Autonomous Robotic Inspection and Maintenance on Ship Hulls and Storage Tanks

Deliverable report – D10.3

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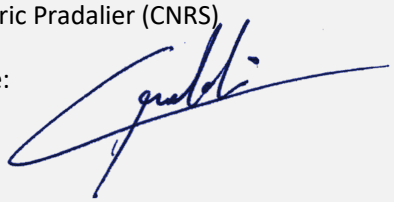
Approved by Coordinator	Prof. Cédric Pradalier (CNRS) Signature: 
Declaration	Any work or result described therein is genuinely a result of the BUGWRIGHT2 project. Any other source will be properly referenced where and when relevant.

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HISTORY OF CHANGES

Date	Written by	Description of change	Approver	Version No.

Executive summary

This document aims at showing the promotional videos made about BUGWRIGHT2 during the course of the project. A general video is produced to present the project to a general public, to explain the aim of the project, the scientific results, targeting end users and scientific audience. This deliverable also include technical videos for professional education.

All videos cited or published in this deliverable are current to 2023-03-01. More videos are expected after the last integration week, mid-March 2024 and will be uploaded on the website.

I. Promotional videos

All the videos are available on the YouTube channel of BUGWRIGHT2 and also on the website, in the Videos sections, with a paragraph explaining the video.

1. General video of the project

A general video was made during the first integration week, in May 2022. It shows the mock-up built for the tests, tests realised on the hull (crawler), and around the hull (drones), and in the tank around the hull (pioneer). In the same time, the first studies about work psychology were realised, the mapping of the hull and the draft of the Virtual Reality environment started.

Video available here.

2. Technical videos of the project

At the same time, short technical videos were done to explain technical content in relation with the different platforms.

The videos include technical specifications for each platforms such

- as localisation and mapping on the Roboplanet Crawler,
- Blueye testing an acoustic position system,
- RWTH working on a VR/AR supported hardware and software framework that enables efficient and intuitive planning and monitoring of inspection and cleaning tasks in a multi-robot scenario,
- VR application developed at RWTH and the drone located at UNI-KLU,
- Illustration of autonomous inspection-oriented capabilities of the UIB drone,
- Performance of the UIB 3D laser-based odometer,
- Motion estimation results from the VIO solution developed at the UNI-KLU, processing flight data captured at the UIB laboratory,
- Illustration of the performances of an RGBD-based odometer developed at the UIB laboratory,
- Autonomous underwater operation (Pioneer) realised by BEYE, visualisation by RWTH,
- Autonomous sweeping mock-up rear part by UIB
- Autonomous vertical inspection on the mock-up rear part by UIB
- Autonomous sweeping and vertical inspection on an offshore platform by UIB

Videos available here.

i. Technical videos by CETIM

During the course of the project, the CETIM also produced specific videos, for professional education.

The first one concerns the defect and obstacles localisation: work on the development of a robotised solution for localisation and mapping for inspection of large-scale structures.

The video is available here.

The second video is about defect localisation with a single robot (Task 3.3): Linear Synthetic Aperture Focusing Technique (SAFT) which is the use of guided waves with robot and image reconstruction of the controlled area, and Angular SAFT and Manual Image Reconstruction, which is the use of guided waves with manual device and image reconstruction of the controlled area.

The video is available here.