WELCOME!

WE WILL START SOON.

AUTOASSESS

AI & robotics for safe vessel inspection

Open Call for Tech Innovations

Information Webinar - Getting to know the Open Call Challenges

2 April 2026 | 11.00 - 12.00 CEST

Co-funded by the European Union

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Webinar housekeeping

- This webinar will be recorded and shared via the project channels.
- Rename yourself to first, last name and entity you represent. It will be easier to identify you during the Q&A.
- There will be a specific slot dedicated to Q&A. If you have a question, please use the “Raise Hand” tool. If we miss your signal, you can indicate you have a question in the chat box.
- The moderator will go through the raised hands and asks participants to turn on their microphones to ask their questions.

Agenda

11:00 | Welcome

11:05 | AUTOASSESS: Project Overview

11:10 | Open Call #2 Challenges

11:40 | Q&A

11:55 | Closing & Final Remarks

AUTOASSESS Project Overview

Evangelos Boukas

AUTOASSESS coordinator

DTU

Melanie Brunhofer

AUTOASSESS Project Manager

DTU

AUTOASSESS - Autonomous Aerial Inspection of GNSS-denied and Confined Critical Infrastructures

AUTOASSESS

- Funded by: EU Horizon Europe Programme (Innovation Action)
- Call: HORIZON-CL4-2022-DIGITAL-EMERGING-02
- Budget: 13 Million EUR
- Project started: 1 October 2023
- Duration: 48 months
- Consortium: 16 Partners across Europe (academia, industry, class and end users)

AUTOASSESS *Need*

→Large marine structures must endure harsh environments

On January 15th 2021 just off the port of Bartın in Turkey (Black Sea), the MV Arvin sank

AUTOASSESS *Need*

>50 000 vessels to be regularly monitored for corrosion & defects by human surveyors in dirty, confined GNSS-denied areas as water ballast tanks and cargo holds

- Navigation of humans in tight and dangerous spaces lead to 1 death every week on average from accidents in these dangerous spaces
- Inspection currently takes time (15 days)
- Inspection costs are up to 1 Million €

AUTOASSESS *Need*

AUTOASSESS has the goal of removing human surveyors to:

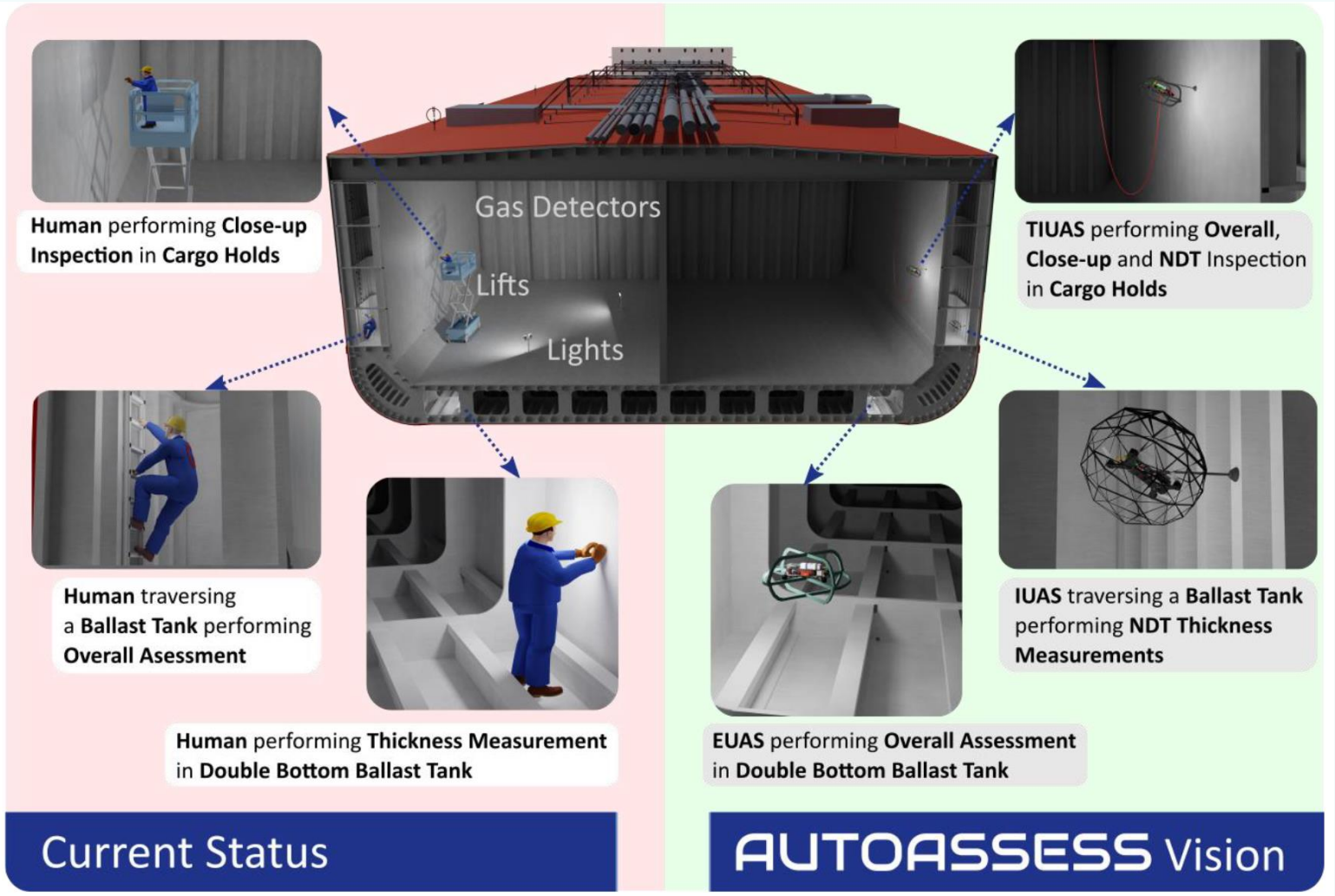
- avoid deaths
- provide more reliable and accurate inspection
- save up to 9B€ per year on inspection cost

