PRESS RELEASE
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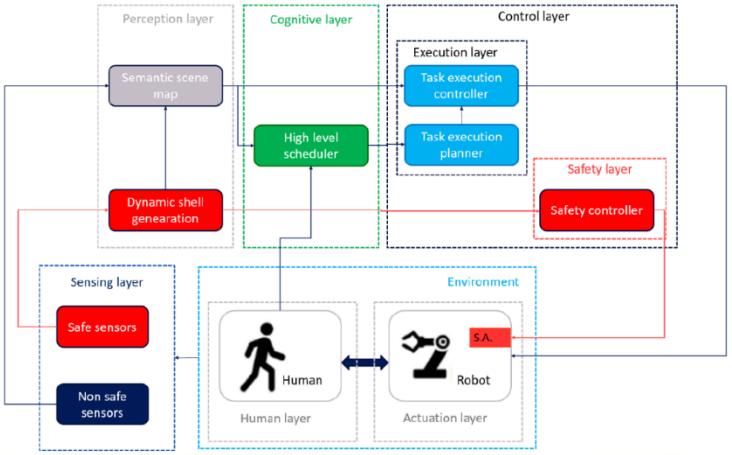
For immediate release

Rossini Platform Specifications

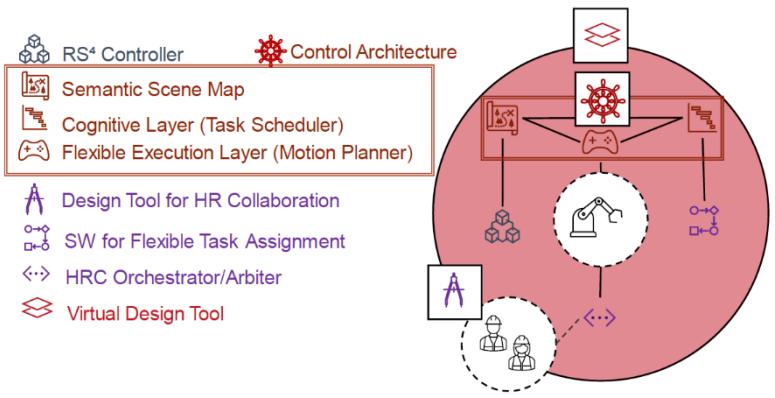
The initial idea of ROSSINI was to implement a new Safety Aware Architecture for robotic applications. In the past the safety functionality in this application domain could be seen as black or white decisions which could not handle dynamic environments. The ROSSINI vision is about to make the safety more greyscale and try to avoid the hard safety stopping decisions through knowing more details about the scene around the robot application. Overall goal of the ROSSINI Safe-Aware Architecture is to enable a dynamic and adaptive behavior of the robot from both the safety and the operational point of view, thus implementing effective co-working scenarios in which humans and robots work together according to the task scheduler.



According to the above vision, the ROSSINI solution could be seen as a modular KIT of components that allow this Safety Aware Architecture concept. The components, based on their interactions, and roles, can be grouped in the following different types:

CORE components, that are necessary to build a ROSSINI Platform being fundamental to implement the Safety-Aware Architecture concept. Those include

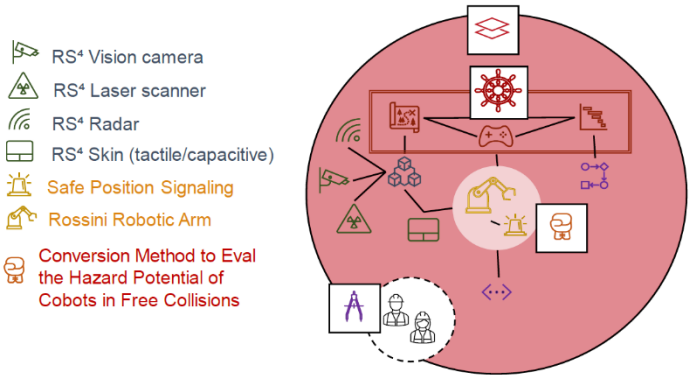
- the RS⁴ Controller, with its I/O interfaces supporting multiple devices, data fusion and elaboration capabilities
- the Semantic Scene Map which implements the homonymous architectural block, the Cognitive Layer that implements the “High level scheduler” block and the Flexible Execution Layer that implements the “Execution layer”.



