Florida Atlantic University And Lockheed Martin To Develop Autonomous Mooring Buoy System For Military And Scientific Use

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Florida Atlantic University (FAU) and Lockheed Martinhave entered into an exclusive license agreement to develop and produce a rapidly-deployable and autonomous mooring buoy system for military and scientific uses.

The new autonomous mooring buoy system -- which incorporates an anchor, a combination anchor/air brake and a flotation buoy -- will allow sensors mounted on a floating buoy to be more successfully deployed on a station after being launched from either aircraft, submarines or ships. The buoy's missions could include: submarine detection and location; meteorological and oceanographic measurements; autonomous underwater vehicle communication; and underwater navigation and positioning.

The system was designed by researchers from FAU and the Naval Sea Systems Command (NAVSEA), supported by grants from the Office of Naval Research (ONR) Ocean Engineering Program, managed by Dr. Tom Swean, ONR program manager for Ocean Engineering & Marine Systems. FAU and NAVSEA have filed a joint patent application. FAU and Lockheed Martin will work closely with key U.S. Navy offices and government laboratories to further develop the system and to identify other potential applications.

Previous buoy deployment and mooring technologies have had significant limitations, including non-conformity to Navy buoy size standards, parachute entanglements during air deployment, short periods of operation, and anchors that only work well in specific sea bed conditions. The lightweight, compact FAU/Navy-developed module conforms to U.S. Government size standards and is capable of air deployment, as well as autonomous self-mooring in depths between 30 and 650 feet. The system also can anchor in various bottom types (including sand, mud or rock), operate for over three months, and support different types of mooring lines.

"The ocean provides many challenges to military operations because of its vast and diverse environment," said Dr. Rick Driscoll, associate professor at FAU's Department of Ocean Engineering in the College of Engineering and Computer Science and an inventor of the technology. "One challenge is to rapidly deploy instruments in near-shore waters where deployment is made difficult by variable water depth, currents, tides, waves, boats and other factors. The FAU/Navy rapidly-deployable, self-mooring buoy is an excellent platform that allows users to simply turn the system on and drop it in the water. This technology will enable the military and scientists to rapidly deploy a buoy from any aircraft, surface vessel, or underwater vehicle, resulting in reduced operating costs and danger to operators."

"Lockheed Martin is recognized for whole-systems thinking that enables us to successfully integrate the essential engineering, manufacturing and marketing experience required to turn this concept into a viable and profitable product line," said Douglas Dapprich, director of the underwater vehicle division at Lockheed Martin's business in Marion, MA, where the buoy will be produced. "We are excited to work with researchers from FAU and the Navy to further develop this technology."

"This is a significant achievement in buoy deployment and mooring technology because it revolutionizes the way important military activities in the ocean can be accomplished with respect to efficiency and safety," said Dr. Larry F. Lemanski, vice president for research at FAU. "In addition, this mooring system will lay the groundwork for some very promising future technology transfer opportunities and collaborative work with industry and government."

Headquartered in Bethesda, Md., Lockheed Martin employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

Florida Atlantic University opened its doors in 1964 as the fifth public university in Florida. Today, the University serves more than 26,000 undergraduate and graduate students on seven campuses strategically located along 150 miles of Florida's southeastern coastline. Building on its rich tradition as a teaching university, with a world-class faculty, FAU hosts nine colleges: the Dorothy F. Schmidt College of Arts & Letters, the Charles E. Schmidt College of Biomedical Science, the Charles E. Schmidt College of Science, the Christine E. Lynn College of Nursing, the Harriet L. Wilkes Honors College, the Barry Kaye College of Business and the Colleges of Education, Engineering & Computer Science, and Architecture, Urban & Public Affairs.

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