AUTOASSESS *How*

- Integrating various technologies to address the challenge of deploying aerial robots in these challenging conditions:
  1) Exploration UAS - New drone for a quick overall assessment of Ballast Tanks
  2) Inspection UAS – Adapted Flyability drone for CloseUp inspection and Thickness Measurements of Ballast Tanks
  3) Tethered UAS Inspection – Overall Inspection, CloseUp inspection and Thickness measurements using an adapted ScoutDI drone for Cargo holds
- All of them operate fully autonomous

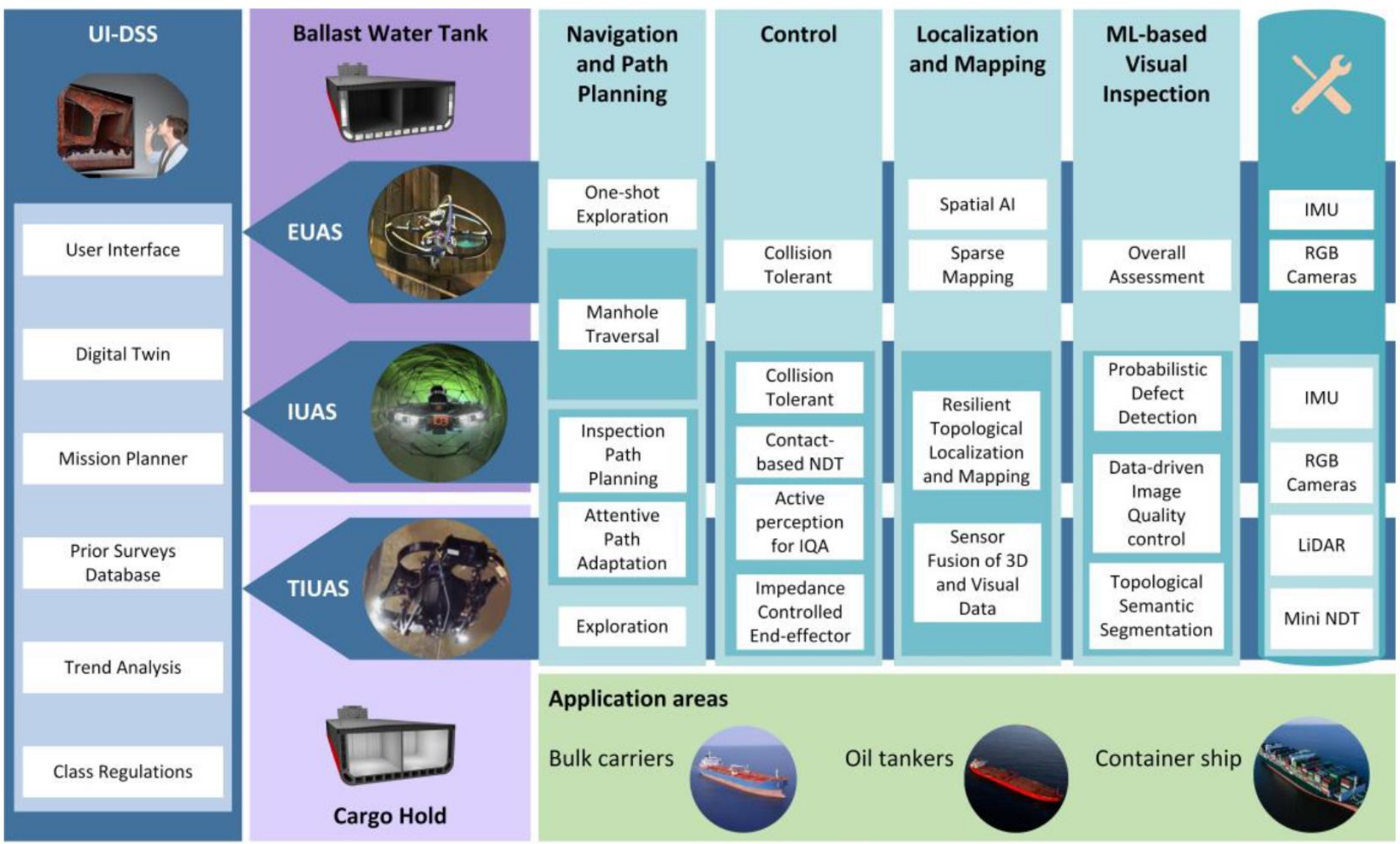


AUTOASSESS *How*



The Overall Objective (OO) of the **AUTOASSESS** project is to **remove human surveyors and workers from dangerous and dirty confined areas** of offshore structures by employing an a**utonomous robotic system that exceeds human capabilities** and is able to perform maritime vessel classifications

High level work description



AUTOASSESS Open Call #2

Challenges

Open Call #2 for Tech Innovations

// In a nutshell.

OPEN CALL #2

Focus on
Innovative solutions addressing AUTOASSESS challenges

Up to
€60.000
equity-free
9 projects
funded

Open to:
Startups (100%)
SMEs (70%)

Single or Consortium

Must select one of the Challenges

Equity-free funding

Business and technical support

Visibility and promotion

What projects are expected?

