



**JARVIS**

# **DRIVING HUMAN-ROBOT COLLABORATION: RODI**



**Funded by  
the European Union**

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## The RODI Pilot

In the JARVIS-Rodi Project a collaborative human-robot application is developed in that the human ensures the availability of the application and is able to extend the AI-based object recognition system easily. A collaborative robotic cell is developed, that helps the human in disinfecting medical instruments. Fig. 1 shows an example of the medical instruments that should be handled.

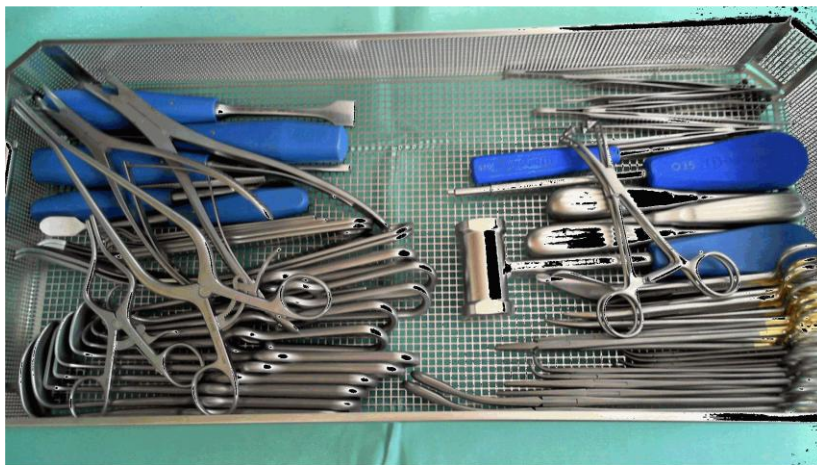


Fig. 1: Tray with medical instruments

In the Rodi project, the JARVIS tool for object recognition and pose estimation is used. Due to the strong capability of detecting objects and its easy learning procedure, the KUKA developed SW tool is very useful for system integrators. In the Rodi project, the necessary interface, in form of a ROS node, was developed by the Rodi consortium. With the guidance of the JARVIS framework, also easy updating of the neural network with new instruments was possible. The JARVIS mentoring in form of project management, ethical guidance and also technical support contributed a lot to the successful implementation of JARVIS technologies in the Rodi project.

Another important step in the development was the mechanical and electrical design. Fig. 2 shows the cell layout in a Visual Components simulation. Based on visits at the University hospital of Aachen and Feedback from the medical staff, the robot process was designed to supply the best benefit. It was decided that a discrete number of medical instruments should be used for the testing which will represent the instruments that are used most often.

Currently two robots were shipped to MRK-Systeme (KUKA LWRIisy) and the assembly and commissioning of the robot system is carried out. Also, first tests with the JARVIS tools are performed and first real life test results can be documented.

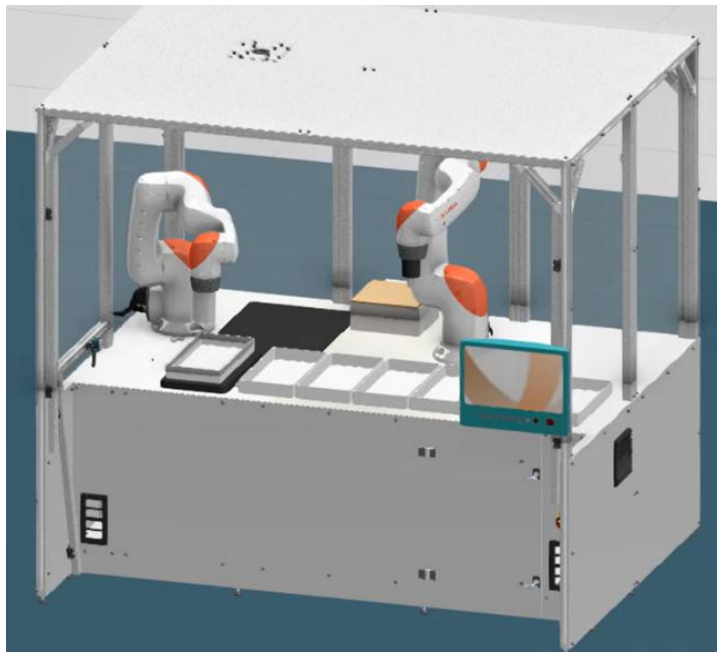


Fig. 2: Simulation of robot cell

The JARVIS ecosystem helped a lot in multiple aspects of the project work. Strong technical support is provided by the KUKAs technical team that developed the JARVIS tool for object recognition and pose estimation. The close contact is also shown in a number of meetings between MRK and KUKA. Regular project meetings with a guideline for deliverables help to work continuously and productively in respect of project management. Furthermore, the JARVIS ecosystem supports communication and outreach in social networks (like LinkedIn).