A Domain Related to Semantic Web Technologies: A Review on Semantic Sensor Networks

MR Kurukulasuriya, DU Vidanagama

Department of Computer Science, Faculty of Computing, General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka

Abstract. The Semantic Web is a complex extension of the internet, a framework that allows data to be shared reused across application, enterprise, and community boundaries. Since sensor data is a vital stream of data that is needed in many applications, we must have a way to extract, collect and structure this data. Imagine a criminal is on the loose, to identify him in plain sight a satellite could be used to find him, but to further describe him rather than just having a picture of him from a geographical view we could obtain metadata from various sensors in the environment. Semantic web technologies and the relation to a domain of how this framework is integrated onto sensor network platforms and sensor webs is discussed in this paper. Technological use of multiple layers of knowledge models and methods of analysis of sensor networks and various ontologies used in application domains are also discussed. A familiar method of tracking down entities using multiple sensors and their autonomous interoperability with a usable ontology for all sensors is discussed in the literature survey as well. Another category where sensors would be used would be the home environment for the safety as well as detection of anomalies is categorized. Home sensor ontologies consisting of sensors in a home such as lighting and home appliances and security devices interoperating and communicating with each other, smart methods of sensor networks applied in mobile phones, machine to machine semantic sensor network architectures are described in this paper. Further on reviews of ontologies, their extensions to adapt to specific applications in our day to day lives are also discussed to exhibit the interest in our approach. Out of all these research articles and information, we can learn that a feasible method for sensors to communicate efficiently and increase their interoperability is the target in semantic sensor networks. Knowledge bases, models, and layers of architecture in which sensor nodes may use to acquire knowledge to act methodically is also very important for the function of sensors in this semantic sensor web domain. The application domain of semantic sensor networks is a vast and diverse region in which man has just got familiarized with but has not acquire enough knowledge to manage efficiently. With this research, we aim to show the branches of semantic sensor networks their ontologies, and the way they originated from the semantic web application domain.

Keywords: Semantic Web Technologies, Semantic Sensor Networks