// Types of projects (1)

Applicants are required to **select one** of the challenges and align their application and respective proposal with the challenge requirements. *Challenge descriptions provided in Appendix 1 of the GfA*.

Challenge	Title
C1	SOT-aided NDT Thickness Tool for a Fully-Actuated Aerial Robot [*Univ. Twente*]
C2	Remote Inspection Support and Augmented Collaboration between Onboard and Shore-Based Experts [*Glafcos*]
C3	Autonomous Patrolling Concepts and Early Event Detection Frameworks for Engine Rooms [*Glafcos*]
C4	Vessel Structural Condition Analysis and Hotspot Identification via Digital Representation and Modelling for Robotic Inspection [*DTU*]

What projects are expected?

// Types of projects (2)

Applicants are required to **select one** of the challenges and align their application and respective proposal with the challenge requirements. *Challenge descriptions provided in Appendix 1 of the GfA*.

Challenge	Title
C5	Combined Qualitative and Quantitative Assessment of Structural Integrity Using Imaging and Measurements [*DTU*]
C6	NDT-MINI: Ultra-Lightweight, low power (<10W) ACFM/ECT Sensor for Autonomous Drone Inspection [*Sensima*]
C7	Graphical User Interface for UAS [*NTNU/Cognite*]
C8	Open Challenge: *Tell us what AUTOASSESS needs (within the project framework)*

