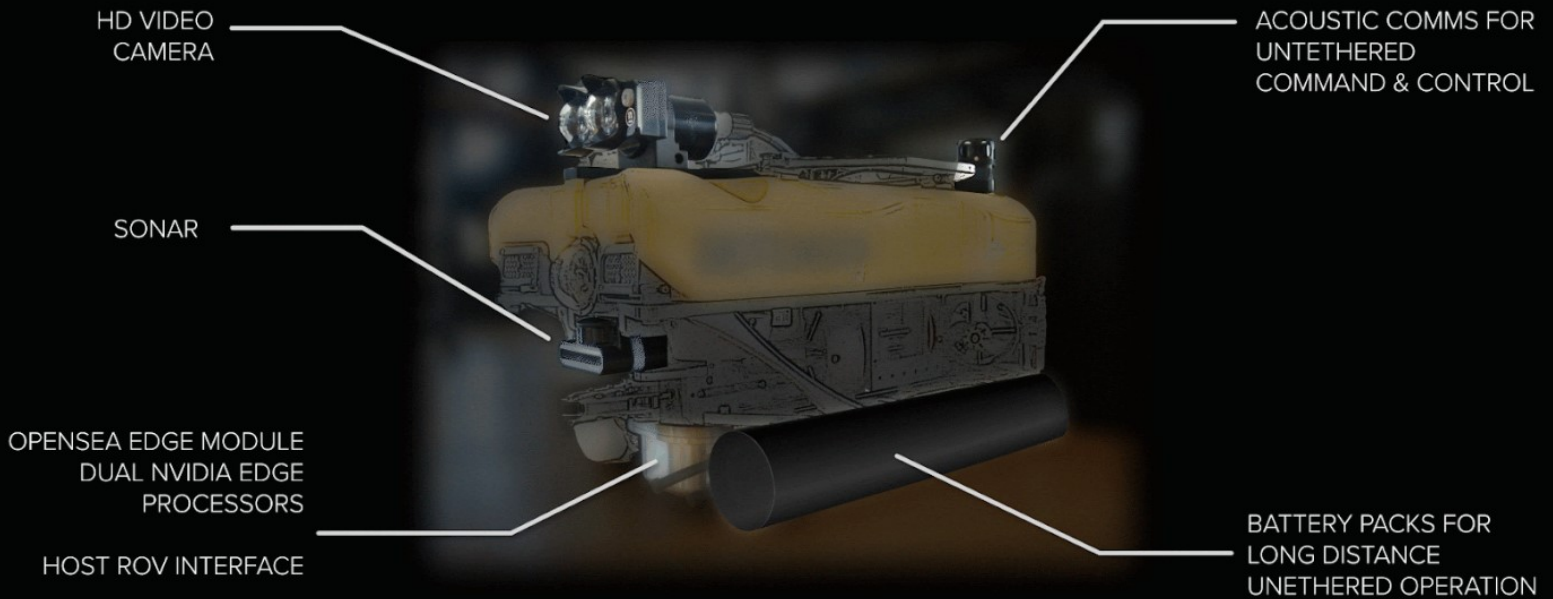


OPENSEA EDGE

MODULAR HARDWARE AGNOSTIC AUTONOMY SOLUTION



OPENSEA Edge - modular hardware agnostic autonomy solution

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Greensea Systems, Inc. Launches OPENSEA Edge

This release was originally issued on 31st January 2023 by Greensea Systems, Inc. prior to the company being merged into Greensea IQ on 1st September 2023. The content remains relevant and factual.

OPENSEA Edge is a modular edge computing module with perception support for autonomous underwater robots based on Greensea's OPENSEA open architecture

software platform.

Richmond, Vermont, USA, 31st January 2023 – Greensea Systems, Inc. (Greensea), the industry leader in marine robotic software solutions, has launched its latest product that promises to bring true autonomy to ocean robotics.

Greensea was founded with the vision to improve the working relationship between humans and machines in the marine environment. Launching its latest product, OPENSEA Edge, is a further step towards this vision. OPENSEA Edge delivers the technologies required to advance ocean robotics into the next generation.

Based on Greensea's well-established open architecture platform, OPENSEA, OPENSEA Edge offers the next level of operator capability. While OPENSEA provides the software capabilities of navigation, control, autonomy, perception, and long-range communications, OPENSEA Edge provides a modular, hardware agnostic processing platform, that converts a traditional ROV into one with autonomy, AI, vehicle perception and tetherless, over-the-horizon, communication and control. Essentially, it is a convenient add-on package to deliver integrated edge processing and perception system integration to a traditional ROV.

“I founded Greensea to develop technology that would improve the working relationship between operators and vehicles. OPENSEA Edge is the embodiment of that effort. Leveraging more than a decade and a half of experience in open architecture robot software, OPENSEA Edge delivers an edge-processing solution for ocean vehicles with control, autonomy, perception, and sea-floor-to-over-the-horizon communications. With OPENSEA Edge, Greensea is leading the way towards subsea robot residency and extended reach”, says Greensea founder and CEO Ben Kinnaman.

OPENSEA Edge utilizes parallel NVIDIA processors to handle sonar and video perception feeds while providing autonomy, communications, and task management for the robot. This platform puts a tremendous amount of processing power at the edge, right on the robot, where it can work directly with sensor data and make decisions for the vehicle. OPENSEA's Safe C2 software package for low bandwidth and high latency communications links provides a seafloor to over-the-horizon communications solution for operators supervising the robot. With the open architecture framework of

OPENSEA and available processing space, developers can install their own autonomy and perception-handling software, including AI/ML libraries.

Originally developed and tested for military use, OPENSEA Edge has been deployed on untethered ROVs as well as seafloor-crawling robots in Mine Countermeasure and Explosive Ordnance Disposal applications. OPENSEA Edge has been used to retrofit traditional commercial ROVs as well as the basis of new vehicle builds. With proven performance in military applications, Greensea is now offering OPENSEA Edge as a commercial product. As the subsea industry looks forward to the future of cost-effective and persistent operations offshore, OPENSEA Edge will be the open architecture processing foundation the industry builds upon.

Greensea is an expert in ROV control and autonomy, and through collaboration with other subsea technology leaders, OPENSEA Edge has been able to deliver a complete solution. One example of such, is Greensea's collaboration with UK-headquartered SeeByte, specialist in Automatic Target Recognition (ATR) technology. The ATR system uses fast, machine learning techniques to detect and classify targets from forward looking sonar data. Any ROV equipped with OPENSEA Edge can now identify targets, based on an extensive and growing internal library of past experiences.

With edge processing, ROVs come alive. Data processing, navigation, and control on the vehicle allow for decision making on the edge. This paves the way for redundancy, failure mitigation, and the platform required to integrate new levels of autonomy. OPENSEA Edge is a 'brain in a box'- a modular and vehicle-agnostic autonomy solution addressing the future requirements of manufacturers, service providers, and system integrators as the industry looks to a future of autonomous and unmanned operations.

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Embedded image caption: Greensea EOD Workspace

About Greensea Systems

Greensea Systems, Inc. was founded in 2006 to design and create a commercially available open architecture software platform to break down siloed technology in the AUV and ROV environment. The resultant open architecture software, OPENSEA® with its 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.

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