

# Near Earth to develop perception technologies for next generation unmanned helicopters

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PITTSBURGH—The Office of Naval Research has awarded a development contract to a team headed by Aurora Flight Sciences and Near Earth Autonomy Inc. (Near Earth) to advance technology developed in Phase I of its Autonomous Aerial Cargo/Utility System (AACUS) program. Sanjiv Singh, CEO and Chief Scientist at Near Earth will serve as a co-Principal Investigator for Phase II.

AACUS is a five-year, \$98 million effort to develop a low-cost multi-sensor suite for unmanned or optionally piloted rotary wing aircraft. The system is intended to provide real-time mission management with advanced route and trajectory planning, in-flight obstacle detection and avoidance, and the capability to land in unprepared landing sites. The sensor suite and control package is intended for use on a wide variety of full-size helicopters. The Marines envision using this autonomous capability for the Assault Support mission.

During Phase I of the program, the team deployed its sensor and software package on a MH-6 Unmanned Little Bird helicopter. In February, this system was successfully demonstrated at Marine Corps Base Quantico, Va., where the self-flying helicopter was able to avoid trees and other low-lying obstacles, select a landing spot on an unprepared site, and safely land despite blowing snow conditions created by the rotor downwash.

Near Earth developed the sensor package and perception software and played a key role in field deployment and testing during Phase I. Phase II of AACUS will focus on operations at higher speeds, in more difficult terrain, without GPS, and in inclement weather.

Autonomous helicopters have great potential for saving lives by eliminating the need for human pilots in hostile areas and improving resupply operations. The same technology could also save lives as automated pilot aids, assisting both military and civilian pilots when landing on unprepared sites or otherwise flying in challenging conditions.

Near Earth (<http://nearearth.aero>) is a privately held, spin-off from Carnegie Mellon University. The company develops comprehensive solutions for manufacturers and users of low-flying aircraft that need to operate in all weather conditions, and in hostile unprepared environments. Near Earth bridges the gap between aerospace and robotics with complete systems that improve efficiency performance and safety and expands the types of missions where aircraft are used, enabling manned and unmanned operations. Currently, the company leads key efforts in perception, motion planning, and human-machine interfaces as applied to cutting edge programs developing next generation capabilities for aviation.