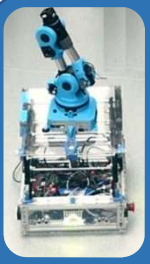
INCASE

towards Industry 4.0 via Networked Control Applications and Sustainable Engineering

The INCASE project runs from September 2016 to August 2019. This means we are entering the final phase of the project. The project consortium continued the last year on building new test setups on industrial communication, cloud applications for industry, mobile robotics and many more. The cross border cooperation is further increased, by jointly setting up two smart homes in France and the Netherlands. UK and Flemish partners cooperated on stress testing devices for industrial networks and energy loggers. The French and Flemish partners exchanged in-depth knowledge on mobile robotics and cosimulation techniques. The developed demonstrators were brought to the industry during several events. Read more about it in this newsletter.

And we are still increasing the efforts. Some large demonstrators on industrial cloud applications and ProfiEnergy are still under construction and will be presented soon. New workshops and study days are on their way. And INCASE is guest at several events in France, the UK, the Netherlands and Flanders. Check our agenda and follow us.



FOCUS ON RESULTS

The start-up Niryo develops small, low-cost, 6 axes robotic arms designed for both education and industry. Niryo and the INCASE team of Yncréa Hauts-de-France worked together to design and develop a mobile robot integrating a Niryo robotic arm.
The feasibility phase took 6 months and resulted with a first functional prototype.

Marc-Henri Frouin, CEO of Niryo: *"This interaction between start-ups, academic staff involved in INCASE, and students is a great way to both innovate and add value to a project. Moreover, it was valuable for us to work with experts in the field of robotics. Interacting with the consortium of INCASE has been very rewarding and a great way for us to innovate and enter the world of applied research for industrial projects."*

Marc-Henri Frouin (CEO Niryo) - Gilles Tagne (Yncréa) - Edouard Renard (CTO Niryo) - Annemarie Kokosy (Yncréa)

Have a look at our previous events

On 29 May the first INCASE "conference day" was organised on KU Leuven's Technology campus in Ghent. More than 130 people – mainly from industry – actively participated in the lectures by specialists (organised in two parallel tracks) and visited the 12 company and project stands during the day. Programme and lecture presentations can be found online: www.incase2seas.eu/download-conference

The conference hall – INCASE stand

Some quotes from attendants

"Thank you for the feedback and the very well organised day. Our presence definitely had added value for the company." – maintenance engineer automation, Volvo Car Gent

"It was a very interesting day!" – project manager Hot Strip Mill, ArcelorMittal Gent

"It was very interesting and the slides are always interesting as reference work" – Team lead software engineering, Delta Engineering

One month later, on 26 June, a group of more than 30 interested engineers and company owners attended a lecture hosted by Volvo Car Ghent. Several staff members spoke about present and future examples of Industry 4.0 they implement in the production, such as augmented reality to help technicians in case of problems, PROFIEnergy for energy monitoring, and the digital transformation to a smart Body Shop with constant monitoring and a digital twin of the production site.

Also a guided tour on the production floor could not be left out and was enthusiastically discussed during the reception.

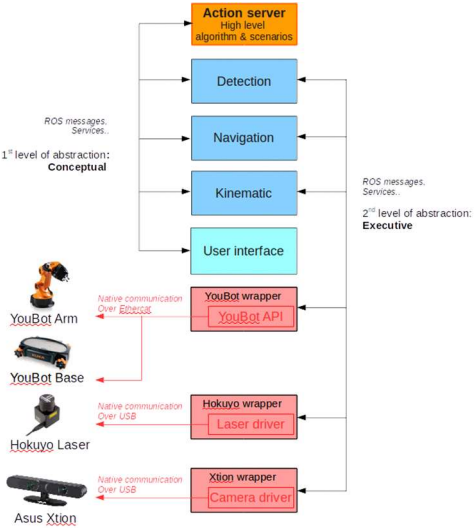
On 22 November ICAM organised an Industry 4.0 event for industrial partners. Thirty attendants were introduced to Industry 4.0 and its relevance. The setups developed in the INCASE project were demonstrated.

