

Peraton: Delivering the Future of Unmanned Systems

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The future of military missions will in many ways be defined by unmanned systems. Peraton is paving the way as a leader in all facets of managing and supporting unmanned systems, working on those capabilities that will transform operations well into the future.

From remote-controlled capabilities to fully autonomous platforms, Peraton aims to be the U.S. government's premier partner for pre-mission planning, data analysis, operational support and sustainment in the unmanned systems space. Working with the Navy specifically, Peraton is positioned to be the service's top integrator, tester, evaluator, maintainer and sustainer of critical unmanned systems.

With the company set to open a new research facility in 2021 dedicated to testing advanced technologies and emerging systems, while preparing to compete for substantial roles on major Navy programs such as payload delivery systems for the Mine Countermeasures Unmanned Surface Vehicle (MCM USV), the opportunities to push the potential of unmanned systems forward are boundless.

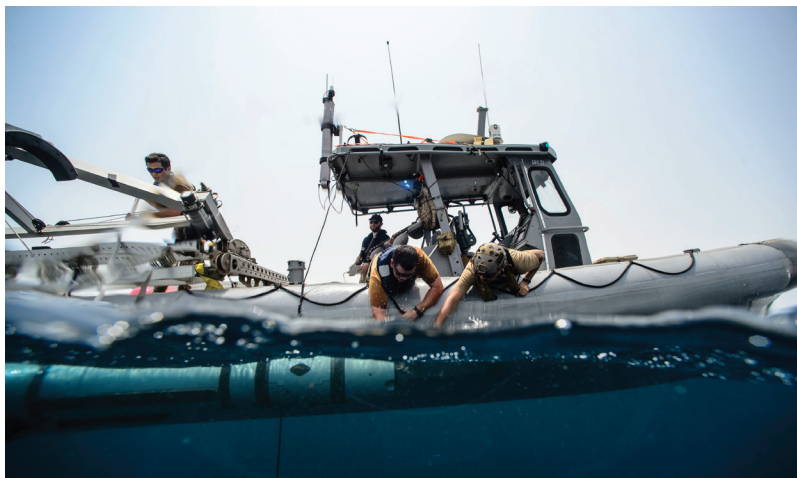
Joe Huhman, director of Peraton's unmanned systems program management office, points to the company's 25 years of experience in integration leadership, fleet support, capability engineering, and software and hardware engineering as offering an unmatched, holistic view of what it takes to succeed in the unmanned systems world.

"We know exactly what we have to do to accomplish the mission because

of our vast experience in the mission space," Huhman said. "Understanding where you're going is one of the hardest parts of any mission set. Our knowledge in that space is second to none. We know exactly what to look for, what boxes to check, to make sure that once the systems are deployed, they can be successfully employed."

Peraton's expertise covers the entire unmanned system lifecycle, from initial systems integration leadership and capability engineering and development through embedded fleet support and sustainment.

"With our background, both in Unmanned Underwater Vehicles (UUV) and Unmanned Surface Vehicles (USV), we've learned everything from how to run these missions and operations, how to conduct mission planning and imagery analysis and what it takes to maintain all these systems," Huhman said. "We've since taken that back-



Peraton is advancing the unmanned battlespace, solving problems for systems like the Mk 18 Mod 2 unmanned underwater vehicle and improving capability and capacity.
Photo source: U.S. Navy

ground and started applying it to all different portions of the fleet's expectations for unmanned systems. And we've started to push out to all the military branches and see what we can do to support them in this space."

As a prime contractor in all six functional areas of the Navy's USV Family of Systems IDIQ Multiple Award Contract, Peraton is serving a crucial role in the development process from invention to implementation. The company's work covers testing and evaluating critical technologies to enable USV platform success, while also working to shape the best techniques, tactics, and procedures (TTP) for operational use.

Kevin Hagan, Peraton's unmanned systems account executive, notes the 25 years of experience with the Navy also includes a decades-long partnership supporting the Naval Information Warfare Center Pacific in San Diego, and, more recently, participation in the Unmanned Maritime Autonomous Architecture effort to establish industry



Peraton technicians assigned to Commander Fifth Fleet's mine warfare task force pilot a prototype Mine Countermeasures Unmanned Surface Vehicle out of RFA Mounts Bay's well deck during a US-UK bilateral exercise. Photo source: U.S. Navy

standards and working with the service's Rapid Autonomy Integration Lab.

"We're looking at every opportunity to help the Navy identify and close capabilities gaps where autonomy is concerned," Hagan said.



Peraton technicians assigned to Naval Information Warfare Center-Pacific conduct testing of Mk 18 Mod 2 unmanned underwater vehicle. Photo source: U.S. Navy

For UUVs, Peraton is a critical Navy partner, having won a contract for Mk18 Mods 1 and 2 systems maintenance and sustainment. The system Peraton supports is now deployed to Bahrain where it performs important mine countermeasures missions.

"That was a fairly

large effort. It was everything from training operators and putting the systems into the fleet and sustaining them,” Huhman said.

Peraton is now turning its attention to the Navy’s MCM USV payload delivery system programs, a prime opportunity to bring the company’s unmatched unmanned systems expertise to bear on critical minesweeping, minehunting and mine neutralization missions. Peraton plans to leverage Peraton Remotec, a global leader in designing and building mobile robot systems, to perform fabrication work if selected for the contract. Peraton Remotec is a new subsidiary recently acquired from Northrop Grumman.

