

CASE STUDY

Aegeus

High-Tech Sensor Buoys For Security and Environmental Monitoring



Aegeus Security Buoy in Potomac River

Aegeus is a constellation of high-tech sensor buoys configured with latest-generation wireless communications. Equipped with advanced environmental and security system sensors, these buoys are able to share data and network buoy-to-buoy, buoy-to-shore and at-sea platforms. The buoy sensors include Day/Night video, acoustic modem, environmental, oil sensing, radiation hazard detection and advanced homeland security sensors to extend the protection zone around harbors, ports and seaways to better protect commercial and military assets and/or ships.

Currently there are multiple test buoys deployed, in the Potomac River and in the Puget Sound region. Two basic configurations have been deployed; one is a security configuration and the other is an environmental/video surveillance configuration.

In conjunction with the Aegeus deployment, complex network architecture has been developed to fuse and assimilate data collected. This includes a web based portal accessible by a Network Operations Center (NOC) to a secure database. This network incorporates shore based equipment, which includes radars and long range pan tilt zoom (PTZ) day/night cameras with the Aegeus buoy system. In concert, these systems presents crucial information gained in the field and provides the ability to analyze and respond accordingly.



The surface security buoys are modular in construction and are an integration test platform that houses an array of sensors, which transmit to shore using Intellicheck Mobilisa's Wireless Over Water (WOW)™ technology and other telemetry systems. Installed sensors include: radiation hazard (RADHAZ) detection, day, thermal, and low-level light cameras providing streaming video, weather station, global positioning system (GPS), digital compass, radio, cell and maintenance-free power generation subsystem that capitalizes on solar for recharging the battery bank. The buoys are designed to be configurable and adaptable to varying mission requirements to include additional sensors such as acoustic modem, chem/bio detection, surface and subsurface environmental sensors, and a security system.

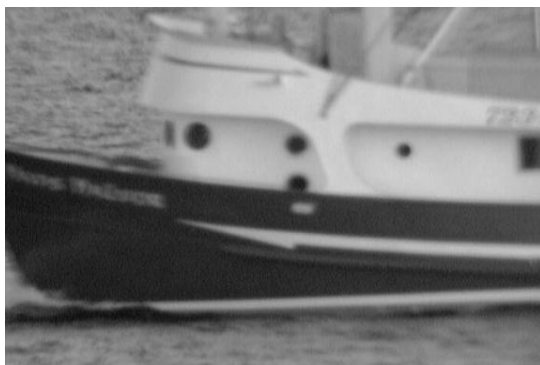


Image taken from Aegeus System low-light camera

The environmental/video surveillance buoys include a weather station, environmental sonde, GPS, PTZ day/Low Level Light camera, a digital compass, cell and radio subsystem, as well as a more robust "hybrid" power system that combines wind and solar generation. The Oil Sensing configuration can detect surface oil contamination. The preferred sensor can detect refined or crude oil products. With the onboard wind and current direction/speed sensors, an alert could be sent to a NOC. Prediction of speed and direction of plume drift for immediate response can be made. These buoys can be equipped with all other sensors from the surface security buoy system.

The design of the buoys exploits a “Plug-N-Play” architecture. This architecture allows for varying sensors to be attached or removed meeting dynamic mission requirements. A single buoy can be assembled as a port security buoy and then later be modified as a communications link, an oil spill detection buoy, or a combination of each.



Photo of Washington State Ferry taken from Aegeus Security Buoy System

Aegeus can be used to enhance security with a mix of video, acoustic, radiological and other special purpose electronics all feeding back wirelessly to a NOC. This data is fused and integrated within a custom network architecture that quickly analyzes and presents crucial information gained in the field. Aegeus increases situational awareness by placing sensors directly between protected assets and harm’s way thus allowing the NOC more time to react to events and threats.

Intellicheck Mobilisa’s Aegeus buoy system provides a means of port and harbor protection. By placing buoys throughout an area of civilian or military assets, the sensor perimeter can be extended beyond the Line of Sight, by using the WOW™ technology or other telemetry systems to relay and communicate between the buoys and to the shore NOC. By receiving the indicator miles out in a channel or to sea, authorities may be notified and halt the ships entry into territorial waters. The Video capabilities give authorities an “eyes-on” capability never before obtained. The PTZ can be controlled by the NOC to assist in identification of threats or may be auto controlled upon queuing.



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