

Sensorpedia

Applying Social Networking Principles to Sensor Data Sharing

Web 2.0 and Social Software Applications

Because humans are innately social, a natural trend has emerged in web application design to incorporate functionality that enables many-to-many conversations between users. The past eight years have seen an explosion in growth and popularity of these new Web 2.0 sites.

Ad Hoc Information Networks

As the popularity of web sites like YouTube, Flickr, Wikipedia, and Twitter grows, first responders and public safety officials are implementing their own homegrown solutions using these social networking web sites to share data and collaborate. A number of local success stories have emerged, including:

- Firefighters utilized YouTube, Twitter, and Google Maps “mashups” to track the progress of containing the California wildfires.
- Wikipedia was used by students to collect eye-witness reports and document incidents surrounding the Virginia Tech Massacre.
- Police departments have captured fugitives after placing their “ten most-wanted” information on YouTube.

But **local success** \neq **enterprise success**. Even as these innovative solutions are used to solve real problems in the field, the media regularly reports on the failures of interoperability for response coordination at the organizational or enterprise level. Solutions exist – they just need to be formalized and adapted for enterprise use.



Examples of popular Web 2.0 sites for data sharing.

The Sensorpedia Approach

Sensorpedia is a program initiated by Oak Ridge National Laboratory (ORNL) that utilizes Web 2.0 social networking principles for organizing and providing access to online sensor network data and related data sets. Sensorpedia is based on the same underlying technologies that power popular web sites such as Wikipedia, Squidoo, Google Maps, and FaceBook. Instead of networking users based on mutual personal interests, Sensorpedia networks users based on mutual information interests. It is a “write-able” web site for near-real time collaboration amongst a community with a requirement to share sensor information. Sensorpedia leverages the success of these popular social software applications and formalizes how these technologies can be adapted for scientific research, national security and defense, public health and safety, emergency preparedness and response, and general community awareness and outreach.



Follow the innovators and “pave the cow paths” for everyone.

Sensorpedia Services and User Interface

Sensorpedia combines familiar and commonly available social networking technologies with proven cyber-security technologies to simplify sensor interoperability while preserving the integrity, security, authenticity, and provenance of sensor information. Sensorpedia consists of web services components and an extensible user interface. The web services are designed to accept and publish data using established standards such as streaming media, Google Earth and Google Maps KML, and GeoRSS. The Sensorpedia user interface is designed using Web 2.0 best practices and allows extension by third-party developers using a flexible modular framework.

RSS for subscription to data feeds

Textual and geospatial data search

Profile, chat, blog

Tags

Editable "modules" for streaming data links, textual descriptions, etc

Automated "mashups"

Links to help information and popular example pages

Intuitive interface for easy exploration and contribution

Third party gadgets

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