AUTOASSESS

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Challenge 1

SOT-aided NDT Thickness Tool for a Fully-Actuated Aerial Robot

Barbara Bazzana, Antonio Franchi

University of Twente

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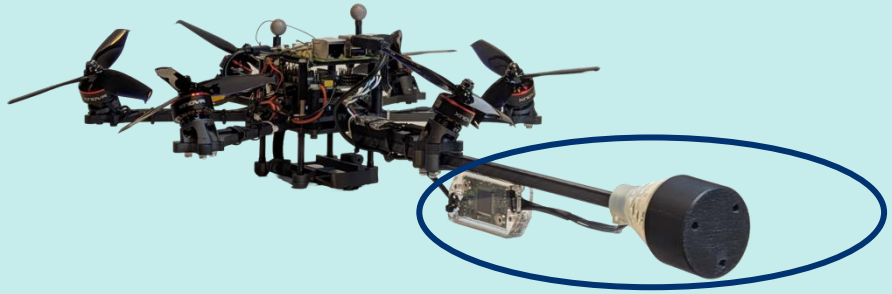
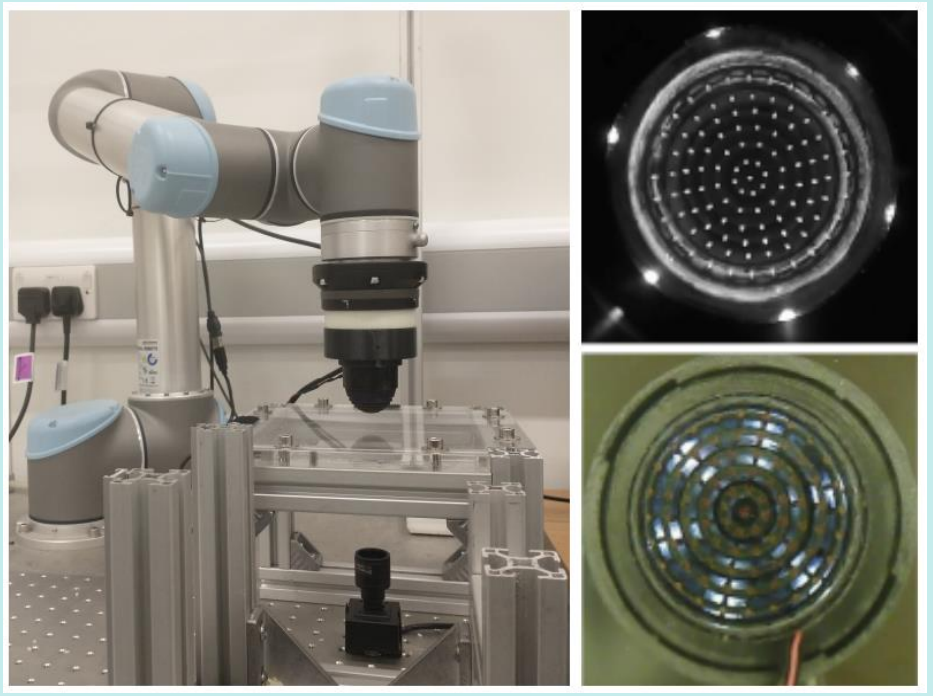
SOT-aided NDT Thickness Tool for a Fully-Actuated Aerial Robot



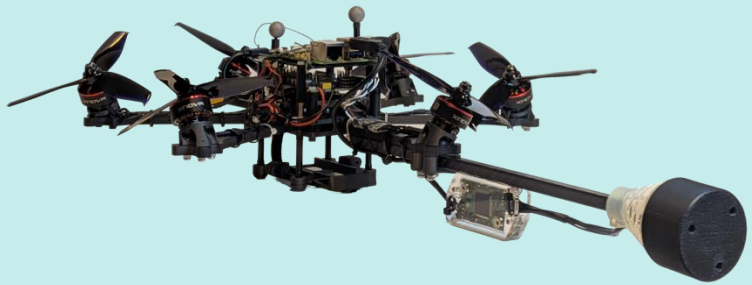
- Soft Optical Tactile (SOT) sensors provide rich contact info, therefore can be used to improve the NDT measurement quality of autonomous inspections
- Objectives
  - an NDT end-effector with integrated SOT sensor
  - experimental validation

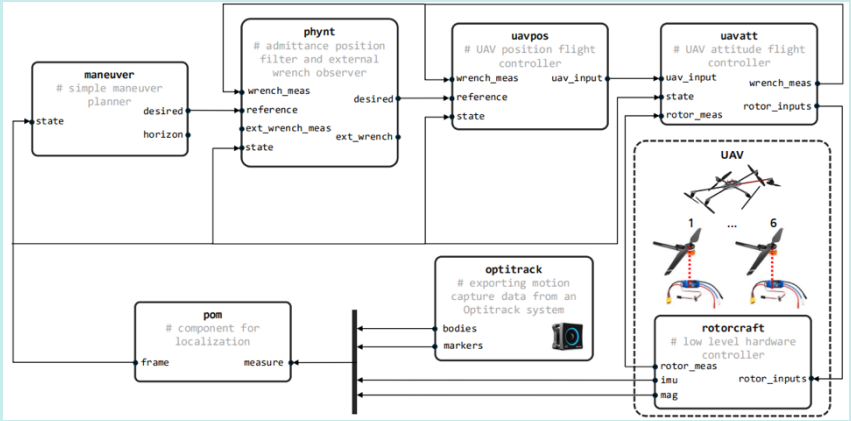


D. C. Bulens, N. F. Lepora, S. J. Redmond and B. Ward-Cherrier, "Incipient Slip Detection with a Biomimetic Skin Morphology," 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Detroit, MI, USA, 2023, pp. 8972-8978, doi: 10.1109/IROS55552.2023.10341807.