Focus on Robot Operating System - ROS

This piece aims to explain how to minimize the human intervention and to gain time. Mobile robots can also be used to reduce human exposure hazards.

- *Written by project partner **ICAM*** – To make our developments even more efficient and flexible, we chose to build our design and development within the **Robot Operating System (ROS)** environment, instead of coding everything from scratch. ROS is *"an open-source set of software libraries and tools that helps you build robot applications."*

It provides a framework that takes care of all the hardware-related problematics, while enabling Multi-lingual programming (C++ and Python are fully supported, MATLAB and Java are being implemented).



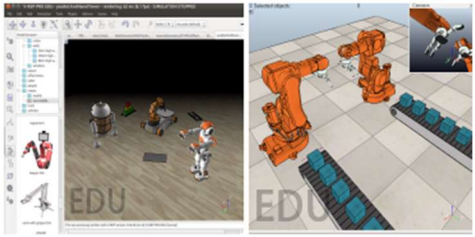
Why ROS?

Modular Approach: the complexity of the robotic system is abstracted into a flowchart of conceptually simpler tasks, which needed to be integrated with each other:

- Sensor and actuator units with built-in communication protocols
- CPU intensive tasks need remote processing
- Robot as service which provides computing resources for users

The building of robotic projects is facilitated by the many open source (graphical) simulators, such as RVIZ, GAZEBO, and V-REP.

Our experiment

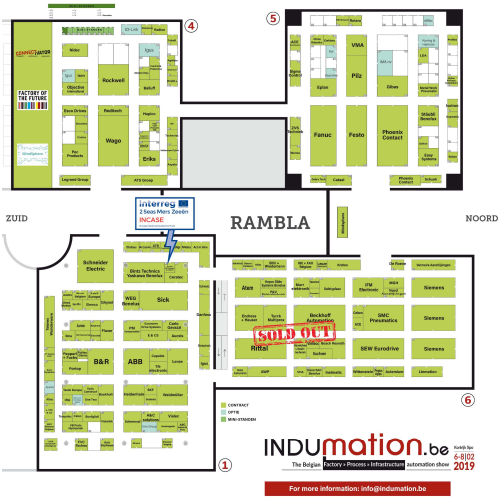


For our experiment we used 2 mobile robots: **TURTLEBOT2i** and **YOUBOT** robot. Goal: *"Instruct the gripper to pick correct objects"*. Therefore we used object detection and distance calculation with the camera, a base with omni-directional wheels, an arm with joints and a gripper, and a LASER for navigation and obstacle avoidance. An algorithm was trained to detect and pick up only the objects that we are interested in, and to neglect other objects.

Focus on future events

INCASE will be presented on the **Indumation** Fair in Kortrijk, Belgium.
Now with an even bigger stand! Come and see us at stand 1-15, have a look at our location.

We will gladly welcome you from the **6th until the 8th of February 2019**.
More information will appear on the event page of our website.



Together with PI UK (PROFIBUS and PROFINET International), we will organise a conference on

'The Smart way to Industry 4.0 with PROFINET technologies'

On the **26th of March in Coventry and on the 28th of March in London**, seminars will talk about the practical issues arising from the use of digital communication technologies. Think '(industrial) Internet of Things', networks and security.

Have a look at our next courses:

- A practical, hands-on, 4-days **Profinet** course at KU Leuven, Ghent BE on 8, 9, 14 & 15 January
- Workshop on **Power over Ethernet and Power Line Communication**, at UGent Campus Kortrijk BE on February 20th

Would you like to attend a hosted lecture in 2019?

Are you an example of Industry 4.0? Do you use one of the 10 technologies discussed in this project? Would you like to host a lecture and present your company to others?

Contact us at info@incase2seas.eu

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