



HUGIN UUV Being Prepared for a Mission

Team Seeks USN UUV Work

By Art Kleiner

General Atomics (GA), San Diego, CA, Kongsberg Underwater Technology (KUTI), Lynwood, WA, and C & C Technologies (C & C), Lafayette, LA have signed a Memorandum of Understanding (MoU) to jointly develop Unmanned Undersea Vehicles (UUVs) for the U.S. military market.

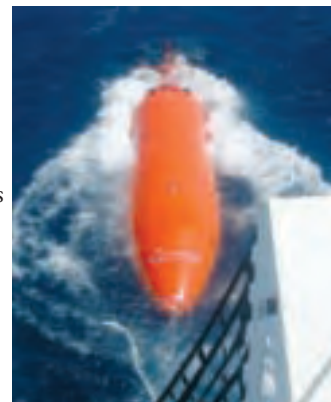
The team has initiated the design of an Advanced Unmanned Undersea Vehicle (AUUV) to address U.S. Navy requirements for intelligence, reconnaissance, surveillance, and other applications. As noted by Mike Reed, vice president of GA's Electromagnetic Systems Division, "This effort will involve advanced energy storage, propulsion, sensors, and communications technologies, which will provide a revolutionary combination of mission endurance and speed capabilities."

The alliance was conceived at the AUVSI 2005 Annual Program Review in Washington, DC when engineers from GA's Electromagnetic Systems Div. met with representatives from Kongsberg and C & C. The group recognizes that the current evolutionary stage of UUV development is comparable to that of unmanned aerial vehicle technology. The General Atomics Aeronautical Systems, Inc. (GA-ASI) Predator UAV has demonstrated an ability to support maritime forces, including carrier battle groups, amphibious ready groups, and submarines, logging over 65,000 flight hours since 1995. The consensus was that the moment is opportune to initiate the development of an equivalent autonomous capability for undersea applications.

GA's Electromagnetic Systems Div. is involved in systems integration for several USN programs, including an Electromagnetic Aircraft Launch System (EMALS), Turboelectric Advanced Arresting Gear (AAG), a superconducting homopolar propulsion motor, and an electromagnetic railgun. GA forecasts great potential for UUV technology and is committed to developing an AUUV to fill capability gaps outlined in the Navy UUV Master Plan.

AUUV development will combine proven HUGIN technology licensed from Kongsberg and the Norwegian Defense Research Establishment (FFI) with advanced engineering concepts from GA. In addition to a commercial series of HUGIN vehicles, Kongsberg manufactures the militarized HUGIN Mine Reconnaissance System (MRS) that is currently deployed with NATO forces. The MRS incorporates a Synthetic Aperture Sonar (SAS) developed at FFI that provides a resolution of better than 5 x 5 cm.

Under this MOU, GA will be the prime U.S. military manufacturer with subsystem development, testing, and evaluation supplemented by KUTI and C&C. According to Tom Healy, president of Kongsberg Underwater Technology, "Kongsberg's relationship with C & C continues to yield significant advancements in UUV development and utilization. We look forward to teaming with General Atomics to further advance these capabilities to benefit the U.S. Navy."



HUGIN UUV Goes to Work

C & C's primary strength is in UUV operations. The company has conducted more than 9,000 hours and 35,000 nautical miles of UUV operations, which is far more than any other organization in the world. Typical HUGIN UUV missions include cable route surveys, pipeline surveys, and undersea search operations. HUGIN discoveries include the U-166, the only WWII German submarine sunk in the Gulf of Mexico and the HMS ARK ROYAL, the British aircraft carrier responsible for sinking the German battleship BISMARCK.

C & C also has a long history with the military. The company has hosted at-sea HUGIN demonstrations for personnel from several naval commands and has offered HUGIN vehicles for participation in Navy sea trials (see *Run Silent, Run Deep... U.S. Military Missions for the HUGIN UUV, Unmanned Systems Mar/Apr2004*).

Reflects Thomas Chance, president of C & C Technologies, "U.S. Navy personnel have witnessed a number of our UUV missions. The Navy is well versed in the performance capabilities of HUGIN technology".

General Atomics, Kongsberg, and C & C Technologies hope to leverage upon their many years of experience to develop an advanced UUV capability to meet future U.S. Navy requirements.

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