Unattended Ground Sensors Standards Working Group: Transforming the unattended sensor paradigm

This brief is unclassified in its entirety and approved for public release
Starting with a memo, in 2009

- Deputy Under Secretary of Defense for Technical Collection & Analysis endorsed creation of UGS SWG, charter by the Director of DIA
- Vision to maximize operational flexibility, while minimizing equipment in the field by addressing stovepiped architectures
- Charter signed July 2011
Our objectives

• Establish a workable architecture, standards, and interfaces, with acceptance from the entire UGS community of interest

• Guide UGS acquisition efforts to facilitate implementing an open architecture approach across the DoD

• Facilitate collaboration and knowledge sharing across the community of interest
The UGS SWG is bringing the UGS community together
How we’re organized

**Authority:** Office of the Secretary of Defense, Deputy Under Secretary of Defense for Technical Collection & Analysis

**Chair:** DIA Directorate of MASINT and Technical Collection

**Principals**
- Services and Commands
- Agencies
- Director, Defense, Research and Engineering

**Stakeholders**
- Service requirements organizations
- DoD acquisition organizations
- User organizations
- Technology organizations and R&D community
- Industry contractors and vendors
- IC partners
The UGS SWG and its Technology Focus Groups aim to transform the design and deployment of unattended sensors.
Moving away from proprietary designs and stovepiped systems…

...to a model neither platform-dependent,

nor constrained by sensor performance requirements
The keys are flexibility and open, standard interfaces

UGS SWG solves interoperability problems with an open sensor architecture
• Makes components and systems **interoperable** and **vendor agnostic**
• Includes **standard** interfaces and plug-ins, common graphical user interface, and data sets
• Is **platform agnostic**
• Adapts to ad-hoc missions
• Enables operational **flexibility**, more **diverse** ISR toolkits, innovation from **non-traditional** sources, **shorter acquisition** cycle and time to field
• Reduces costs
UGS standards allow interoperability, reconfiguration and insertion of new ISR technology in **days** or **weeks** … not months or years
UGS standards enable interoperability among UGS components, assets, and systems

- Flexible UGS architecture
- Improved interoperability and effectiveness
- Transitioning architecture development and maintenance to NATO and industry working groups

Exploitable Data through Common Lexicon and Standards

Plug-&-Play Vendor Agnostic

Increased Ability for Technology Insertion

To CONUS PED

Forward PED
Government and industry collaborated successfully
• Vendors kept intellectual property
• No need to modify legacy hardware sensors/communication—vendor just provides plug-in
  • No ISR capability/requirements
• Enhanced utility of vendor products
• Easier integration with legacy assets
  • No loss of current markets for vendors
  • No need for original equipment manufacturers to align with system integrator
We now have a test bed and associated reference implementations for the UGS SWG

Ensures integrity of UGS open architecture
Verifies usability, ease of implementation
Provides baseline from which to measure other implementations
The UGS-SWG aims to make plug-and-play compatibility possible on the battlefield.

Mix-and-match sensor components

Specifications that all vendors can build to

Interoperable components and compatible interfaces
Technology Focus Groups

Software Component Architecture

Wired/Wireless Interfaces

User Interfaces
Software Component Architecture TFG

- Led by Army Research Laboratory
- Focuses on controllers and plug-ins
- 2013 objectives:
  - Data schema and commands protocols
  - Electronic specification sheets
  - Complete controller software architecture (profiles, FMV, etc.)
  - External domain interfaces (mission planning, PED, Enterprises, etc.)
  - IA package
Wired and Wireless Interfaces TFG

• Led by U.S. Marine Corps
• Focuses on identifying existing standards for wired and wireless interfaces between UGS components
• 2013 objectives:
  • Define limited number (e.g. 15) of connectors to cover most applications
  • Define device ID, SN, metadata fields for sensor reports
  • Generate requirements for about six classes of sensor radios
User Interfaces TFG

- Led by Special Operations Command

- Focuses on identifying or developing standards for user interfaces driven by data output and dissemination, C2, and operations

- 2013 objectives:
  - Define relevant user interfaces for frontend and backend
  - Define relevant consideration elements (use cases)