# Exploitation workshop on MOSES AutoDock System

## Auto-Pilot Implementation and AI Driven WorkBoats

Engineering Industry 4.0

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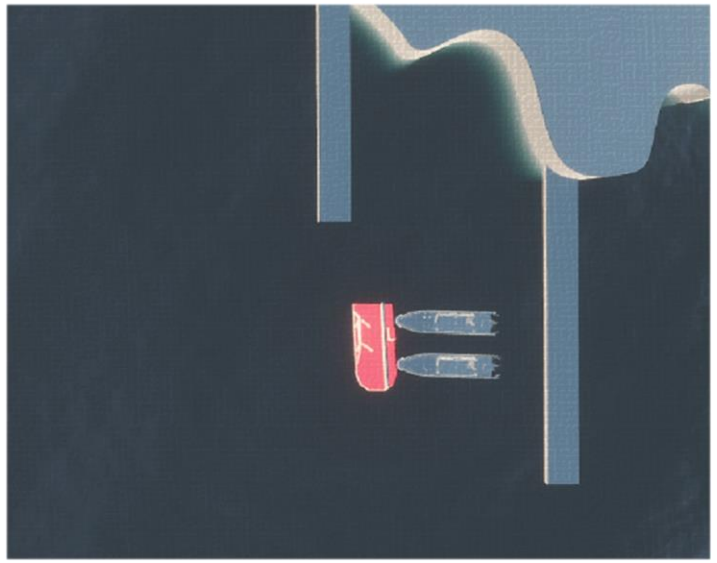
# Actions Performed

1. CORE trained two WB agents using ML techniques in a **training environment** (unity)



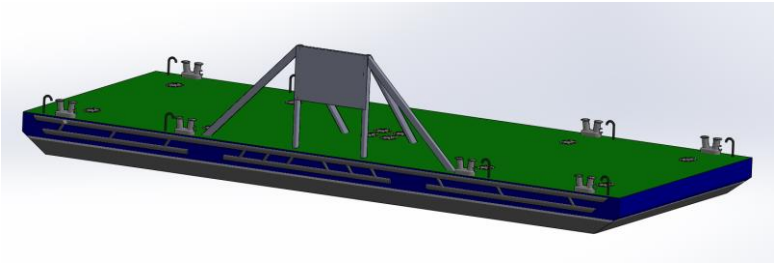
2. Trained agent models deployed on WB2 (electric)
   - WB2 (electric) support a fully **autonomous operation**
   - WB1 (diesel engine) operation was fully **manual**

3. Auto-pilot system implemented on WB2

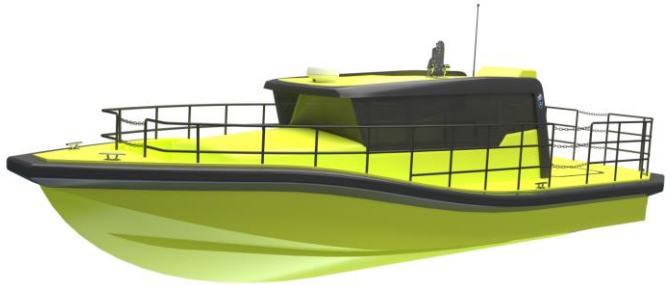
4. AutoMoor and Shore Control Station services deployed on-site

