

Factory-in-a-day



Newsletter #2

Dear friends of Factory-in-a-day,

the project has now been running for one year, time for a first quick summary. In the last year, we have initiated the long-term scientific research components of the project. At the same time we have experimented with various ways of robot system integration, and we have analysed the resulting performance. This allowed us to create a detailed and motivated design for a workflow for quick development and installation of robot systems in production environments.

Nevertheless, some parts of the original workflow need to change, such as the idea of bringing a 3D printer to the installation site. We also discovered other areas where we will need to focus in future in order realize our ambitious goal of making advanced robot technology accessible for small and medium enterprises.

Best regards,

Dr. Martijn Wisse, Coordinator

Workshop on Philips use case

How does Factory-in-a-day work in a real-world case of one of our partners? This was tested during a 2-day workshop at Fraunhofer IPA, in Stuttgart/Germany. The goal was to show in a 4-minute demo at the end, a full circle of tasks, in which 2 trays were handled (loading and unloading trays with shaver parts as well as handling them). The robot had not only to pick-up parts from a tray and put them in a carrier but also pick-up the trays themselves. The workshop clearly revealed our future challenges: preparation time needs to be handled differently as it took up too much time, mostly on case description and gripper design. Secondly, insight knowledge of the case is as important as preparation. To acquire the right hardware components and software tools is also time-consuming, when not available.

3D printing of the carrier was needed, because the current design was aimed at human

operators and required the operator to slide in the part, which requires feeling of how the part fits. As the robot did not have force measurements, it could not feel and we needed a carrier that allowed the robot to simply release the part at a fixed position. On the other hand, ROS and BRIDE proved tools that greatly speed up development, as it allowed different teams to work in parallel without interference as the team could clearly define interfaces.

Altogether, the workshop proved that we are on the right track but especially a better preparation beforehand is crucial for success. In particular, the creation of generic modules that only need to be 'tuned' for the specific case during the workshop will be one decisive factor. For example: A generic perception module that only needs to 'learn' the model of the part during the workshop.

Here you can watch a [video](#) of the workshop.



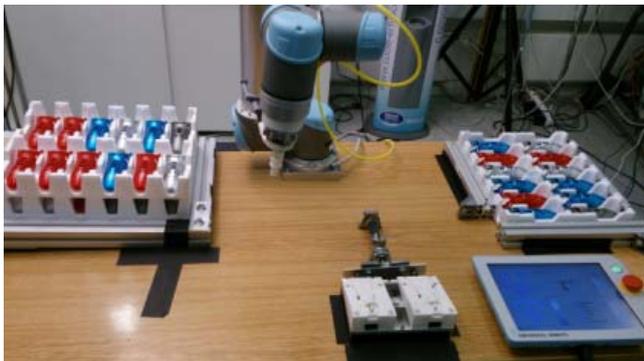
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Spotlight on: Philips

One of the industrial partners in Factory-in-a-day is the electronics company Philips, who belongs to the largest electronics companies worldwide. The project leader for Factory-in-a-day is Simon Jansen. Here he explains Philips' motivation to participate.

Why is Philips interested in the project?

The Philips production facility of shavers is a highly automated factory in the Netherlands. In the current market, we see more and more customisation of consumer products, leading to smaller production series and more variations in products. Current automation solutions are generally only developed with one specific type of product in mind and cannot handle variations very well. Combined with the development time of a solution of more than one year and high investment costs, this means that with the current automation solutions, we will not be able to fulfill the market demands for more customised products. The Factory-in-a-day project focusses on shorter development time and high flexibility of robotic installations which are possible solutions for this.



Set-up at the workshop with the Philips-case © Factory-in-a-day

What are the benefits for Philips?

Participating in Factory-in-a-day is interesting for us, because it gives us an insight in the cutting-edge technological developments



Simon Jansen

relevant for the problems we face in our production facilities. Furthermore, it opens up a very interesting network of universities, research institutes, integrators and other end-users within the field of industrial robotics.

What's your summary of the workshop in Stuttgart in July? (see page 1)

In July 2014, a group of developers from Factory-in-a-day were given the task to automate a real-world case from the Philips shaver factory within two days. It was quite impressive to see a working demonstration in such a short time, but it nevertheless clearly showed the technical and organizational challenges ahead.

