New DARPA Program Plans To Patrol Cities With AI Drones

Description

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by Tyler Durden

On May 10, the Defense Advanced Research Projects Agency (DARPA) unveiled the Urban Reconnaissance through Supervised Autonomy (URSA) program, which addresses the issues of reconnaissance, surveillance, and target acquisition within urban environments.

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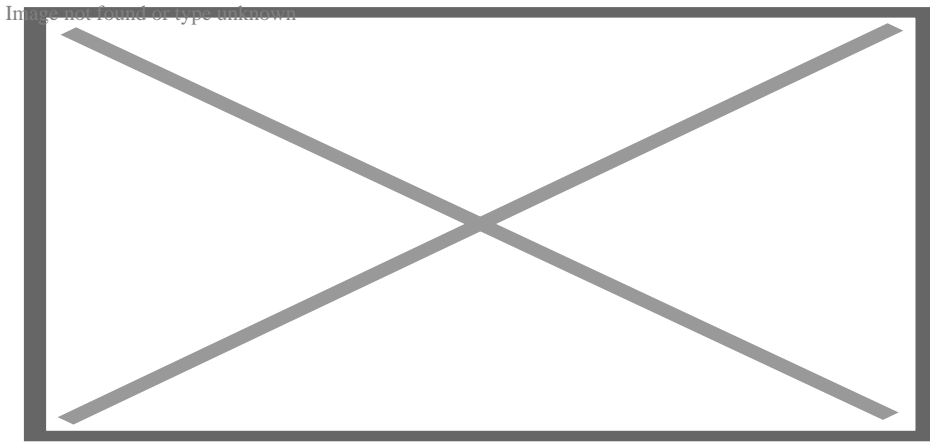
The primary objective of the URSA program is to evaluate the feasibility and effectiveness of blending unmanned aerial systems, sensor technologies, and advanced machine learning algorithms to "enable improved techniques for rapidly discriminating hostile intent and filtering out threats in complex urban environments," said FedBizOpps.

In other words, the Pentagon is developing a program of high-tech cameras mounted on drones and other robots that monitor cities, which **enable identification and discrimination between civilians and terrorists through machine learning computers.**

**DARPA provides a simple scenario of what a URSA engagement would look like:**

> "A static sensor located near an overseas military installation detects an individual moving across an urban intersection and towards the installation outside of normal pedestrian pathways. An unmanned aerial system (UAS) equipped with a loudspeaker delivers a warning message. The person is then observed running into a neighboring building. Later, URSA detects an individual emerging from a different door at the opposite end of the building, but confirms it is the same person and sends a different UAS to investigate.
>
> This second UAS determines that the individual has resumed movement toward a restricted

area. It releases a nonlethal flash-bang device at a safe distance to ensure the individual attends to the second message and delivers a sterner warning. This second UAS takes video of the subject and determines that the person's gait and direction are unchanged even when a third UAS flies directly in front of the person and illuminates him with an eye-safe laser dot. URSA then alerts the human supervisor and provides a summary of these observations, warning actions, and the person's responses and current location."

The URSA program is a two-phase, 36-month development effort. The first phase of concept/development will begin in the first quarter of FY19 and continue into the second half of FY20. Phase two will start in 3Q20 and continue through 2Q22.

Figure 1. URSA Program Schedule
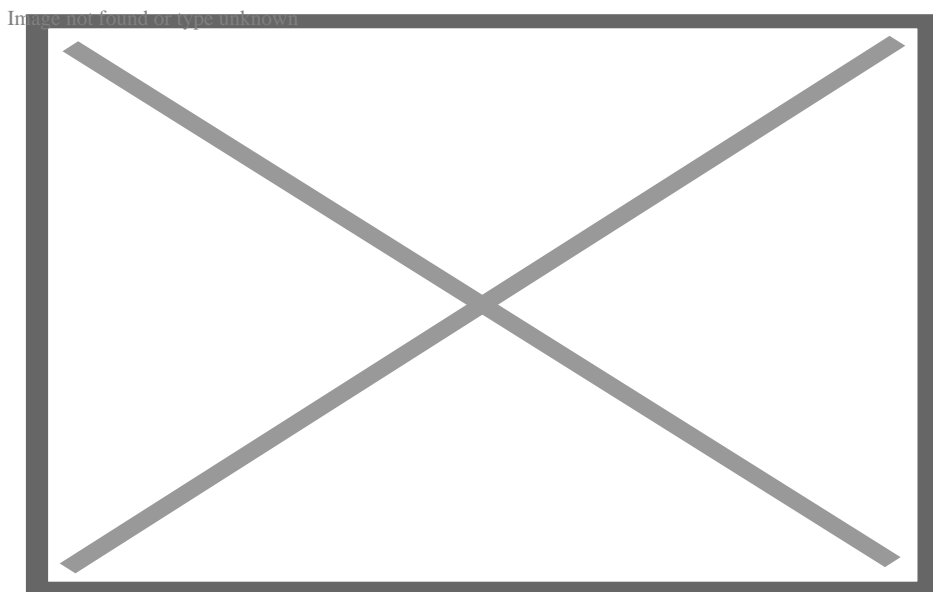


DARPA describes Phase 1:

"Phase 1 will include initial technology research and trade studies to develop an evolutionary demonstration architecture and demonstration approach.

The Phase 1 program will be comprised of two performer tracks. Track A will be focused on system-level solutions and demonstrations. Track B will be used to fund compelling critical enabling capabilities such as component-level algorithms, behavioral analysis techniques, technologies or other unique research that could enhance multiple system level approaches.

