



VideoRay Defender with OPENSEA Edge

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OPENSEA Edge Delivers Untethered Autonomous Operation to Commercially Available ROVs

This release was originally issued on 22nd March 2023 by Greensea Systems, Inc. prior to the company being merged into Greensea IQ on 1st September 2023. The content remains relevant and factual.

Richmond, Vermont, USA, 22nd March 2023 – Greensea Systems, Inc. (Greensea), the industry leader in marine robotic software solutions, recently demonstrated untethered autonomy for ROVs.

Using a commercially available Defender ROV from VideoRay, outfitted with batteries, acoustic modem, and the new OPENSEA Edge system, Greensea has successfully proven untethered operation of an ROV at sea.

OPENSEA Edge puts a tremendous amount of processing power at the edge, right on the robot, where it can work directly with sensors to process that data onboard, eliminating the need for a topside computer via the tether. This dual, parallel NVIDIA edge platform runs Greensea’s open architecture software, OPENSEA, and handles the sonar and video perception feeds while providing autonomy, navigation, communications, and task management for the robot.

Once the need to send all of the data, all of the time to a topside computer was no longer necessary, data could reside on the vehicle, sending only the most crucial pieces of information for a human operator to supervise. Reducing the amount and frequency of data being transmitted means that a lower bandwidth/higher latency communication method, such as acoustic modems, could be used.

During recent operations conducted at sea, Greensea was able to demonstrate that a VideoRay Defender outfitted with OPENSEA Edge was able to search, classify, map, and inspect during a mock EOD mission while being untethered. Operators supervised the autonomous ROV through Greensea’s EOD Workspace user interface for defense applications.

VideoRay in Untethered Autonomous Operation

Greensea also utilized their proven Safe C2 (standoff command and control) technology to provide seafloor to over-the-horizon communications. This enabled the supervision of the ROV over very low bandwidth and very high latency-sparse data connections by an operator using a tablet.

“Eliminating the tether, surface ship, and onsite operator from ROV operations presents the opportunity for the industry to realize a new era of working in the ocean”, states Ben Kinnaman, Greensea’s CEO. “In this concept, our reach into the ocean is infinite and presence persistent. This

demonstration shows that it is possible, affordable, and enabling."

In addition to VideoRay being the vehicle partner in this test, Greenea partnered with SeeByte, Inc. for the Automatic Target Recognition (ATR) on OPENSEA Edge, and OceanComm, Inc. for the acoustic modem solution.

Greenea continues to develop OPENSEA Edge for both defense and commercial use, and will be demonstrating the latest developments along with Safe C2 at Ocean Business in the UK, and Offshore Technology Conference, Houston, TX, this spring.

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About Greenea Systems

Greenea Systems Inc. was founded in 2006 to design and create a commercially available open architecture software platform to break down siloed technology in the subsea environment. The resultant open architecture software, OPENSEA® with its a central library software suite, is the most powerfully integrated control and navigation technology available in the market today that is easy to use, easy to maintain, robust, and portable. The company works with leading OEMs throughout the world providing the OPENSEA platform on hundreds of installations to the offshore and military industries.

To learn more about Greenea, visit www.greenea.com or call

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