

Networked Situational Awareness Sensor (SAS) System

- Real-time small unit situational awareness and connectivity in a small integrated package
- Networked sensors for threat identification
 - Disposable or reusable, low power, long life
 - On-node processing for alerts of indicators and warnings
 - Self-organizing, self-healing network
 - High probability of detection and identification with low probability of false alarm
- Communications for reach-back tactical reporting and access
- Interoperable messaging protocols compatible with Departments of Defense and Homeland Defense

The Networked Situational Awareness Sensor (SAS) system provides the small unit leader and team members with the ability to understand, control, and dominate the battlespace by providing comprehensive situational awareness and reliable connectivity.

SAS consists of scatterable networked sensor units that are designed to detect, report, record, and interpret movements and activities of people and vehicles within the area of sensor deployment. This data may then be accessed with wireless Internet using SAS Viewer software.

The SAS System can be applied in a wide variety of applications and conops. SAS can scout and monitor urban and complex terrain without human intervention. Whether hand-emplaced or air-delivered,

the networked SAS system provides persistent surveillance over areas of interest. In an air assault, SAS can distinguish threats from friends and monitor the cleared area after operations. In operations other than war, SAS can function as a remote sentry, monitor crowds or militia movements, and characterize population. SAS can be the cornerstone for a perimeter management system, detecting concealed and covert threats with highly specific motion detection. In maneuvers, both under pressure and unconstrained, the network can serve as route-side monitors wirelessly linked to vehicles, tracking both friendly and threat vehicles.

The SAS system is made up of two basic elements: the Graphical User Interface and the Multi-Sensor Nodes.



UNDERSTAND AND CONTROL THE BATTLESPACE

Graphical user interface

The Graphical User Interface (GUI) wirelessly communicates with the sensor network, downloads data, and provides interpretation for a common operational picture. The GUI will allow easy communication among team members, as well as providing responses to basic questions such as "Where am I?" "Where are my



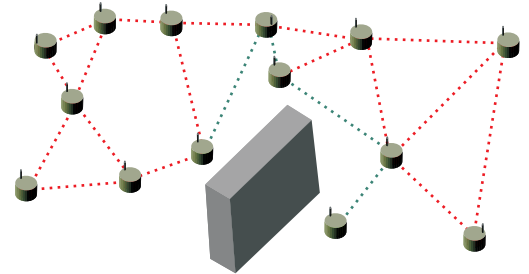
Multi-sensor nodes

The Sensor Nodes process detections and identifications locally. They use node-to-node collaboration to assess and identify threats.

- Variety of sensing modes
 - Acoustic
 - Seismic
 - Passive infrared
 - Microradar
 - Chemical warfare agents
- Target signature detection
 - Human motion, footsteps, and speech
 - Vehicular sound, vibration, and motion
 - Geospatial tracking
- Low power consumption
- Battery and/or solar-cell power
- GPS for self-locating functionality
- Low cost/disposable



The Sensor Nodes communicate over a secure radio and embedded wireless network that enables the sensors to communicate in a self-forming, self-healing wireless mesh network. The network also acts as an embedded router and a repeater to extend network range and reliability. The mesh networking automatically adapts to form reliable communication paths even in the face of RF interference.



- Wireless Network
 - Self-organizing
 - Self-healing
 - Automatic relay
- Radio
 - High performance
 - Adjustable frequency band
 - Low power
 - Long battery life
 - Chipsets or modules
 - SPI bus interface

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