Which parts of the project are the most challenging from your point of view?

In general, bridging the gap between industry and academia is the biggest challenge. How can we ensure that technology that works in a test setup will match the high requirements of industry, for example with regard to robustness and serviceability? These issues are generally the reason that there is a delay between the invention of new technologies and the introduction of that technology in an industrial application. We are hoping to accelerate that process within Factory-in-a-day.



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Do robots kill jobs?

In the Netherlands, there has been a heated debate on this topic as Deputy PM Lodewijk Asscher has expressed fears that robots will increasingly be able to take over tasks historically performed by people, leading to a future rise in unemployment. With respect to this debate Factory-in-a-day has collected some arguments. In our opinion, the answer is neither yes or no. It is nevertheless useful, however, to highlight a number of facts and viewpoints:

It is impossible to not invent better robot technology It makes no sense to try and slow down the technical progress in Europe, as other parts of the world will simply take over. In fact, not only the research & development activities will move to other regions, also the resulting (more efficient) production processes for all kinds of industries will leave to other regions.

The question “won’t robots steal jobs” is usually simply one of empathic concern.

This becomes all the more clear when you realize that the question never concerns *one’s own* job; it is highly improbable that the person who asks the question, actually knows someone who lost their job due to being replaced by a robot. The first question therefore is: which jobs are we talking about? We need to take a thorough look at that question before generalizing.

Most jobs influenced by technology are outside robotics; especially middle-class jobs

such as insurance and bank employees are replaced by automated algorithms. Many authors point out that the process of technological job destruction is something of all ages, think of agrarian jobs, typists, etc. However, some authors argue that *this time* it is different, that *this time* the destroyed jobs are not accompanied by the creation of an equal amount of new jobs. They point to the extremely small amount of people involved in today’s mega companies such as Facebook.

New jobs are being created. This effect is always underestimated, because it is impossible to predict *which* new jobs will be created. No-one would have anticipated the enormous app industry that has come into existence. Equivalently, the ubiquitous presence of robots will create new, un-anticipated work for programmers, users or entrepreneurs. In addition, there is a very certain increase in high-tech jobs, especially in those regions that actively develop new robotic systems and applications.

See also, the [Business Insider](#) “This settle the ‘Will Robots take our jobs’ argument for once” as well as the website of TU Delft [“Robotic technology opportunity for tomorrow”](#).



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Events

Factory-in-a-Day has been presented in these events in the past weeks:

- Our Coordinator Dr. Wisse was invited to the [RoboBusiness 2014](#) event in Boston/ USA to present our project there.
- At the [Constructeurs Dag](#) 2014, November 18, in Utrecht: Presentation on 3D-Printing by Argun Cencen (TU Delft).
- European Robotics Week: TUM presented the robotic skin (CelluARskin) on November 24, 2014 in the Deutsche Museum in Munich in front of interested visitors.

Events 2015:

- The next Project meeting will take place in Leuven in January 2015.
- We proposed a joint workshop with our partner projects on „Hybrid Production Systems“ for the European Robotics Forum, which will take place in March 2015, more here: www.erf2015.eu/

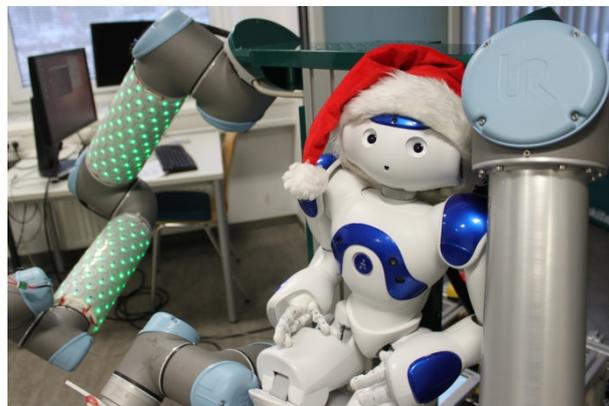


Argun Cencen/TU Delft during his talk in November, © Constructeurs Dag



Presentation of Factory-in-a-day at Deutsches Museum © TUM

We wish you all a supercharged and joyful Christmas season!



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