

PRESS RELEASE

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For immediate release



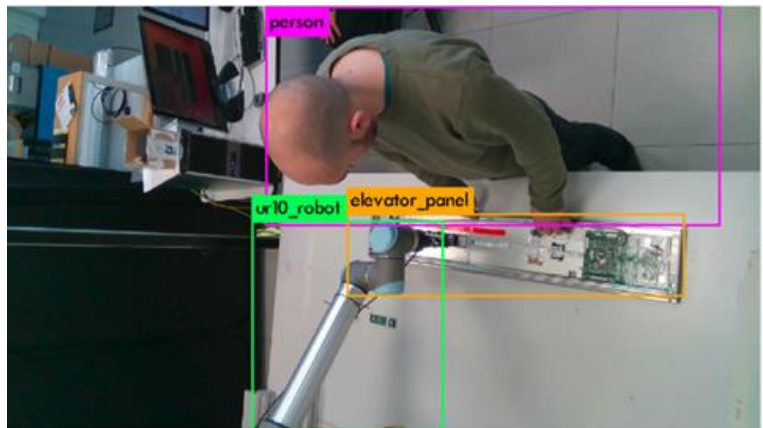
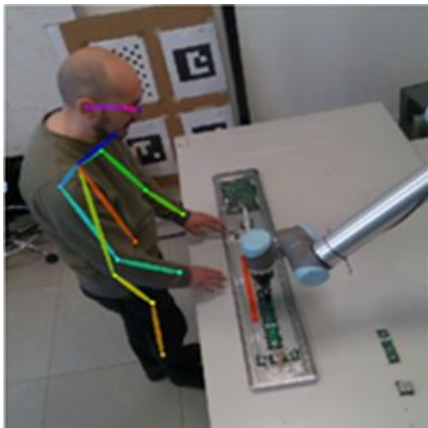
Rossini's Perception Layer (Semantic Scene Map) and Design Tool, developed by IRIS

A key component of the Rossini platform is the perception layer which sits between the sensor layer and the cognitive layer. The perception layer processes the raw sensor data arriving from the multiple cameras, laser and radar, fusing them into a unique 3D relational picture which takes into account spatial positioning in the collaborate robot-human work cell scene.

This information is passed onto the cognitive layer which uses it to make decisions with respect to replanning the robot trajectory, and key safety and control information especially with respect to the distance between the robot and the human.

IRIS Technology Solutions, Rossini project partner, has completed the development of the Perception Layer, which has passed unitary and integration tests at the Datalogic partner laboratory in Bologna, Italy, and is now being deployed in each of the three use cases defined by the project partners, IMA, Whirlpool and Schindler.

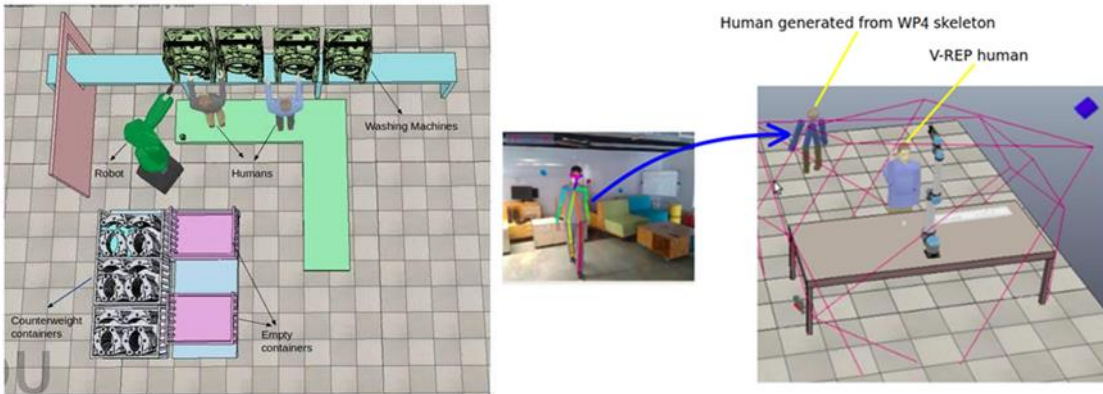
In the figures are shown two aspects of the Perception layer: skeletonization of the human form (left) and labelling of key objects in the scene (right), generated by high performance AI algorithms running on a GPU and processing the scenes in real time at 30 frames per second.



AI-based human pose detection in a use case with an engineer and a UR10 robot (left) and AI-based object detection in Schindler use case (right).

Another key component of the Rossini project, the “Design Tool”, is also developed by IRIS Technology Solutions, which provides a virtual environment to define use case configurations, placing of robot, cameras, safe zones, etc., and optimize the space, placement and functionality of them, especially from a safety and ergonomic point of view.

In the figures (below) are shown two virtual scenes defined using the Design Tool; on the left the Whirlpool use case with two human operators in front of the washing machine assembly line and the robot bringing the counter weights from the palette to the operators; on the right, the Schindler use case with the human operator in front of the work bench. The sensor placement is also indicated (right), and the design tool is interfaced with the physical cameras so the human becomes an avatar in the real time virtual scene.



Left: Whirlpool use case- Humans and FANUC robot collaborating on washing machine assembly.

Right: Schindler use case- detected 3D pose inserted into virtual scene.

About the project

ROSSINI is a project funded by EU's Horizon2020 research and innovation program, with the aim to design, develop and demonstrate a modular and scalable platform for the integration of human-centered robotic technologies in industrial production environments.

Project title: RObot enhanced SenSing, INtelligence and actuation to Improve job quality in manufacturing

Project ID: 818087

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Project Consortium:



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