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PRESS RELEASE

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., June 30, 2009 – **AeroVironment, Inc.** (AV) (NASDAQ: AVAV) has been awarded an extension on the Phase II contract by the Defense Advanced Research Projects Agency (DARPA) to design and build a flying prototype for the Nano Air Vehicle (NAV) program.

AV recently accomplished a technical milestone never before achieved: controlled hovering flight of a two-wing flapping wing aircraft, carrying its own energy source, and using only the flapping wings for propulsion and control. The 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," explained 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."

Nano air vehicles will be revolutionary in their ability to harness flapping wing, low Reynolds number physics, navigate in complex environments, and communicate over significant distances. Flight-enabling nano air vehicle system technologies being developed in the program include:

- Aerodynamic design tools to achieve high lift-to-drag airfoils;
- Lightweight, efficient propulsion and power subsystems; and
- Advanced manufacturing and innovative subsystem packaging and configuration layout.

The program will continue to develop conformal, multifunctional structural hardware and strong, light, robust aerodynamic lifting surfaces for efficient flight at low Reynolds numbers (<15,000). In addition, researchers will remain focused on developing advanced technologies that enable collision avoidance and navigation systems for use in GPS-denied indoor and outdoor environments as well as improving efficiency and stability in hovering flight and during the deployment or emplacement of sensors.

Based on the results of the initial phase, DARPA selected AeroVironment to continue developing its Nano Air Vehicle design. The continuing design effort by AeroVironment, with the initial portion being completed in January of 2009, focused on the further development of critical aspects of their flapping wing concept. With the successful demonstration of controlled, flapping flight, AV will continue to further

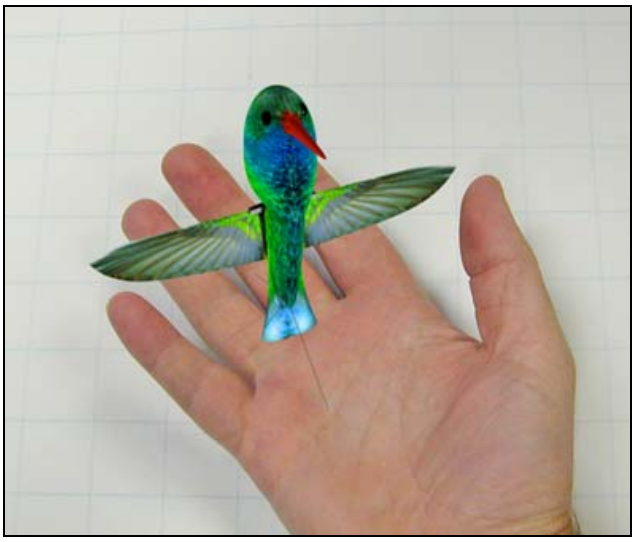
develop the flapping flight mechanisms, improve system-wide efficiency and demonstrate transition from hover to fast forward flight and back.

AV's technical goal for the Phase I and Phase II preliminary efforts was to achieve a free flying aircraft capable of controlled hovering within a small 4-meter cube space. The aircraft would generate all necessary lift and control forces through the use of the only two moving aerodynamic parts: the two flapping wings. The aircraft would not use any extra wings, tails, propellers, or other force generating structures to facilitate lift or control. The aircraft would be micro (6 inches or less) in size and carry all necessary systems on board, such as energy sources and flight control sensors (if necessary). This goal was achieved in December of 2008 with the successful 20 second long flight of the 'Mercury' interim test vehicle.

