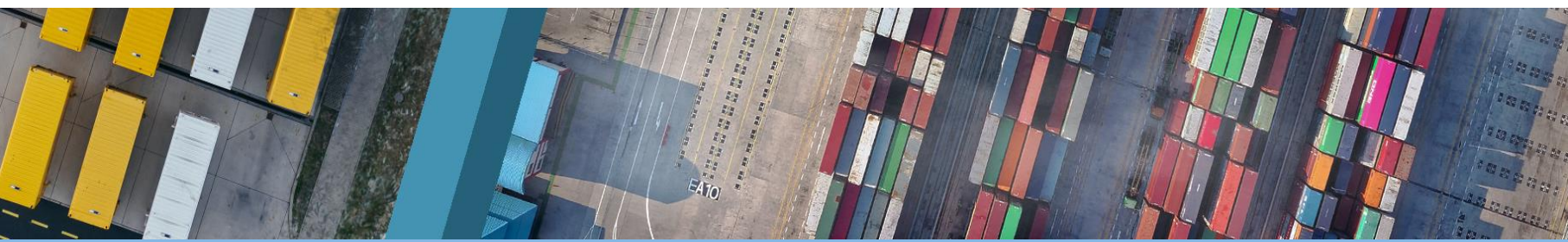




AWARD

Scaling autonomous logistics



AWARD has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No 101006817
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24/04/2024

Innovating Port Logistics Operations

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AWARD overview

H2020 framework

- **2018-2020** : Digitising and Transforming European Industry and Services: Automated Road Transport
- **DT-ART-05-2020** : Efficient and safe connected and automated heavy-duty vehicles in real logistics operations

AWARD : All Weather Autonomous Real logistics operations and Demonstrations

Project Coordinator : EasyMile

Budget : € 26M

Partners : 29



AWARD is developing and operating safe autonomous transportation systems (ATS) in a wide range of real-life logistic use cases in a variety of different scenarios

All Weather Autonomous Real logistics operations and Demonstrations



Forklift

Autonomous loading and unloading forklift operations



Hub-to-hub

Autonomous logistics shuttle service on public road



Airport

Autonomous ground support equipment



Port

Automated transfer operations and ship loading



Four real-condition demonstrations

Harnessing the expertise of all consortium members

Development of the system

- Able to handle adverse environmental conditions
- Targeting compliance with ISO 26262 and taking into consideration SOTIF recommendations
- Integrating an embedded teleoperation system to address 24/7 availability and multiple sensor modalities:



- Optimized fleet management & supervision system for logistics use cases



Integration into HDV and validation



Demonstrations

Port Trailer autonomous transfer operations



Hub to hub autonomous logistics on public roads



Airport autonomous ground support equipment



Autonomous loading and unloading operations



Port Use Case: Container transfer operations and automated boat loading in Rotterdam port

Site

Rotterdam (Vlaardingen) port terminal

Restricted site

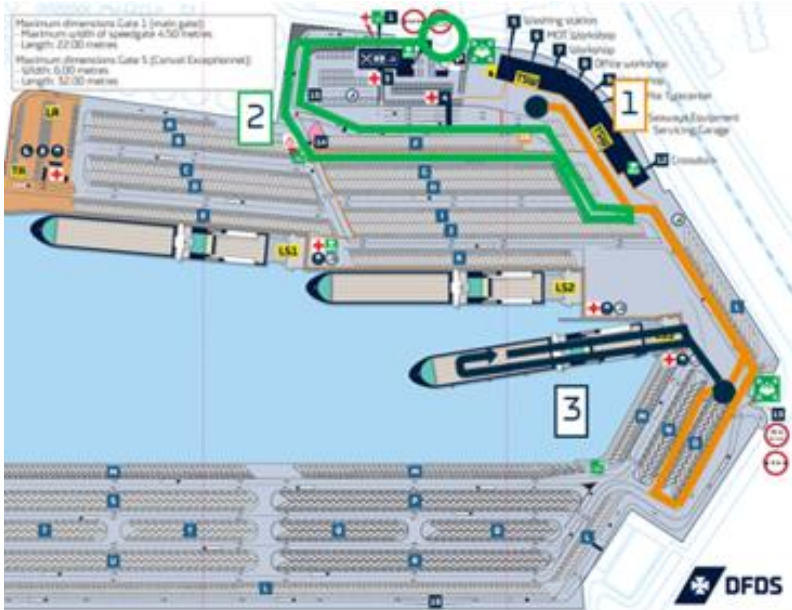
Objective

Focusing on the utilization of an automated Terberg Tug for trailer movement within the terminal premises. The objective is to integrate automated trailer transfer with DFDS terminal systems and operate in a live environment with other vehicles and people