# Testing Platforms

AutoMoor unit

Barge



WorkBoat

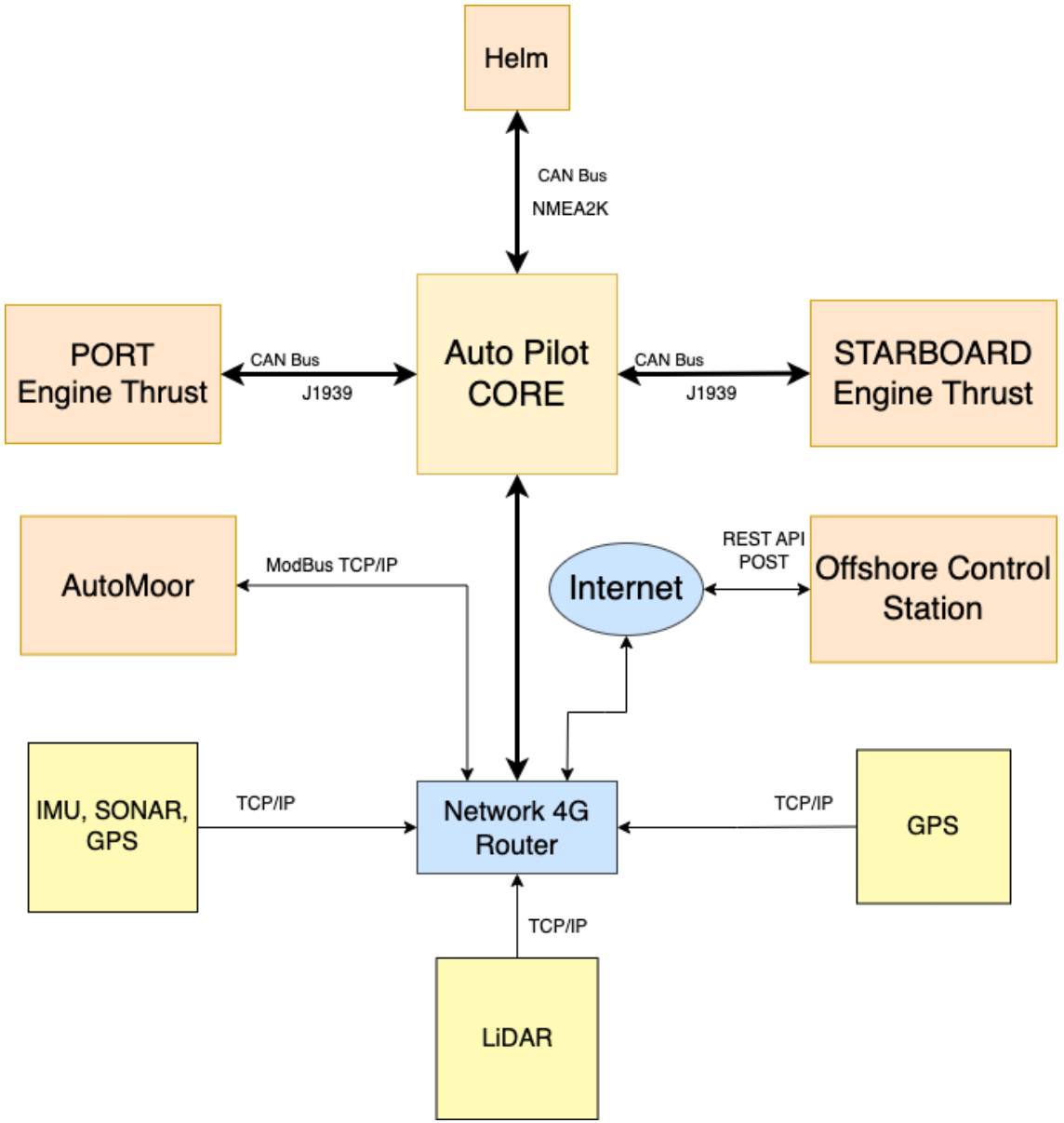
# Testing Phases

1. Assessing the level of automation for the WB2
   - Communication and control of the workboats Steering (Raymarine) and Thrust (Torqeedo) systems
   - Self-driving test involving the execution of commands based on the algorithm’s inference

2. Assessing AutoMoor’s unit level of automation
   - Various functionality tests to validate its operand performance

3. Assessing the collaboration of the workboats
   - 2 TUCO workboats representing a swarm will perform the automated docking of the barge, while the AutoMoor unit will be used for the mooring process

