Towards Establishing Cross-Platform Interoperability for Sensors in Smart Cities

Abstract:

In most smart city projects, multiple stakeholders and companies are involved who use their own sensors and IoT devices which are managed by different platforms and APIs. However, in order to work within a common operational framework, it is unlikely that all of the stakeholders would be willing to use a common platform. Sensor web infrastructures play a key role in providing interoperability between heterogeneous sensor observations and platforms. Such infrastructures always require a data storage to store sensor data and their observations. It can be an issue as not all stakeholders would be willing to inject their proprietary data into a third-party data storage in the sensor web. In this paper, we introduce a new lightweight web service called InterSensor Service allowing users to simply connect to multiple IoT platforms and databases and retrieving their observations without worrying about data storage and the multitude of different APIs. The service encodes these observations using standardized external interfaces such as the OGC Sensor Observation Service and SensorThings API. We have developed a Java based implementation of the InterSensor Service, which is being offered free as open source software. The service is already being used in smart city projects and one application for the district Queen...
Elizabeth Olympic Park in London is shown in this paper.

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