

Fact Sheet

Defense Advanced Research Projects Agency

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national security for over 40 years.”*

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FACT SHEET: ORGANIC AIR VEHICLE PROGRAM

The Defense Advanced Research Projects Agency (DARPA) awarded two \$3,000,000 agreements in April 2001 for the Organic Air Vehicle (OAV) program.

Micro Craft Inc., San Diego, Calif., leads a collaborative team comprised of TRW, Athena Technologies and Alturdyne. Honeywell Engines and Systems, Torrance, Calif., leads a team including AeroVironment, D-Star Engineering, MLB, Honeywell Labs, NASA Ames, Cypress International and Techsburg.

The OAV program is one of six key enabling technology programs sponsored by DARPA and the Army for the collaborative Future Combat Systems (FCS) demonstration program. The OAV program will integrate existing DARPA micro air vehicle technologies into a capable, militarily useful system, and develop and demonstrate scaleable “organic” (owned by the smallest operational unit) air vehicles suitable for use at an affordable cost. Potential OAV capabilities include on-demand reconnaissance and surveillance for FCS unit cell operations, covert imaging in confined urban areas, biological and chemical agent detection, tagging and targeting, and battle damage assessment.

The OAV program is merging technologies for small, vertical takeoff and landing (VTOL) unmanned air vehicles (UAVs) with autonomous capabilities in order to enhance the situational awareness and effectiveness of soldiers in a network centric battlefield. OAVs are a distinct departure from current UAV system capabilities in that the OAVs are being designed from the outset to be fully autonomous and require little or no operator intervention.

“You can think of these vehicles as re-locatable sensors,” explained Sam Wilson, DARPA’s OAV program manager. “In the OAV program, we are attempting to provide the impetus for a paradigm shift in how FCS unit cell operators will use these small UAVs to perform their missions. We think that OAVs will provide interesting new capabilities for over-the-hill or around-the-corner surveillance at the lowest echelon.”

The OAV concept employs ducted fan configurations capable of both hover and cruise flight capability. The VTOL feature provides a re-locatable capability without the need for a launcher or airfield from which to operate. The vehicle can also autonomously land and provide continuous surveillance from the ground or a building ledge (the so-called “perch and stare” capability) using sensor packages currently available or in development. Operators can remotely order the OAV to start itself up to move to another location or return to base to adapt to changing battlefield conditions.

(more)

The OAV program will also develop necessary supporting technologies for power and propulsion, aerodynamics, guidance, navigation and control. The program will validate an air vehicle design code that predicts scaleable air vehicle performance over a range of duct diameters from six to 36 inches to provide maximum flexibility to the FCS teams as they define their operational concepts.

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