Requirements

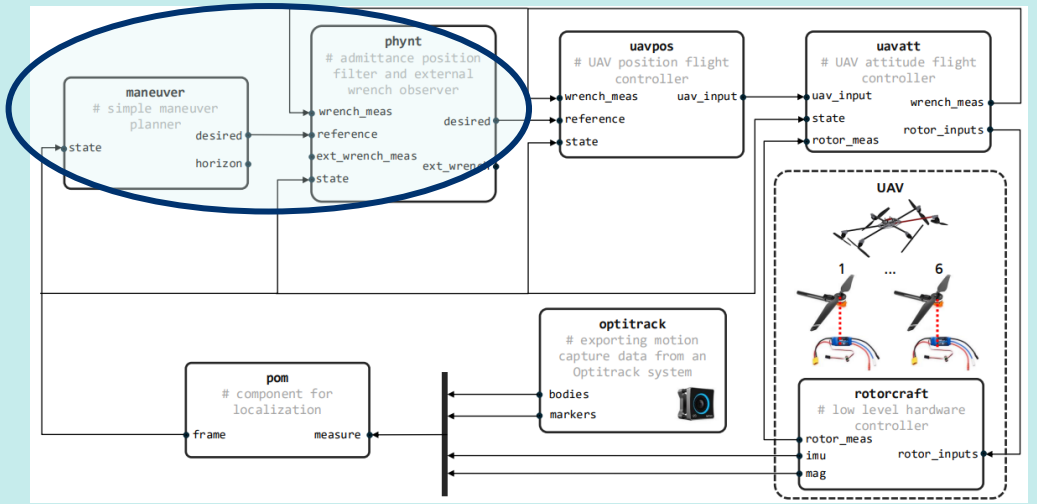
- Hardware specs
  - miniThex and SOT sensor developed by the University of Twente
- Software specs
  - compatibility with the Genom-based miniThex framework
  - integration with the miniThex User Interface
- Testing specs
  - repeatable setup and testing performed in a controlled lab scenario
- Required secondment at the University of Twente (>%60 project time)

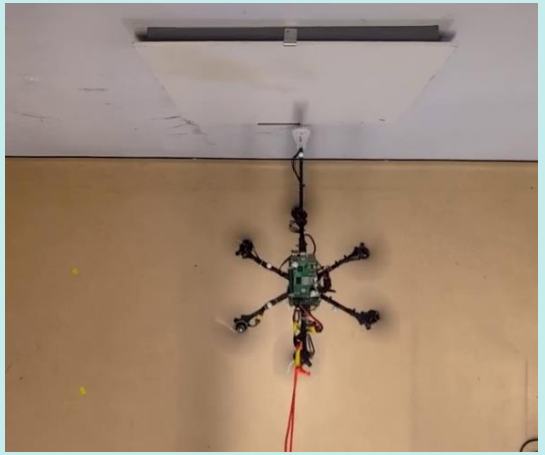




Results

- SOT data acquisition and processing software
- SOT-based **control algorithms** for physical interaction
- software documentation
- documented and reusable SOT **dataset**
- **experimental validation** showing the reduced energy consumption
- video recordings
- CAD model of the SOT-enhanced NDT EE





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Challenge 2

Remote Inspection Support and Augmented Collaboration between Onboard and Shore-Based Experts

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Challenge 2

Remote Inspection Support & Augmented Collaboration Between Onboard And Shore-based Experts

AUTOASSESS

Primary Strategic Objectives

Establish a fully functional system enabling remote expert supervision of onboard inspections through real-time AR interfaces and robotic platforms. The solution must improve inspection accuracy, enable inspection accuracy, enable expert guidance without physical presence, and validate procedures on operational vessels.

Safety & Compliance

- Ensure safe execution in hazardous/confined spaces
- Align with SOLAS, ISM, and class rules
- Meet regulatory and classification requirements
- Validate through live demonstrations

Technical Integration

- Integrate robotic platforms with AR interfaces
- Enable real-time expert guidance
- Support multi-modal data collection
- Ensure rapid deployability

Expert Collaboration

- Enable remote supervision by shore-based experts
- Prioritize inspection tasks using risk data
- Support real-time decision-making
- Enhance operational efficiency

Deliverables

- Class-acceptable digital reports
- Validated remote inspection platform
- Real-time collaboration tools
- Field trial evaluation report

Challenge 2

Remote Inspection Support & Augmented Collaboration Between Onboard And Shore-based Experts

AUTOASSESS

Eligibility Criteria

Proven experience in **robotic-human hybrid inspection** (≥1 relevant past project)

In-house experts with **onboard survey experience** for remote supervision
Capability to secure access to **operational vessels** for live demonstrations
Demonstrated capability in **remote/AR inspection workflows**

Technical Requirements

Integrate **robotic inspection platforms** with AR-enabled guidance
Support **real-time expert supervision** and annotation
Enable **multi-modal data collection** for comprehensive inspection
Ensure **rapid deployability** and operational reliability

Validation Requirements

Live demonstrations on **operational vessels**
Preferably with independently arranged access
Validation of inspection procedures
Performance metrics verification

Compliance & Standards

SOLAS | ISM | RINA Remote Survey

Generate **class-acceptable digital reports** compatible with SOLAS/ISM
Meet **remote survey protocols** (RINA Remote Survey)
Ensure **operational reliability** in hazardous areas
Align with **classification requirements**

