

Summary of Sensor Standards Harmonization Working Group (SSHWG) Meeting

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Purpose of SSHWG

- Provide a forum for industry, academia, and government to exchange information and improve understanding of the various sensor-related standards programs being advanced by various standards development organizations (SDO).
- Identify opportunities to frame the harmonization of sensor-related standards to meet the need of the community, and
- Provide opportunities for collaborative demonstration of standards implementation.

History of SSHWG

- SSHWG was formed on 12/13/05. So far three quarterly meetings were held on 3/14/06, 6/21/06, 9/12/06.
- Sensor interface, sensor format, sensor model and standards were discussed and examined for a standards-based framework for interoperable sensor networks and emergency data distribution:
 - ANSI N42.42,
 - IEEE 1451,
 - CBRN Data Model,
 - SensorML,
 - TransducerML,
 - Common Alert Protocol,
 - EDXL-DE.
- Testbed and implementation demonstrations are good ways to show that systems are functional and interoperable.
- Means for harmonizing these and other sensor-related standards such as ontology was discussed.

Summary of this meeting

Discussion on Development of Use Cases

- A slide listing various sensor planning scenarios for FEMA/DHS was presented. A large matrix is being built. It will be distributed to the SSHWG members and others as a basis for coming up with use cases.
- It was suggested to add scenarios as to whether the output is proprietary or standardized.
- Discussion of models of sensor/acquisition/analysis systems was held. It was pointed out that there were cases where analysis must be done at a centralized analysis facility. It was pointed out that we need to capture the context of the data. We must consider how this all integrate with the matrix.
- It was pointed out that all these standards need to be integrated with a super schema to map each of them into a super fusion interface.
- Industry's needs should be considered in order to leverage usage.

Presentation and Discussion on Ontology

- A presentation on sensor standards harmonization approaches using Semantic Wiki was given. Semantic Wiki is a platform for building applications with ontologies. It can be used as a framework for harmonization sensor and related standards. Consequently it can be used to demonstrate compliance of a particular sensor with a particular standard.
- Thus contribution to setting up a Semantic WiKi for sensor ontology was called, especially those that would map standards to a common core. In this case, it is mostly text-based mappings with actual standards referenced.
- Discussion turned to how to map proprietary sensors to standards. Question was raised whether an interface can be abstracted and a reference provided to the standard at its website.

ISA Standards Related to Sensors

- ISA gave a presentation on their development of sensor-related standards.
- ISA established standards ranging from performance requirements for toxic gas instruments, cyber security, devices and equipment for analyzing composition and characteristics of materials for industrial monitoring, to field-level applications of wireless sensors.
- ISA offered to collaborate and work with the Sensor Standards Harmonization Working to address the issues on harmonization of sensor standards.

Update on IEEE 1451 Standards

IEEE 1451 Suite of Standards:

- Open industry interface standards
- Provide a set of common interfaces for connecting transducers (sensors and actuators) to instruments and networks
- Support wired and wireless sensor network connections
- Define Transducer Electronic Data Sheets (TEDS) for self-identifying and self-describing sensors
- Set a framework for distributed system architecture
- P1451.0 and P1451.5 drafts recirculated
- Provide standard Web services for accessibility
- Adding RFID interface (1451.7 – PAR being developed)
- Investigating if IEEE 1451.5 can be a basis for active tag/sensors.
- Coordinating with ITU, ISO, ISA on sensor standards

Update on OGC Standards

- Describe OGC standardization process
- Overview of OWS-4 SWE - a Sensor Web Enablement (SWE) baselining and implementation demonstration
- SWE- enabling web sensor through the development of web service interfaces such as SOS, SAS, SPS, WNS interfaces
- Most standards are either released or in an RFC state. Approved standards are available at the OGC website

- Presentations are made available at the NIST website:
<http://ieee1451.nist.gov/membersonly/>
- For login - userid: 1451mem , password: 1451member

Open Discussion

- Update on EDXL-DE (Emergency Data Exchange Language – Distributed Elements). Version 1.0 was approved as an OASIS standard on May 1, 2006. Current there are pilot and deployment in demonstration projects:
 - DNDO South East Region Pilot
 - FEMA Integrated Public Alert and Warning System (IPAWS).
- Question was raised “how do we move forward to actually doing some harmonization, rather than reporting on individual activities?”
- It was proposed that we all work on the ontology effort and add to the Semantic Wiki roadmap. This would allow us to make the problem areas visible and point out where there are harmonization opportunities.
- Further exploratory on Semantic Wiki with the sensor standards will be reported at the next meeting
- Development of use cases will be further discussed at the next meeting,

- Proposed date for the next meeting:
Date: May 22, 2007 at NIST
Time: 9:30 a.m. to 3 p.m.
Location: Bldg 101, Lecture room E