

RoboDock

Publieke samenvatting / Public summary

Aanleiding

With the increased availability of operational wind farms in the North Sea and the safety concerns and scarcity of qualified staff, robotic based inspection, maintenance and other services of the offshore wind assets (tur-bines, foundations, power line infrastructure, etc.) will contribute to lowering the downtime of installed wind turbines and lowering overall O&M costs. However, as offshore wind farms are situated at increasing distances from the coast, deployment of the robotic systems is getting more problematic without facilities nearby that are able to support such systems. Deployment of robotics for O&M are currently limited by 2 factors: 1. The robotics still lack autonomy. As of yet, still human on-site interventions are needed, which contribute to higher costs of operations; 2. The robotics are all deployed and serviced from separate systems, which causes inefficiencies (e.g. separate communication, repowering and safety infrastructures).

Doelstelling

This project will introduce the RoboDock platform, which will revolutionize the way in which offshore wind O&M and other field related activities are being organized and executed. RoboDock will provide for a protected, safe docking point, where robotic systems that are used for O&M tasks can be held (docked), recharged and upload acquired data, and where they can communicate with control and supervision centers onshore. Primarily, RoboDock will support different types of O&M related robotics for offshore wind: 1. Subsea: ROVs and AUVs that are used for inspections and repairing of subsea

Projectinformatie / Project information

Projectnummer / Project number

MOOI12005

Subsidiebedrag / Grant amount

€ 3.228.958,00

Algemene informatie / General information

Penvoerder / Secretariat

Fugro N.V.

Publicaties en materialen / Publications and attachments

- 16.11.2022

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Voortgangsrapportage 1

- 25.05.2023

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Voortgangsrapportage 2

- 08.02.2024

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Voortgangsrapportage 3

- 04.03.2025

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Voortgangsrapportage 4

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cables and wind turbine foundations; 2. Sea surface: Unmanned Surface Vessels (USVs) that are used for wind site surveys, monitoring of monopiles and security observations; 3. Airborne: UAVs and drones that are used for blade and nacelle inspections and replacement of light wind turbine parts.

Korte omschrijving

The project will be implemented in three distinct phases, with clearly defined Milestones and go/no-go moments between the phases. Such a step-wise approach allows for intermediate learnings and possible adaptations, while visible results can be achieved relatively fast and shown to all relevant stakeholders. The project's phases/activities are as follows: ? Phase 1 (Result 1 + 2) of the project aims at realizing the 'basic' RoboDock concept (by means of a prototype) for testing the basic functionalities, in terms of releasing and docking robotic platforms, and its communication and positioning functions. ? Phase 2 (Result 3 + 4): when the basic principles have been validated, the consortium will extend the RoboDock concept with more advanced functions that allow for greater precision and more offshore wind-related services as well as other services (e.g. ecological research and coastguard functions). This ensembles the RoboDock's primary capacities. ? Phase 3 (Result 5): when these capacities have been validated, the consortium will make the design of an actual RoboDock platform for offshore application that in a subsequent project can be constructed and piloted

Resultaat

The consortium aims to develop a fully automated and versatile offshore platform that will support autonomous windfarm inspection, environmental monitoring and data collection, with a modular expansion to provide additional facilities, making it a multi-purpose concept. The RoboDock will be a low-cost, but rugged shallow water mobile platform that can host various offshore robotics. It will incorporate storm-resistant docking points, automated launch and recovery, charging points and an advanced communications and positioning hub (allowing for increased positioning accuracies

and redundant communication infrastructure for the robotics deployed). The consortium will involve various stakeholders (e.g. suppliers, OEMs, wind farm operators, TSOs, government and regulatory bodies) in SteerCo and stakeholder groups. Although the stakeholders have specific interests, roles and ways of influencing the proposed development, they do all share a common overarching (commercial) interest: to implement O&M at competitive prices in order to provide a cost-effective and steady supply of renewable energy to society, and to achieve additional benefits from wind farms if possible.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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