Safety & Regulatory

Ensure **safety in hazardous/confined spaces**
Comply with **maritime safety standards**
Implement **risk mitigation protocols**
Maintain **regulatory compliance**

Data & Reporting

Class-compliant **digital reports**
Multi-modal **inspection datasets**
Real-time **collaboration tools**
Field trial **evaluation reports**

Challenge 2

Remote Inspection Support & Augmented Collaboration Between Onboard And Shore-based Experts

AUTOASSESS

Key Performance Indicators

Inspection Coverage
95%
of critical structures

Expert Hours Reduction
40%
onboard hours saved

Report Turnaround
24h
processing time

Accuracy Improvement
25%
vs traditional methods

Expected Impact

Safety Enhancement: Safer, more efficient inspections with reduced exposure to hazardous environments

Standardization: Standardized hybrid workflows across the maritime ecosystem

Scalability: Scalable remote survey capability for future vessel inspections

Data Quality: Improved data quality for maintenance planning and decision-making

Operational Efficiency: Enhanced operational efficiency and reduced downtime

Deliverables

- **Validated Remote Inspection Platform**
  AR-guided interfaces + robotic data collection
- **Multi-modal Inspection Reports**
  Class-compliant digital outputs
- **Real-time Collaboration Tools**
  For shore-based experts
- **Field Trial Evaluation Report**
  With replicable procedures

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Challenge 3

Autonomous Patrolling & Early Event Detection for Engine Rooms

Glafcos Marine Ltd.

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Challenge 3

Autonomous Patrolling & Early Event Detection for Engine Rooms

AUTOASSESS

Primary Strategic Objectives

Design and specify an autonomous engine-room monitoring framework capable of supporting continuous patrolling and early anomaly detection in ship engine rooms. The framework will define effective patrol concepts and coverage strategies for autonomous inspection systems operating within the confined and complex environments of engine rooms.

Technical Integration: Specify thermal, acoustic, vibration, and gas sensing modalities for early detection of abnormal conditions

Compliance: Establish safety, regulatory, and operational requirements aligned with SOLAS, ISM, and engine room safety standards

Patrol & Coverage Strategy

- Define effective patrol concepts for confined spaces
- Ensure reliable and repeatable monitoring of critical areas
- Establish coverage strategies for complex engine room environments
- Prioritize inspection tasks using operational and risk data

Anomaly Detection & Analysis

- Integrate multi-sensor data for comprehensive monitoring
- Develop data correlation and analysis methodologies
- Enable early detection of degradation trends
- Support predictive maintenance capabilities

Validation & Performance Metrics

- Prepare validation methodologies for future assessment
- Establish performance metrics for objective evaluation
- Define testing protocols for operational vessels
- Ensure framework can be assessed under real-world conditions

System Architecture

- Specify integration requirements for autonomous platforms
- Define multi-sensor payload configurations
- Develop data processing workflows
- Ensure scalability for future implementations

Challenge 3

Autonomous Patrolling & Early Event Detection for Engine Rooms

AUTOASSESS

Eligibility Criteria

Proven **experience in maritime engineering** and engine room operations/equipment

Leverage existing knowledge or datasets regarding **machinery degradation patterns** to support robust anomaly detection.

System Specifications

Architectural definition for **autonomous platforms** operating in confined/hazardous engine room engine room environments

Multi-sensor payload configurations for **thermal, acoustic, vibration, and gas sensing**

Data fusion, **anomaly detection**, and predictive maintenance algorithms

Patrol routes, coverage policies, and monitoring schedules for **engine room environments**

Sensor Integration

Multi-sensor data integration (thermal, acoustic, vibration, gas)
Real-time **data processing pipelines**
Sensor payload configurations for comprehensive monitoring
Data **fusion algorithms** for anomaly detection

Regulatory & Safety Compliance

SOLAS | ISM Code | IGC Code | FSS Code

Compliance with **SOLAS**
Adherence to **ISM Code** for safety management
Alignment with **IGC Code** for gas carriers
Compliance with **FSS Code** for fire safety systems

Safety Requirements

Identification of **operational constraints** and safety considerations
Risk controls for autonomous patrolling
Safety **protocols** for confined space operations
Emergency procedures and fail-safe mechanisms

Operational Scenarios

Representative **operational scenarios** for engine room patrolling
Coverage strategies tailored to confined spaces
Risk assessment and hazard identification
Validation **methodologies** for future testing

Challenge 3

Autonomous Patrolling & Early Event Detection for Engine Rooms

AUTOASSESS

Key Performance Indicators

Detection Accuracy	95%
Alert Latency	<5s
Coverage	100%
Compliance	100%

Expected Impact

- **Safety Enhancement:** Improved monitoring of high-risk engine room environments
- **Predictive Maintenance:** Early anomaly detection for equipment degradation
- **Operational Efficiency:** Reduced manual inspection requirements
- **Expert Utilization:** Optimized deployment of technical expertise
- **Environmental:** Reduced carbon footprint through optimized operations

