

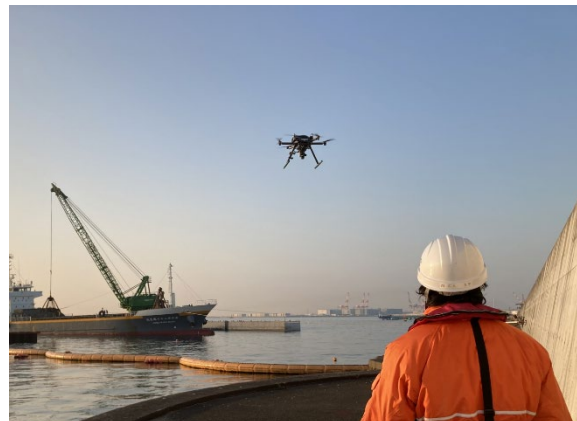
May 24, 2024

ACSL Ltd.

## ACSL's Made-in-Japan drone adopted by Penta-Ocean Construction for the development of UAV Real Time Receipt Inspection System of Soil Volume Loaded on Barge using 3D-LiDAR Drone

- ACSL's domestic drone “ACSL-PF2” has been adopted to Penta Ocean Vanguard-DroneLiDAR, a real-time receipt inspection system of soil volume loaded on barge using a drone equipped with a 3D-LiDAR sensor and an LTE module, developed by Penta-Ocean Construction.
- ACSL will continue to develop industrial drones to support people involved in various fields such as infrastructure inspection, disaster prevention, surveying, and agriculture, which are facing various challenges such as manpower shortage and operational efficiency.

ACSL Ltd. (Head Office: Edogawa-ku, Tokyo; CEO: Satoshi Washiya; hereinafter “ACSL”) is pleased to announce that its domestic drone “ACSL-PF2” has been adopted to Penta Ocean Vanguard-DroneLiDAR” (POV-DL), a real-time receipt inspection system of soil volume loaded on barge using a drone equipped with a 3D-LiDAR sensor and an LTE module(the System), developed by Penta-Ocean Construction Co., Ltd. (Head Office: Bunkyo-ku, Tokyo; President: Takuzo Shimizu; hereinafter “Penta-Ocean Construction”).



POV-DL developed by Penta-Ocean Construction  
(left: overall view, right: measurement view)  
Photos provided by Penta-Ocean Construction

### ■Background of its Development

In the construction of breakwaters or quay walls, it is necessary to inspect the quantity of stone, sand, and other materials loaded on each box barge to control the quantity of work. In Penta-Ocean Construction, four to six staff members of the main contractor on a box barge used to inspect the quantity of sand and stone using range rods or flagging tapes, which took about 20 minutes, and forms

had to be prepared after returning to the office.

When the barge was offshore, the staff members had to travel back and forth by a transportation boat, and in some cases, it took more than an hour to complete the inspection.

ACSL is developing domestically produced industrial drones, which are already being used in various fields such as infrastructure inspection, logistics, disaster situation monitoring, and security. ACSL has developed its own flight controllers for controlling drones, and since they are domestically produced and secure, as well as they can integrate functions with LiDAR and expand functions such as data uploading via LTE communication, they have been selected by Penta-Ocean Construction to develop the System.

With the System developed by Penta-Ocean Construction, a POV-DL is flown over the box barge by a land-based staff member, who photographs the loading conditions with an optical camera and uses 3D-LiDAR to measure the loading shape in the hold for 5 seconds, enabling the loading volume to be calculated and displayed immediately and forms to be generated automatically.

ACSL will continue to develop industrial drones to support people involved in various fields such as infrastructure inspection, disaster prevention, surveying, and agriculture, which are facing various challenges such as manpower shortage and operational efficiency and promote their social implementation.

【ACSL Ltd.】 <https://www.acsl.co.jp/en/>

ACSL is developing domestically produced industrial drones to reduce manpower and unmanned operations of existing operations in the industrial field. In particular, ACSL provides cutting-edge autonomous control technology with image processing and AI edge computing technology, and industrial drones equipped with the same technology. ACSL drones have already been adopted in various fields such as infrastructure inspection, postal and logistics services, and disaster mitigation and prevention.

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*Attention*

*This document is an unofficial translation of the timely disclosure on May 24, 2024 by ACSL and this is for reference purpose only. In case of a discrepancy between the English and Japanese versions, the Japanese original shall prevail.*