

EYE IN THE SKY

WIDE-AREA MOTION IMAGERY PROVIDES
HIGH-ELEVATION SECURITY



Photos courtesy Logos Technologies

How do we protect our troops from unseen enemies and invisible dangers? What if we could monitor an area roughly as large as a city, using 360-degree views, 24 hours a day, 7 days a week, to safeguard American Warfighters from enemy ambushes and IEDs?

Thanks to Kestrel, a Wide-Area Motion Imagery (WAMI) system developed by Logos Technologies, Inc., U.S. forces are now protected by a literal eye in the sky in Iraq and Afghanistan. Designed to be mounted on an aerostat, Kestrel is a full-motion, electro-optical/infrared camera system, optimized to track vehicles, detect moving dismounts, and identify enemy targets with unlimited pan and digital zoom within the entire field of view.

In 2009, as the power of WAMI technologies was recognized by the U.S. military, the Defense Advanced Research Projects Agency (DARPA) awarded a Small Business Innovation Research (SBIR) contract to Logos Technologies to develop Video Image Storage Techniques (VIST).

David Fields, Vice President of Technology at Logos, proposed that the Phase I award focus on developing an imagery compression system capable of filtering, compressing, coding, and storing airborne Wide-Area Persistent Surveillance (WAPS) imagery. Dr. Geoff Hazel, a Logos technologies fellow, and Deputy CTO Patrick Baker, executed the project, taking the concept far beyond its initial goals in the follow-on Phase II SBIR, which developed a new software allowing real-time processing of high-volume WAMI systems data.

The Phase II solution for wide-area video image storage solutions was integral to the development of all WAMI sensors, such as Kestrel and its commercial counterpart, Simera.

In 2010, the Intelligence, Surveillance, and Reconnaissance (ISR) Task Force and the Army G2 Intelligence requested a WAMI system for aerostats. The Naval Air Systems Command (NAVAIR) awarded the work as an SBIR Phase III. The resulting system for military use, Kestrel, used VIST directly derived from the initial SBIR work.

In addition to live streaming video to multiple sensor operators and providing automated detection alerts, Kestrel also records and archives all visual activity for subsequent analysis for a 30-day period. The newest version, Kestrel Block II,



continues its proven ease of use and hassle-free maintenance in rugged terrain while also cutting its total weight nearly in half, from 150 pounds to about 80 pounds, making for a much more compact system.

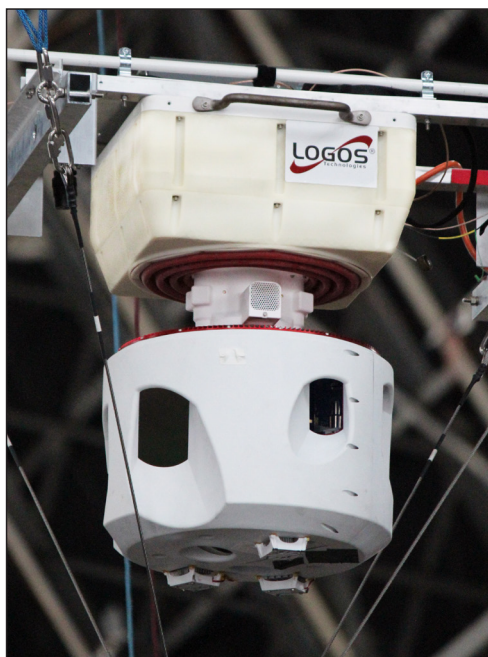
Logos Technologies' President John Marion credited the SBIR program with giving his company a competitive edge: "The SBIR contracts help small businesses like Logos Technologies with contract vehicles that

let us compete with large companies. In the case of the VIST SBIR Phase III, we were able to land and then execute our biggest contract to date, allowing us to quickly grow."

Kestrel WAMI can be used not only for military base protection but a wide variety of applications such as security at large sporting events and public transportation hubs, anti-poaching monitoring, natural disaster relief, border security, and counter-terrorism efforts.

Kestrel and a smaller, lighter aerostate-based system called Simera are not stand-alone products but are integrated by Logos Technologies into existing comprehensive surveillance systems. WAMI

systems trade resolution for coverage size, meaning they excel in wide-range situational awareness over large swaths of terrain. Once movement from a vehicle or person is detected via WAMI sensors, the system can cue other high-resolution cameras (full-motion video sensors) to that specific area. WAMI was explicitly created to fill a challenging gap in surveillance methods that fell short of giving a true bird's-eye view and big picture awareness over an entire city-sized area. 🌐



Mounted on an aerostat, the WAMI system is capable of monitoring enormous swaths of territory.



Logos Technologies, Inc.

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