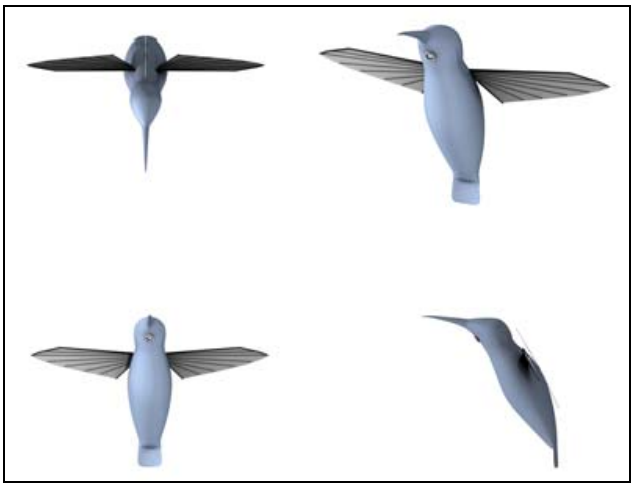
To date, AV has tested over 90 different wing designs, many flapping mechanisms as well as many control configurations, most of which used only manipulations of the wing dynamics for a 'tailless' design. This configuration is inherently unstable and once flying, it immediately wants to tumble out of control, making it impossible for a human pilot to fly, without assistance from an automatic control system. Some early developmental flying prototypes used tails and propeller thrusters to research various control algorithms. Once the basic control algorithms were established, the extra control structures were removed (like training wheels off a bicycle) and all control was shifted to the wings, the only active aerodynamic components on the aircraft.

"From the first day of the Phase I effort, we knew that our biggest challenge would initially be to develop a viable propulsion system, and after that, the control system would be the next extreme challenge," said Matt Keennon, AV's Project Manager and Principal Investigator on the NAV project. "Both systems were extremely difficult and required an intense combination of creative, scientific, and artistic problem solving skills from several key team members, which we feel was only possible due to the unique R&D environment at AV. The challenge of the Phase II effort will concentrate on optimizing the aircraft for longer flight endurances, transition capability from hover to forward flight and back, as well as reducing the size, weight, and acoustic signature. All of which are distinct technical challenges in their own right, that actually conflict with each other." Keennon elaborates. 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.”

Phase II NAV developments are scheduled to continue through summer of 2010. By that time AV will have performed flight tests where hover and fast forward flight in a single flight with integrated aircraft will have been demonstrated using a ground control system with video display. During these flights, pure hover flight endurance, pure forward flight endurance, and hover duration against added payload mass will be measured. The resulting system will then be tested to assess its operational utility in both indoor and outdoor missions.



Conceptual rendering of final Phase III vehicle with color scheme matching flyer indigenous to mission area.



Vehicle concept rendering for end of Phase II effort.

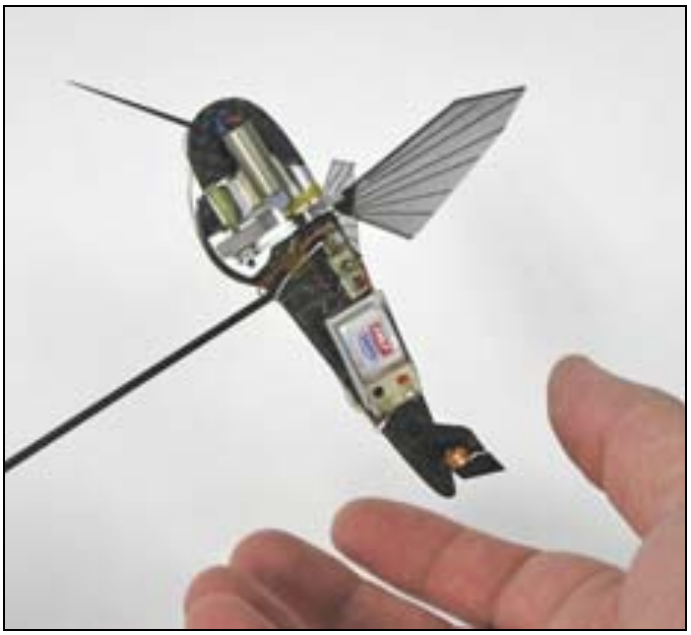


Photo of actual demonstrator vehicle at end of Phase I program. This aircraft demonstrated the working propulsion system, lifting its entire weight including energy source. It was constrained on a hinged beam.

Various airframe configurations similar to those used in the early Phase I effort to begin investigating control system effectiveness, prior to the tailless design.