At the port

Real-condition scenarios with DFDS in Vlaardingen, The Netherlands



Route

The ongoing routes include gate transits to and from the public road, as well as loading and unloading operations on a ship

Rotterdam Terminal

Roll-on/Roll-off (RoRo) terminal with ferry routes to Immingham and Felixstowe in the UK, currently witnesses 22 weekly departures, facilitating the transport of over 150,000 trailers annually from the Netherlands to the UK. The terminal currently houses a total of 32 tugs similar to the Terberg truck, which are showcasing autonomous capabilities, serving various purposes across vessel operations, the technical services workshop, and transshipment areas.

The tug's operations revolve around three key phases:

- Phase #1: trailer moves from point A to point B on the terminal ready to load a ship concluded in November 2023
- Phase #2: public road for last-mile delivery from the terminal to the public road including gate-in and -out process
- Phase #3: ship loading/unloading



At the port

Real-condition scenarios with DFDS in Vlaardingen, The Netherlands



Usual port situations simulation in test track

- ✓ 9 scenarios tested (passable objects, vehicle overtaken, roundabout, etc.)
- ✓ Different obstacles: car, pedestrian, barriers, pallets
- ✓ Simulation of rain until 100mm/h

Trailer management in the port

- ✓ 3 phases: trailer management in the port (1), going in and out the site to communicate with barriers system (2), trailer management in a vessel (3)
- ✓ Operations finished, under analysis



Port Impact Assessment

Time Savings

Significant reduction in time required for trailer rearrangement using a mix of automated and human-operated vehicles.

Automation Benefits

Full automation of trailer connections could reduce costs by approximately 75% for five automated vehicles.

Cost Efficiency

- Operating 5 automated vehicles results in 23% lower costs compared to setups including human operation with part-time support and teleoperation.
- Without part-time support, costs are 81% lower.

Technology Integration

- At least three automated vehicles are necessary for three hours of operation to achieve cost savings.
- Increasing vehicle numbers is more effective than extending operational hours due to the duration required for trailer connections.



Register for the final AWARD event



AWARD 2ND FINAL CONFERENCE: REVOLUTIONIZING LOGISTICS — A EUROPEAN CONFERENCE ON AUTOMATION IN LOGISTICS



Comet Meetings - Louise,
Pl. Stéphanie 20, 1050
Bruxelles



13 June, 2024
09:00 AM - 17:00 PM
(TBD)

RESERVE YOUR SPOT ON
eventbrite



<https://award-h2020.eu/index.php/award-2nd-final-conference-2024/>



24/04/2024

Thank you!

Loha Hashimy

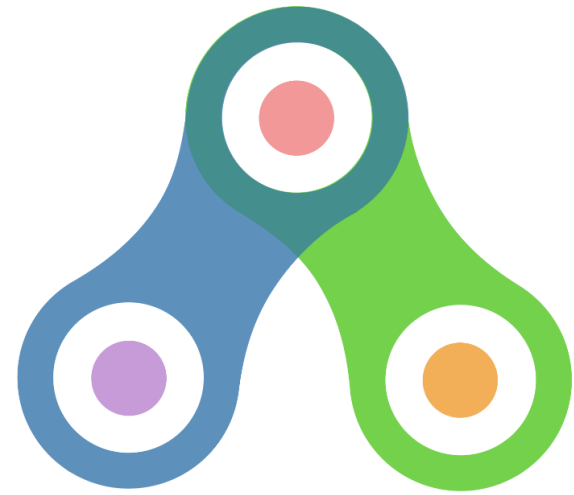
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