- a Design Tool for HR Collaboration and a SW for Flexible Task Assignment.

These components enable to estimate the job quality level of a given industrial application, before and after the design of a HRC solution. The introduction of the job quality factor within an HRC solution is one of the main novel results reached by ROSSINI.

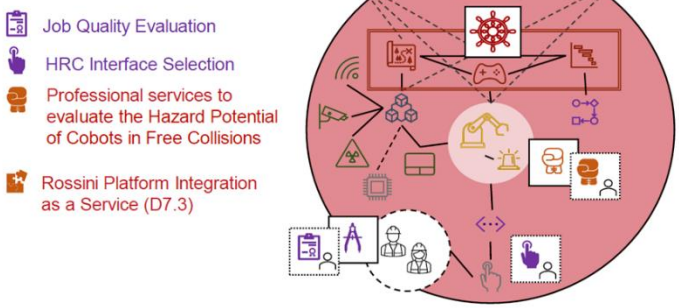
EXTRA components of the ROSSINI Modular KIT, that are technologies developed within the ROSSINI project's scope but that do not necessary serve for any kind of ROSSINI Platform Implementation. They include:



- The RS⁴ Vision camera, the RS⁴ Laser scanner, the RS⁴ Radar and the RS⁴ Skin
- The Safe Position Signaling
- The Conversion Method to Evaluate the Hazard Potential of Collaborative Robots in Free Collisions. This method enables an increase of the overall reachable performance by HRC cells.

EXTERNAL components that can expand a ROSSINI Platform. By design, the ROSSINI Modular KIT has been thought as a scalable solution, able to be interfaced with third party devices as well. In particular, four different kinds of external devices are foreseen to be integrable to implement a given ROSSINI Platform Implementation:

- External safety sensors that may contribute to usefully and effectively extend the implementation of the "Safe sensor" block.
- External operation sensors to implement the "Non safe sensor" block. These sensors serve to trigger event and collect data that enables the scheduled task executions.



- External operation controllers to connect the production line with the HRC cell.
- HRC interfaces to enable the mutual understanding and the interfacing between human operators and robots.

At this point it is worthy to clearly define what is the ROSSINI Platform and a corresponding ROSSINI Platform Implementation.

The ROSSINI Platform is an aggregation of all the CORE components, as a set of interconnected components developed within the ROSSINI project and enabling the Safety-Aware Architecture concept.

Similarly, a ROSSINI Platform Implementation is a suitably configured ROSSINI Platform interconnected with other components for a given application (use case).

Finally, as an additional output of the ROSSINI project, several services or procedures could be identified.

Job Quality Evaluation

The work carried on in the project provides useful tools to evaluate job quality condition before and after the design/implementation of a HRC solution. Dedicated professional services can be offered by experts to conduct this analysis via well suited surveys, process and software tools.

HRC Interface Selection

Several interfaces can be integrated for a given ROSSINI Platform Implementation and orchestrated via the HRC Orchestrator/Arbiter CORE component. The selection of the specific interfaces that best meet the application needs can be offered as a service.

Professional risk assessment services using the new conversion method

The Conversion Method to Evaluate the Hazard Potential of Cobots in Free Collision can be implemented in a software module for commercial measuring device. This device can then be used in professional risk assessment services.

ROSSINI Platform integration as a service

Leveraging on the Virtual Design Tool CORE component, the design principles and solution emerged during the ROSSINI project's lifetime, system integrators will be able to increase their offering with using the ROSSINI modular KIT to design and implement safe and efficient HRC applications in a wider set of scenarios currently not tackles (e.g., high payload, multiple operator detections, very close HR interactions).

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 Duration: 42 months

Project Consortium:

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