

PILOT TESTS

In Real Port Environments

September 2025

Heraklion Port

📍 Heraklion, Greece

Vol.1



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the European Union



From Research to Innovative Results

To ensure close collaboration between the project end users (security agencies and port authorities) and the technical partners throughout the project lifecycle, SMAUG will showcase and validate the multiple solutions developed during the project in 3 pilots. These will be executed, and their outcomes will be evaluated in a real port environment, specifically at the ports of Valencia (Spain), Elefsina (Greece), Heraklion (Greece), and Drammen (Norway).

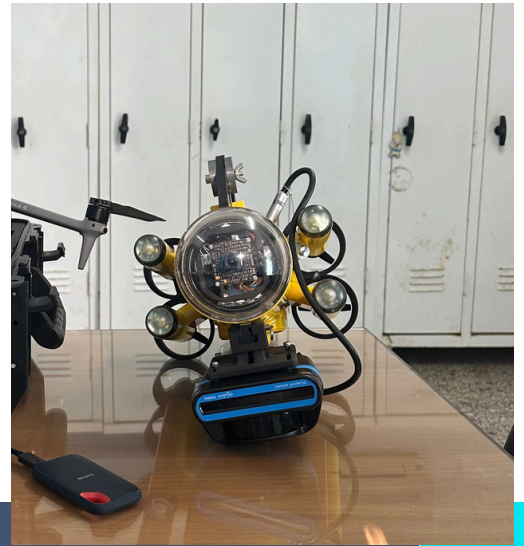
- Pilot Summary

Heraklion Port

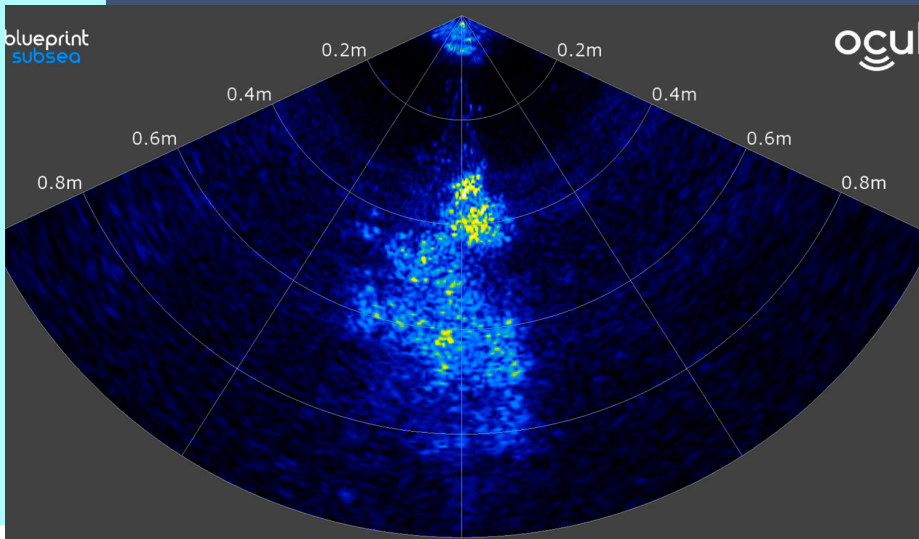
Our partners from Heraklion Port Authority & University of Piraeus Research Center are sharing the collective insights and updates on the technical validations conducted so far at the Heraklion Port during the 29-30 of September, 2025.



Underwater Detection in Heraklion Port



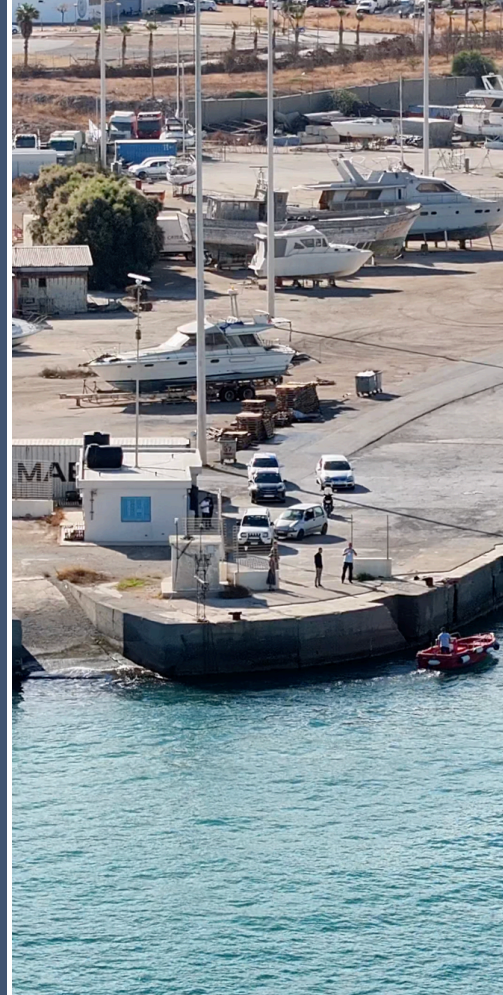
Regarding underwater detection in Heraklion, a hydrophone array was deployed as the primary sensing system. Three hydrophones were installed within the pilot area at approximately one meter below the water surface, connected to an audio interface and a Raspberry Pi running UPM's scripts to ensure seamless connection with the broker and continuous data upload. Internet connectivity was achieved via a 5G mobile hotspot, allowing reliable data transmission and supporting the validation of underwater acoustic data acquisition. Additionally, a sonar-based approach was implemented by mounting the sonar onto the ROV. This setup enabled a high-definition underwater scan that successfully identified the mock-up suspicious object.



- 01 | ROV with sonar attached
- 02 | Visualization of sonar output

Aerial Detection in Heraklion Port

Regarding aerial detection in Heraklion, the drone system conducted continuous patrol missions over the port area to detect potentially suspicious vessel movements. During these flights, the embedded AI-based vessel recognition functionality was utilised to visually support operators, providing real-time identification feedback directly on the controller's screen. Prior to deployment, all required flight permissions were granted, while coordination with the nearby airport control tower secured safe integration of drone operations within the controlled airspace.



01

Pilot's area overview

02

Matrice 4E drone with
its carrying case

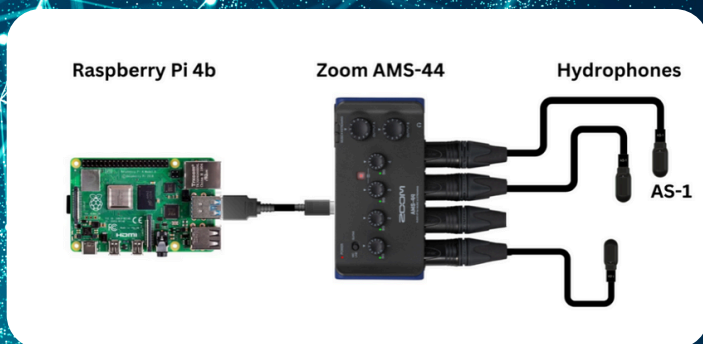


Data Acquisition

Regarding data acquisition, several actions are planned to be carried out, in order to ensure proper integration and management of the information generated by the different systems.

The data management platform (including the Broker, API, RTSP server, and related components) is in ongoing development by FAVIT. The system will run on the port server and the necessary services will be prepared to support the use case. A data display interface will also be configured to visualize the information received from each connected device.

The AIS system, implemented by ATHANOR, will be installed at the port facility and connected to the local area network (LAN). It will be integrated with FAVIT's data platform, followed by a functional test to validate the operation of the complete data chain.



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