



DARPA Awards AeroVironment Phase II Contract Extension for Nano Air Vehicle Development Program

AV Achieves Technical Milestone: Controlled Hovering Flight of NAV UAS with Two Flapping Wings

MONROVIA, Calif.--(BUSINESS WIRE)--Jul. 1, 2009-- [AeroVironment, Inc.](#) (AV) (NASDAQ:AVAV) was awarded a Phase II contract extension in April from the Defense Advanced Research Projects Agency (DARPA) to design and build a flying prototype for the Nano Air Vehicle (NAV) program. As part of this program AV has accomplished a technical milestone never before achieved: the controlled hovering flight of an air vehicle system with two flapping wings that carries its own energy source and uses only the flapping wings for propulsion and control.

AV achieved the milestone in December 2008 with the successful 20-second flight of the 'Mercury' interim test vehicle. The nano aircraft is capable of climbing and descending vertically, flying sideways left and right, as well as forward and backward, under remote control.

"The NAV program will push the limits of aerodynamic and power conversion efficiency, endurance, and maneuverability for very small, flapping wing air vehicle systems," said Dr. Todd Hylton, DARPA program manager. "The goals of the NAV program -- namely to develop an approximately 10 gram aircraft that can hover for extended periods, can fly at forward speeds up to 10 meters per second, can withstand 2.5 meter per second wind gusts, can operate inside buildings, and have up to a kilometer command and control range -- will stretch our understanding of flight at these small sizes and require novel technology development."

Dr. Hylton added, "There are still many hurdles to achieve the vehicle we envisioned when the program was started, but we believe that the progress to date puts us on the path to such a vehicle."

The NAV program was initiated by DARPA to develop a new class of air vehicles capable of indoor and outdoor operation. Employing biological mimicry at an extremely small scale this unconventional aircraft is designed to provide new military reconnaissance capabilities in urban environments.

"From the first day of the Phase I effort, we knew that our biggest challenge would be to develop a viable propulsion system, followed by the extreme challenge of creating a control system for such complex operation at such a small scale," said Matt Keennon, AV's project manager and principal investigator on the NAV project. "Both systems were extremely difficult to conceive and required an intense combination of creative, scientific, and artistic problem-solving skills from several key team members. Our progress has been possible only because of the unique R&D environment at AV."

AV's NAV team also developed the [Black Widow](#) for DARPA, which evolved into the [Wasp III™](#) that now helps protect the lives and enhance the operational effectiveness of front line warfighters.

Keennon said the Phase II effort will focus on optimizing the aircraft for longer flight endurance, establishing the transition capability from hover to forward flight and back, and reducing its size, weight, and acoustic signature. "All of these are distinct technical challenges in their own right that actually conflict with each other, making for an interesting and exciting path ahead," he said.

The Phase II, \$2.1 million NAV extension contract is scheduled to continue through summer 2010.

Note to editors: A short video summarizing the program's technical achievements, along with a press release containing more technical detail is available by clicking on [NAV Project](#).

Additional AV News: <http://www.avav.com/resources/news/>

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About AeroVironment, Inc. (AV)

Building on a history of technological innovation, AV designs, develops, produces, and supports an advanced portfolio of Unmanned Aircraft Systems (UAS) and efficient electric energy systems. Agencies of the U.S. Department of Defense and allied military services use the company's [hand-launched UAS](#) to provide situational awareness to tactical operating units through real-time, airborne reconnaissance, surveillance, and target acquisition. Commercial and government entities use AV's clean transportation solutions such as [electric vehicle test systems](#) and [electric vehicle fast charge systems](#), as well as its clean energy solutions. More information about AV is available at www.avinc.com.

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