Key Deliverables

- System Architecture
- Sensor Integration Specs
- Anomaly Detection Framework
- Compliance Guidelines
- Validation Plans

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Challenge 4

Vessel Structural Condition Analysis and Hotspot Identification via Digital Representation and Modelling for Robotic Inspection

DTU

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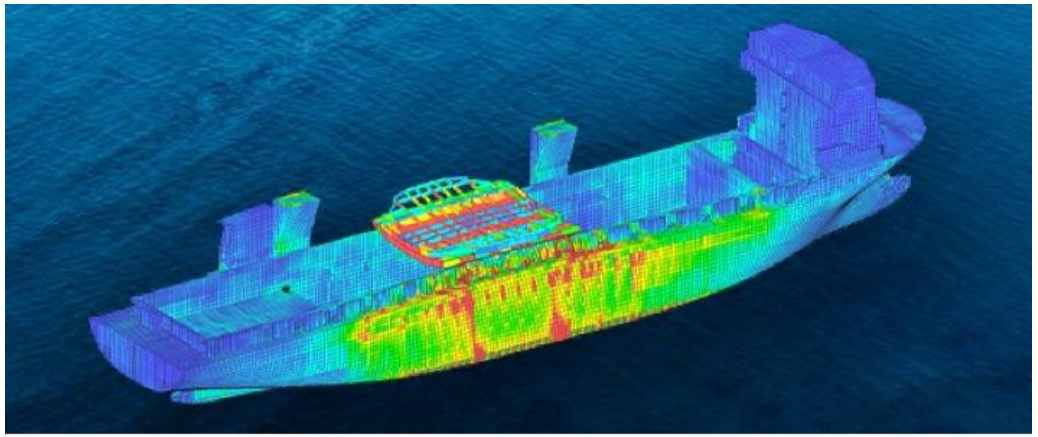
VESSEL STRUCTURAL CONDITION ANALYSIS AND HOTSPOT IDENTIFICATION VIA DIGITAL REPRESENTATION AND MODELLING FOR ROBOTIC INSPECTION

AUTOASSESS

Motivation

- Inspection points/areas are rules-based
- Prioritization is expert-based
- Robot inspection needs evidence-based targets



Primary Strategic Objectives

- Develop digital twin merging
  - FEM/CAD,
  - prior UTM records,
  - historical data and live robotic measurements

- Identify inspection hotspots for robotic prioritization

- Integrate visual, thermal and ultrasonic data using class-approved expertise

- Enable predictive maintenance and shipboard validation

Specifications/Integration Requirements

- Access to real vessel archives (FEM, CAD, historical UTM)
- Access to operational vessels for shipboard trials
- Proven track record in structural surveys & UTM
- Maritime engineering teams with class-approved experience

Expected Impact

- Better-informed inspection targets
- Accurate assessment based on real vessel condition
- Reduced risks through hotspot prioritization
- More scalable and empirically grounded process)

Key Deliverables

- Functional digital twin framework
- Automatic hotspot identification tools
- Scenario-based predictive models

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Challenge 5

Combined Qualitative and Quantitative Assessment of Structural Integrity Using Imaging and Measurements

DTU

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COMBINED QUALITATIVE AND QUANTITATIVE ASSESSMENT OF STRUCTURAL INTEGRITY USING IMAGING AND MEASUREMENTS

AUTOASSESS

Motivation

- Visual inspections are subjective/qualitative
- Thickness measurements are quantitative
- Autonomous assessment would benefit by their integration

Primary Strategic Objectives

- Infuse expert knowledge into unified framework merging visual and ultrasonic data
- Generate condition maps and identify high-risk zones
- Validate against historical data and real vessel conditions

Specifications/Integration Requirements

- ≥5 years historical visual + UTM data per vessel
- Ultrasonic & visual data fusion with ship-grade instruments
- Output: corrosion zones, thickness maps, intervention methods
- Expert domain knowledge (exclude purely software-driven)
- Inspection in ballast tanks & hazardous spaces
- Investigate IACS UR-Z10 standards

Expected Impact

- More complete evaluations and fewer missed degradation patterns
- Assessments reflecting actual degradation behaviour
- Actionable maintenance guidance
- Significantly more reliable and efficient inspection process

Key Deliverables

- Unified multi-layered condition assessments
- Degradation & thickness maps
- Trend-based evaluations
- Class-surveyor condition reports

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Challenge 6

NDT-MINI: Ultra-Lightweight, low power (<10W) ACFM/ECT Sensor for Autonomous Drone Inspection

SENSIMA

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Challenge Objectives

AUTOASSESS Open Call #2 - NDT-MINI challenge

What the NDT-MINI challenge is trying to achieve within AUTOASSESS

Inspection problem

- Visual robotic inspection can identify crack-like indications, but cannot reliably distinguish paint defects from real structural cracks.
- This limits full autonomy in ballast tanks, cargo holds and other confined maritime steel spaces.

