Editorial   **Open Access**

Sensor Web: An Infrastructure for Real-Time Smart Applications

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Editorial

Sensor Web, firstly proposed by NASA, is defined as a smart macro instrument for coordinated sensing. It consists of various sensor nodes that not only collect data, but also share data and adjust their behaviors [1-3]. Recently, as the development of Global Earth Observation System of Systems (GEOSS), Smart City and Internet of Things (IoT), tens of millions of heterogeneous sensors, including space-borne, air-borne, *in-situ* and mobile sensors have been deployed in different fields and for various purposes. The earth, the cities have never been thoroughly and dynamically sensed as they are nowadays.

The Sensor Web node can sense its ambient circumstances in real/near real time. What's more, the node is usually attached with GPS sensor, which can provide the location of the sensing. Therefore, the Sensor Web has the capability of location-based real/near real time monitoring of dynamics of surrounding environment, which makes it perfect infrastructure for smart applications with real-time feature. For example, in agriculture, we can take advantage of Sensor Web for real-time monitoring of the environment that crops live, including the air temperature, air humidity, soil moisture and some chemical factors. Based on these real-time data, further analysis can be performed to determine when and how much fertilizer should be applied, as well as to control the actuators to conduct the fertilizing action. By using this technology, the efficiency of farming can be improved to a great extent. What's more, the decision-making during farming related operations can be more scientific and feasible, contributing to smarter and more precise agriculture.

The Sensor Web can also be applied to many other areas, such as museums for smart management of cultural relics and better navigation inside the exhibition hall to improve visitors' experience [4], urban water systems for smart and real-time monitoring of quality of water, electricity for assuring the healthy and stable operation of electric system and so on.

As sensor technology develops which resulting in more energy-efficient, smaller and smarter sensors and the construction of smart earth and smart city advances rapidly, the Sensor Web will be deployed and utilized in more and more fields, making it an important kind of infrastructure to support more and more intelligent applications.

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