The objective of Track B is to enable participation by companies with niche expertise who can only offer partial solutions to URSA. Track B performer results will be due approximately 12 months after award to enable assessment and potential teaming with Track A performers for Phase 2."
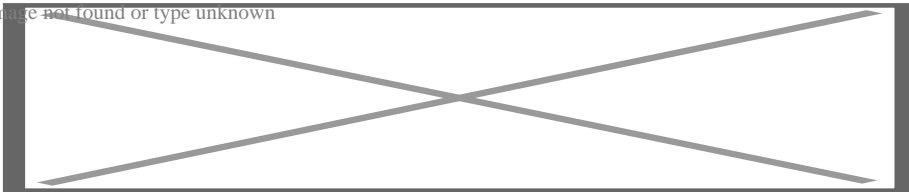
Table 1. Phase 1 Metrics
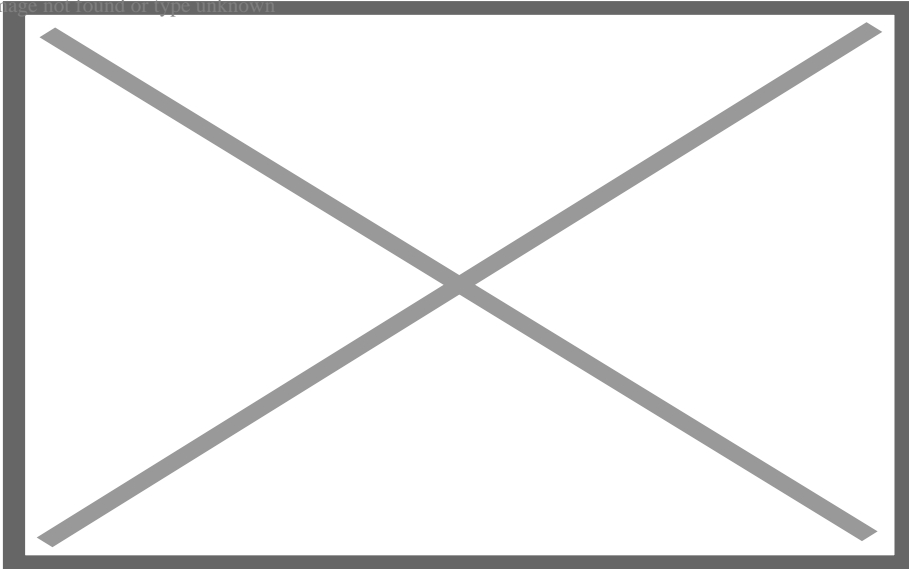
Point of departure examples for a simulated URSA environment (left) and DARPA Phase 1 notional test environment (right) are shown below in Figure 2
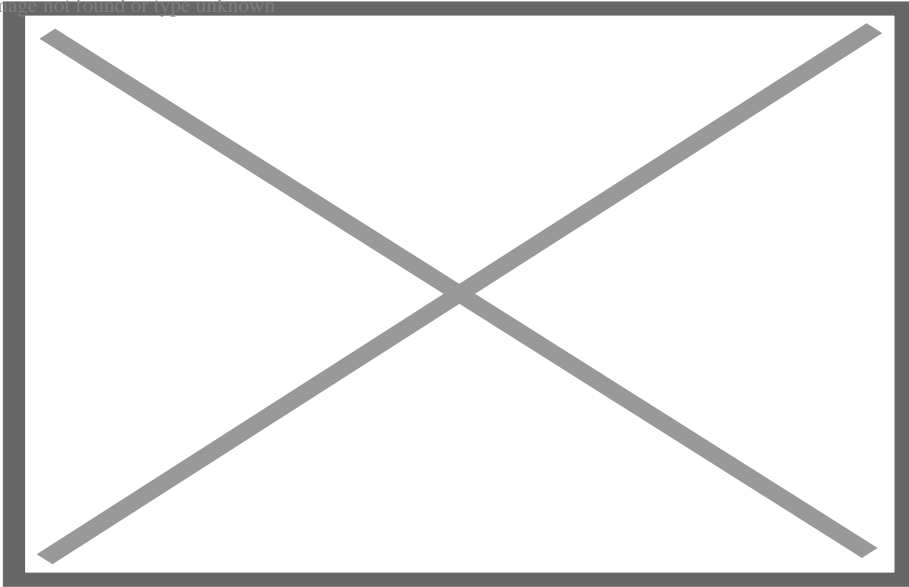

In Phase 2, one or more Track A performers will continue to improve their system-level capabilities and test the program above a much larger city environment for field demonstrations by the second half of 2020.

Table 2. Phase 2 Metrics

DARPA recognizes that URSA "requires significant advances in active sensing, behavior understanding, and autonomous decision making to determine intent."

The National Interest said this is "likely an understatement."

> '**An automated urban monitoring and threat detection system—that also tries to determine which inhabitants are hostile—would seem vulnerable to false alarms and spoofing,"** the international affairs magazine added.

While the technology behind URSA's advanced machine learning algorithms is classified, there is a reason to believe the program could be utilizing Google's Project Maven, an artificial intelligence system used to speed up analysis of drone footage.

> Project Maven, a fast-moving Pentagon project also known as the Algorithmic Warfare Cross-Functional Team (AWCFT), was established in April 2017. Maven's stated mission is to "accelerate DoD's integration of big data and machine learning." In total, the Defense Department spent $7.4 billion on artificial intelligence-related areas in 2017, the Wall Street Journal reported.
>
> The project's first assignment was to help the Pentagon efficiently process the deluge of video footage collected daily by its aerial drones—an amount of footage so vast that human analysts can't keep up. -Gizmodo

DARPA is setting the stage for a future of algorithmic warfare, where the military minds of the military-industrial complex in Washington feel URSA is the future for fighting in urban terrain. **While the machines are not taking over just yet, the cross-functional use of URSA in urban cities across America is even more frightening.**