

7/15/09 - Miltec makes homeland security defense tool

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If you've driven near Highway 7 recently, you may have noticed a UFO hovering just south of Oxford that has taken the shape of a single large white balloon.

Don't panic. The balloon is friendly and, in fact, is watching out for your safety.

It's part of a project being developed at the Miltec Research and Technology Co., which is based at the Oxford Enterprise Center.

The company, purchased by Ducommun in 2006, has a parent company in Alabama and locally joined with the University of Mississippi National Center for Physical Acoustics before branching out into its own business in Oxford. The focus of the company is audio products that are often used for defense mechanisms.

The balloon is one of its newest of the products and is a homeland security project now in its demonstration phase.

Working with two other companies, Floatograph and Strong Watch, the company has engineered an elevated acoustic sensor, or what its developers call, ELF.

"This is the next generation of a previous product called the fence post," said Geoffrey Yoste, a consultant for Miltec through his Yoste Strategic Partners LLC. "What we've now developed is the elevated ground sensor."

When testing is completed, Miltec intends to manufacture the product in Oxford which will in turn create local jobs, Yoste said.

New combination

The sound component can be combined with any camera system and any balloon system to combine a visual and auditory sensor. While visual systems already exist that are similar, Miltec is the first to create a combination sound and visual system.

Floatograph supplied the balloon which Miltec has managed to fuse with its acoustic sensor and the Strong Watch camera. The result of these efforts is the creation of a monitoring system that has a variety of applications.

"Potential applications for this are not only militarily but also for homeland defense/security, such as monitoring illegal alien traffic along the northern and southern Borders, stadium and sports security and maritime domain awareness

(port security),” Yoste said. “Civil applications may include traffic control and critical infrastructure.”

Although ELF is designed to be able to pick up sound and visuals in an area ranging from 10,000 to 100,000 square feet, the purpose is to capture unique sounds, such as gunfire or other loud noise.

“It’s not listening to your conversations; we couldn’t even if we wanted to,” said Wayne Grather, a Miltec engineer.

What the system can capture is a large noise. The auditory system then tells the camera where to look, something that current visual systems can’t accomplish.

During a recent test, Sound Watch Chief Executive Officer Andrew Griffis said that for military uses, if the balloon is shot down, it can remain in the air for two to three hours, providing more than enough time for the auditory sensor to pinpoint where the gunfire originated.

The other benefit to the ELF is that the system is mobile, allowing owners to place it wherever it’s needed, rather than building a stationary tower.

News

Israeli confidence in aerostat surveillance Grows

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Controp’s new SPEED-A camera pods and tethered balloons have proved themselves a powerful combination in recent months, particularly during the Gaza war that the Israeli military called operation Cast Lead. Operating at, typically, 1,000 ft, their persistent surveillance capability with continuous-zoom IR cameras detected a number of rocket attacks and ambushes in the preparation phase, giving warnings timely and precise enough for the attacks to be prevented.

Tactical aerostats are attracting increasing attention at the moment because of the promise of persistence, ease and speed of deployment and broad coverage at low lifecycle cost, but optimising cameras to give their best while attached to a balloon is far from a trivial task, says Controp’s marketing VP Johnny Carni. The key, he tells Digital Battlespace, is to stabilise it properly in pitch, yaw and roll, using thorough knowledge of the dynamics, particularly aerodynamics of aerostats, which are subject to frequent gusts of wind and are constantly in complex motion over large displacement, despite being tied to the ground. Their range of operating altitudes is generally from around 500 ft to 3,000 ft.

Also critical, he says, is reducing the weight of the camera while still allowing good longrange performance. Smaller tactical aerostat systems, such as that from Aeronautics Ltd, with whom Controp is working, tend to be more stable than larger ones, but they can’t carry as much, so light sensor packages are a must. Another plus point of the smaller aerostat is the ease and speed with which it can be transported to where it is needed and

launched to its operating altitude. The ground infrastructure for large aerostats, in contrast, can be very complex and expensive.

The tactical aerostat, with its rapid deployment capability – a typical launch time once in the right location is about three hours and it can be recovered in about an hour – is likely to find applications in force protection and base security, possibly as a rival to some UAV systems, believes Carni, because of the much lower operating costs involved.

The need for low weight led Controp to design SPEED-A with a housing made largely from reinforced plastic composites to contain the Fox 720, one of the company's own Fox family of IR cameras, known for its continuous zoom capabilities over a long range of focal lengths and very accurate geolocation capabilities.

Aero India 2009 is the first time that SPEED-A has been shown outside Israel, and the same goes for a new member of the Fox family. The Fox 1400 which, as the designation suggests has a 1,400 mm focal length IR lens with a x35 magnification capability.

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