Main objective

- Enable a compact robotic NDT payload that supports definitive crack assessment after visual indication finding.
- Reduce dependence on human entry into hazardous, enclosed and GNSS-denied inspection environments.

System-level intent

- Support integration on small inspection robots, especially compact drones and magnetic crawlers.
- Contribute to faster, repeatable and digitally integrated vessel inspection workflows.

Specific Requirements

AUTOASSESS Open Call #2 - NDT-MINI challenge

Key functional and integration constraints defined by the challenge

NDT specs

- Compatibility with ACFM and standard ECT modes.
- Targeted ability to detect representative surface-breaking defects on steel structures.
- Operation at practical lift-off distances representative of coatings or surface condition.

SWaP

- Low-SWaP payload concept suitable for mobile robotics. Target overall system mass compatible with crawler use and progressive reduction toward drone-oriented versions.
- Low-power operation with simple power supply concepts such as 5V / USB-C or other robot-compatible supply.

Integration + Maritime

- Digital interface suitable for onboard robotic integration, such as USB or Ethernet.
- Mechanical compatibility with compact magnetic crawlers and small collision-tolerant drones.
- Awareness of maritime inspection practice, remote inspection frameworks and future certification / class acceptance needs.

Specific Requirements

AUTOASSESS Open Call #2 - NDT-MINI challenge

Deliverables and outcomes foreseen by the challenge

1

Prototype output

A physical, working ACFM / ECT payload prototype aligned with weight, power and interface constraints.

2

Validation evidence

Performance data showing defect detection capability, including lift-off tolerance and suitability for representative steel inspection conditions.

3

Integration relevance

Demonstration of compatibility with robotic deployment logic, especially for drones and compact magnetic crawlers, with documentation of maritime compliance considerations.

Overall expected effect: a critical hardware enabler for autonomous integrity assessment in confined maritime structures.

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Challenge 7

Graphical User Interface for UAS

NTNU/Cognite

(Presented by DTU)

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Objectives

- Design, implement, and demonstrate a robust, vendor-agnostic mission execution framework that enables reliable execution of UAS-based inspection missions.
- Deliver a high-TRL operator interface that provides supervisory control and situational awareness to an operator during UAS missions.
- Integrate mission data with the AUTOASSESS infrastructure, enabling downstream visualization, historical analysis and predictive capabilities.

Specifications/Integration Requirements

- Consume mission plans generated by the AUTOASSESS UI-DSS using a jointly defined mission specification.
- Manage the execution of missions, and provide real-time telemetry, health information and perception outputs for operators.
- Design, implement and validate a high-TRL graphical interface that supports supervisory control, mission monitoring and situational awareness throughout inspection and exploration missions.
- Integrate the mission execution engine with one or more AUTOASSESS UAS platforms and the Cognite Data Fusion cloud infrastructure.

Expected Results

- A fully functional and validated mission execution engine and operator interface.
- Well-defined and documented APIs and data models for mission ingestion and control.
- Demonstrated integration with the AUTOASSESS UI-DSS, cloud infrastructure, and one or more UAS platforms.
- Demonstration and dissemination material showcasing the developed solution.

Q&A
from the audience

Closing
& final remarks

Tips & Recap

// Applying & the timeline

STEPS

1. Visit the OC page on the **AUTOASSESS website**
2. Read the **Annex 1- Guide for Applicants**
3. Download and complete Annex 2 – Proposal Template
4. Register on F6S and visit the OC#2 page
5. Complete the required items and upload Annex 2.
6. Submit your application

DATES

What?	When?
Application submissions	2 March – 5 May 2026
Eligibility check	6 May – 8 May 2026
Application evaluation	11 May – 12 June 2026
Announcement of results	2nd half of June 2026

Open Call #2 for Tech Innovations

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9 projects
funded

Open to:
Startups (100%)
SMEs (70%)

Single or Consortium

Must select one of the Challenges

Equity-free funding

Business and technical support

Visibility and promotion

Need support?

// Important links and contacts

- Project website: https://autoassess.eu/
- Open call application form: https://www.f6s.com/autoassess-oc2-tech-innovations/apply
- Contact us: autoassess-opencall@f6s.com
- Online discussion board: https://www.f6s.com/autoassess-oc2-tech-innovations/discuss
- F6S platform support team: support@f6s.com (*to be used for issues with the submission, resubmission, access to the platform, etc.*)

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