




Improved Robotic Platform to perform Maintenance and Upgrading Roadworks: The HERON Approach

Grant Agreement Number: 955356

D4.1: Design and Implementation of the low-level controller

Work package	WP4: Motion and High-Level Planner for the automated HERON system
Activity	Task 4.1: Position/Force control
Deliverable	D4.1: Design and Implementation of the low-level controller
Authors	R. Juliá, M. Cantero
Status	Final
Version	1
Dissemination Level	Confidential (CO)
Document date	29/06/2022
Delivery due date	31/08/2022
Actual delivery date	3/11/2022
Internal Reviewers	ICCS, IKH
	This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no 955356.

Executive Summary

This deliverable is the first written document in the context of WP4 – *Motion and High-Level Planner for the automated HERON system* of the HERON project under Grant Agreement No. 955356. The document provides a general overview of the inspection and maintenance processes as envisioned in HERON, together with related use of different features implemented in the low-level controller. This report illustrates the outlines and expected results of Task 4.1, titled: “Position/Force control” corresponding to M4-M12 of the HERON project’s period.

Special focus is put in the control of the robotic toolset and end effectors, which design and adaptation is tied to developments in WP5.

The document also presents a brief description on initially adopted hardware components, together with application-wise considerations that will condition the controllers. Then, a discussion of the manipulation related issues is presented together with an introduction of the framework and software tools to be used. In particular, interfaces, behaviors and force/position controls will be described with regards to the selected robotic arm and towards an effective application of the maintenance actions envisioned.