationships derived from that information can be applied in a variety of novel applications to facilitate an Internet of Things.