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DARPA Doubling Down on Spy Technologies

CHARLESTON, S.C. — The Defense Advanced Research Projects Agency plans to increase investments in aerial surveillance systems. Long-endurance aerostats, autonomous sensors and other ISR (intelligence, reconnaissance and surveillance) technologies are among the agency's top priorities, said Ellison "Dick" Urban, special assistant for strategic execution and analysis at DARPA.

Declining budgets mean that DARPA has had narrow down its wish list, and agency leaders have determined global ISR to be one of the most important study areas, Urban said April 17 at the National Defense Industrial Association's annual science and engineering technology conference.

U.S. drones in Iraq and Afghanistan have been relatively unchallenged, but the next conflict may require ISR operations in contested airspace. So DARPA is looking into sensors that would be powerful enough to fly in friendly airspace and peer into countries where access is denied.

In addition to persistence, DARPA is focusing on higher resolution imagery and wider view sensors.

"Every combatant commander has this problem," Urban said. Wider views and higher resolutions usually don't come in the same package. Either it's one or the other, he said.

DARPA is addressing some of the demands with ARGUS, or autonomous real-time ground ubiquitous surveillance. It is like taking the views that the Predator drone gets and multiplying it by 65, Urban said. The system depicts one large image containing 65 windows. An operator can take any of those windows, zoom in and track a target.

ARGUS has been used on A-160 Hummingbird unmanned helicopters by both U.S. Central Command and Southern Command with positive results, he said.

But analysts already complain that they are receiving too much data from ISR assets. DARPA used to focus more heavily on sensors and less on exploitation of the information they collect. Now, the investments are about equal, Urban said.

DARPA's video image and retrieval analysis tool, or VIRAT aims to create an easily searchable database of video feeds from drones. VIRAT would be able to do a search through archives to find related videos. For instance, the system could cull up all footage of people digging or running or vehicles doing U-turns. With 30 minutes of raw footage, it may take an analyst alone more than 300 minutes to find what he is looking for, Urban said. With VIRAT, it would take about 90 minutes, he said.

DARPA also is looking to improve underwater sensors. The distributed agile submarine hunting program, or DASH, aims to create a network of small unmanned underwater vehicles that scan upwards from deep in the sea to detect quiet diesel electric subs. The technology also would give operators a look into abysmal plains deep on the ocean floor.

After subs are found, a small unmanned surface vessel could track and trail them at speeds up to 30 knots. The second phase of the anti-submarine warfare continuous trail unmanned vessel program, or ACTUV, is slated to begin in July.

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