“We want to set ourselves up as the single point of contact for the government for making the different pieces of a very complex unmanned system of systems work together seamlessly,” Hagan said. “Peraton is excited to pair our real-world experience working with this precise type of system—an unmanned, auto-



Peraton technicians assigned to Naval Information Warfare Center–Pacific conduct post-mission analysis of a Mk 18 Mod 2 unmanned underwater vehicle. Photo source: U.S. Navy

nous surface vessel that tows a sensor payload—with our new subsidiary Peraton Remotec.”

Mark Kersh, Peraton’s vice president, C5ISR, sees MCM USV payload delivery systems as the perfect opportunity to pair Peraton Remotec’s extensive experience producing unmanned platforms

and fabricating hardware with Peraton’s command of integrating and testing the payloads required to enable autonomous capabilities.

“Peraton acquired Peraton Remotec with the goal of leveraging their expert staff and 72,000-square foot facility in Tennessee to provide the production



Peraton Remotec systems such as the Andros™ FX Unmanned Ground Vehicle allow remote users to find, identify and remove explosive devices while operating in environments that require high levels of robotic mobility and dexterity.

Photo source: Peraton Remotec

and fabrication required to support the U.S. Navy's requirements for MCM USV payload delivery systems. It is a perfect partnership of production with expert mission knowledge to provide the best solution for the Navy," said Kersh.

Peraton's future endeavors in advancing autonomy capabilities, including work for MCM USV, will be enabled by the company's new Florida facility, located right around the corner from the Naval Surface Warfare Center - Panama City Division.

With 8,000 square feet of warehousing and a 30-foot ceiling, the 12,000-square foot building includes massive testing and lab spaces dedicated to exploring the latest advances in sensor technology. The facility will also house an indoor flight space for small UAS, a test pool to evaluate Remotely Operated Vehicles and UUVs, and a cloud computing station to run new software tools.

"One of the areas the facility is going to give us a wide area to attack is the sensor integration and sensor technology that is advancing every day. We can pull in these different systems and integrate them in our own lab and our own environment and apply them using the machine knowledge that we have from our extensive operational history with these systems," Huhman said. "Driving toward sensor integration and advancing autonomy is going to be one of our main focuses with the facility."

The new facility will further Peraton's investments in breakthroughs with AI and machine learning, agile software development and cyber security to bolster the capability of future unmanned



Peraton's Remote Control Vehicle Retrofit System is a universal solution that U.S. military customers can install on any type of vehicle to control it from up to 20 miles away with either a joystick or preloaded GPS trails, turning any vehicle that a human can operate into an unmanned vehicle.

Photo Source: Peraton

systems. This work includes a partnership with Amazon Web Services to develop new algorithms for enhanced sensor integration techniques that will help the warfighter better manage the battlespace.

"Like anything else if you don't maintain it you can't sustain it. Taking care of your systems, trying out technology and taking out obsolescence while always improving your mission is really the critical aspect of these operations," Huhman said.

Peraton's work extends beyond the Navy, with decades of experience providing a universal set of components to the Army that allows the service to convert any type of vehicle into a remote-controlled platform. With the Army's Yuma Proving Ground as its prime customer, Peraton's universal,

adaptable Remote Control Vehicle Retrofit System has turned everything from Humvees and commercial trucks to repurposed Russian tanks into unmanned ground vehicles that can be used as targets.

The current technology, which can be accepted and integrated on any vehicle in a matter of weeks (and in some cases a few days), allows users to control vehicles from a control station on the other side of a test range and enables Leader-Follow capabilities to have multiple vehicles drive together.

Mark Farwell, who runs Peraton's unmanned ground vehicle program, says the retrofit system's software holds potential for future use on array of Army unmanned and robotic platforms, "anything you can think of where the customer wants to have universality of install on a platform that does not have the drive-by-wire capabilities integrated into the manufacturing of the vehicle."

"The system's intensely parameterized software is the key to expanding what we could do in the future," Farwell said. "We could be integrated with the final layer of navigation and control universally to any vehicle that it's installed in."

The next generation of unmanned systems will also be defined by Peraton's extensive work with partners, including many small businesses working in areas such as target recognition and mission mapping technologies. Once the new facility is up and running, Pera-

ton will focus on bringing in innovative companies to experiment and test new concepts that could lead to major breakthroughs in the autonomous systems market.

"Now we can partner with even more small businesses and innovative partners to advance their technologies as well. We think of ourselves as system agnostic: no matter who makes the equipment, we'll learn it inside and out and get the best performance for our customers," Huhman said.

The Pentagon is setting forth on an ambitious agenda over the next several decades to be the world leader in unmanned systems, with plans to invest billions to ensure the department has unmatched capability and technological prowess. Peraton is in prime position to help enable this success, bringing unmatched expertise in autonomous capabilities for the systems of the future.

More specifically, the Navy knows it has a partner in Peraton that will provide thorough testing, comprehensive mission planning and succinct payload integration to have any required unmanned system ready to go at a moment's notice.

"Our focus is on advancing the battlespace, adding capability and capacity for the DoD and ensuring our customer has a reliable partner they can call on when they have a problem to solve in the unmanned systems space," Huhman said.