



JARVIS

DRIVING HUMAN-ROBOT COLLABORATION: RODI - Robot supported disinfection of medical devices



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Project name

Rodi - Robot supported disinfection of medical devices

Introduction

In the collaborative robot application Rodi, two cobots assist humans in the reprocessing of contaminated medical instruments. After every medical procedure, the instruments used must be sterilized, which is currently a very time-consuming and unpleasant manual process. Handling and preparing for sterilization with the help of robots is the aim of the application. There is a major shortage of skilled workers in the medical sector, which will become even more acute in the future due to demographic change. At the same time, there is a high demand for the availability of sterile surgical instruments, as no operation can be performed without reprocessed surgical instruments.

As the environmental conditions in the area of sterile processing are disorganized, interaction with humans is necessary to achieve the required availability of the system. A reliable, interactive safety concept is required for implementation, as well as the robot's capabilities in terms of image recognition and path planning.

The Rodi project contributes solutions to the upcoming labor shortage in the medical sector by an increased degree of automation. Robots will be able to support humans in an area of contaminated and demanding work.

How does your work align with the goals or methodology of JARVIS?

The Rodi project aligns with the methodology of JARVIS with the focus of a human robot collaboration. The aim is to achieve a cooperative solution with the involvement of humans to take account of the complexity of today's sterile supply.

Upcoming focus and next milestones in the pilot's development

Currently the Rodi project is in its first sprint. So, the actual focus is on planning the necessary development steps and the use of the JARVIS tool ("Object recognition (Classification) and Pose estimation").

How does your solution advance Human-Robot Collaboration in a user-centric manner?

The Rodi project shows a very helpful example of a human robot collaboration. In general, in real world applications it is not so easy to determine applications in which human robot collaboration offers large benefits. Full automation (without human interaction) is often an easier and more productive solution.

Nevertheless, there are tasks in which the collaboration of humans and robots is the best solution. The only way to handle the complexity of the large variety of surgical instruments is if a human can cover the most difficult cases and let the robot operate the standard cases. In that scenario, humans might guide a couple of robots and increase productivity in that respect significantly.