COLOSSUS Takes Port Security to Live Waters at Its First Demo Day

Autonomous sea, air and land vehicles secured and inspected an operational naval base, demonstrating how ports can address security and inspection gaps by leveraging the systems they already have in place.

Almada, Portugal – On 15 October 2026, the Arsenal do Alfeite (AASA) naval base near Lisbon hosted the first COLOSSUS Operational Demo Day. Before the Portuguese Navy, port authorities and security stakeholders, a coordinated fleet of unmanned surface, aerial and ground vehicles patrolled the harbour, detected people, boats and vehicles in real time, mapped the quay wall in 3D and surveyed the seabed, all in a single operational view. The milestone closes the project's first year.

~50	3	4,974 m²	14,600+
navy, port authority and security participants	domains in one view: sea, air and land	of seabed surveyed	depth points collected (2.4–8.0 m)

PROVEN ON THE DAY

- **Real-time detection.** Three onboard cameras and AI-based (YOLO) object detection identified people, boats and cars during autonomous patrol.
- **3D quay-wall mapping.** LiDAR, IMU and GNSS data were fused into a 3D model of the quay wall.
- **Seabed survey without divers.** Multibeam sonar and GNSS mapped 4,974 m² of seabed.
- **One operational view.** Every camera feed, sonar map and sensor stream came together in the COLOSSUS Console.

WHAT IT MEANS FOR PORTS

Ports still watch water and land through separate systems, check alarms in person and send divers to inspect underwater structures. COLOSSUS closes those gaps:

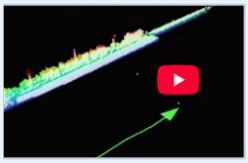
- **One picture instead of many screens.** CCTV, radar, AIS and access control are fused into classified, prioritised alerts, so teams verify faster and leave fewer blind spots.
- **Builds on what ports already own.** The platform runs on the installed sensor estate, so adoption costs a fraction of a replacement programme.
- **Safer, comparable inspections.** Robot-collected sonar and LiDAR data become georeferenced 3D models that can be compared survey after survey.
- **People stay in control.** COLOSSUS detects, classifies and recommends; operators and engineers decide. It is designed for alignment with the EU AI Act, NIS2, CER, GDPR and CISE.






Unmanned surface vessel, aerial–ground team and ground vehicle at the Operational Demo Day, Arsenal do Alfeite, 15 October 2026.

SEE IT IN ACTION



COLOSSUS Harbour Trials: Autonomous Surveillance & 3D Seabed Mapping

Autonomous patrol, live detection and seabed mapping at Arsenal do Alfeite.

▶ Watch on YouTube

More: colossus-project.eu | youtube.com/@colossus_eu

WHAT COMES NEXT

After the 3rd Project Meeting in Lisbon on 16 October, COLOSSUS enters its final year and its commercial phase, validating three services: perimeter security, safer docking and predictive maintenance. **Ports, operators and integrators are invited to discuss early deployment, starting with a scoped pilot on their own systems.**

About COLOSSUS: A 24-month Horizon Europe project (Nov 2025 – Oct 2027, GA No. 101225980) building an unmanned vehicle swarm patrol intelligence platform for port security and resilience.

Partners: TecnoVeritas (coordinator), UNINOVA, Intelligent Next Generation Systems (iNGS), Q-PLAN International, ABB and Arsenal do Alfeite (AASA).

Web: colossus-project.eu

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