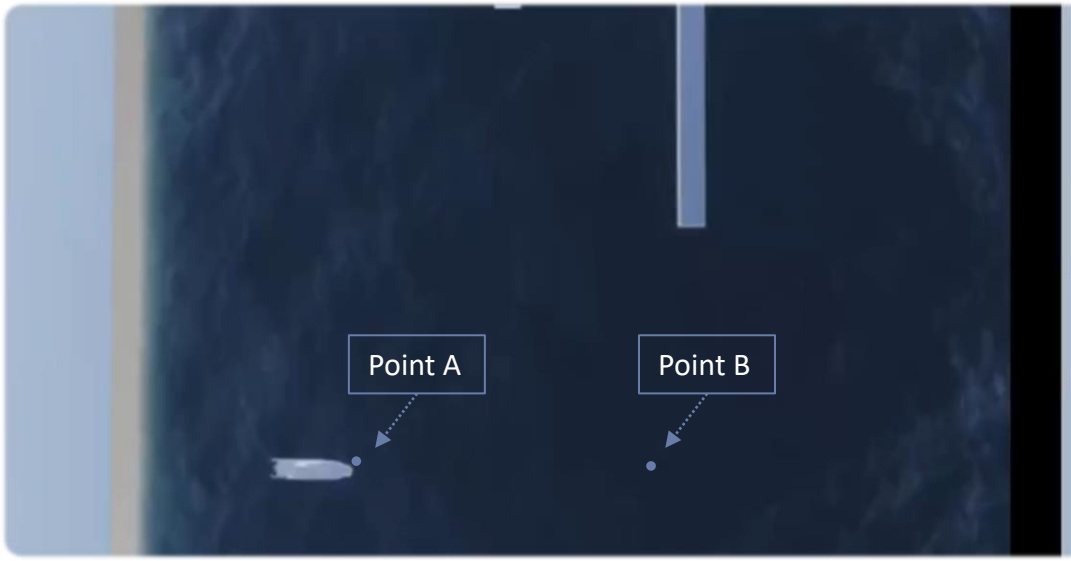
# Auto-pilot System Component



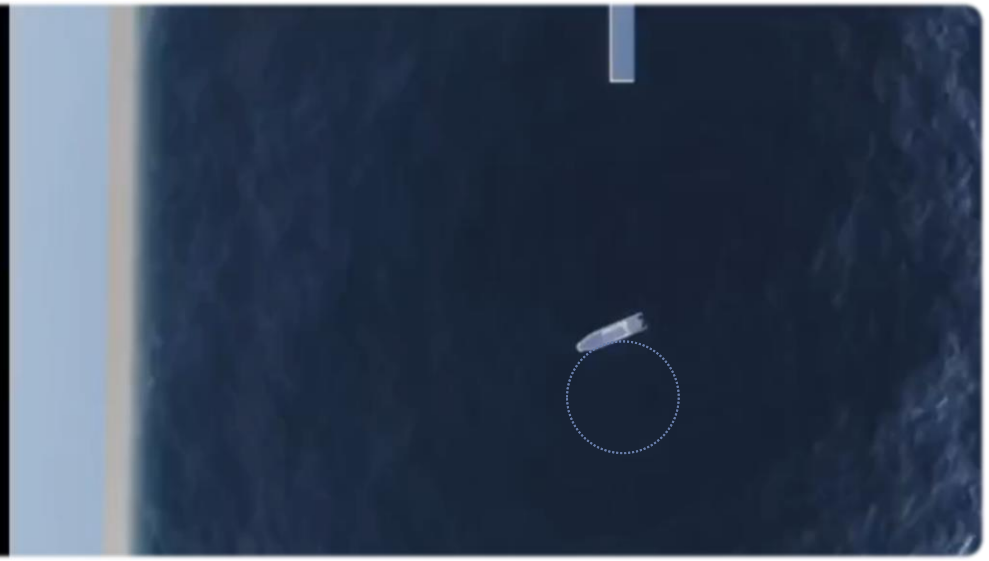
# Single workboat scenarios

1. Single workboat scenario – point A to B
2. Single workboat scenario – point A to B and stop 0.5m from barge
3. Single workboat scenario – full circle

Single workboat scenario – point A to B




Single workboat scenario – full circle

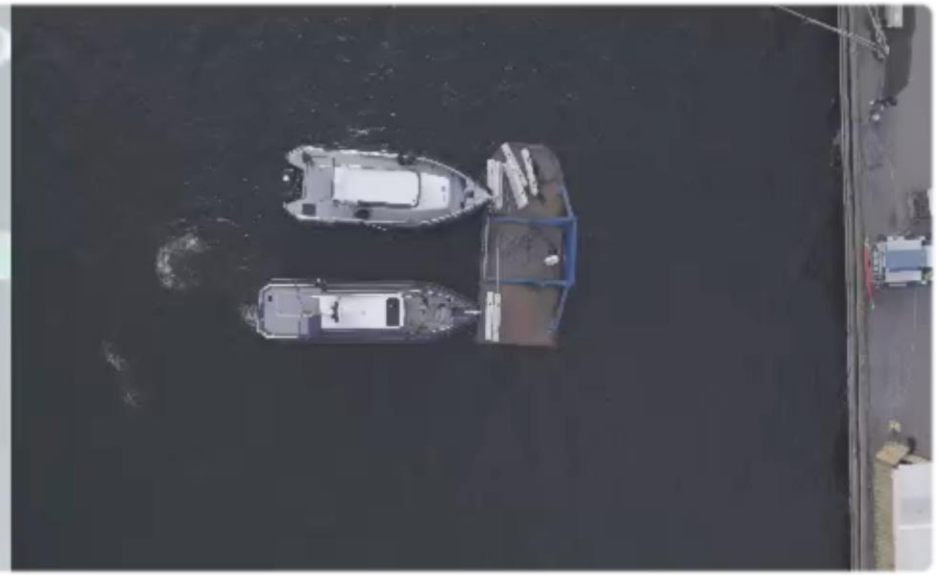


# Swarm workboat scenarios

1. Two pushing workboats scenario (push-push)

Simulation

Demonstration



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# Thank you for your attention!

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