

Factory-in-a-day



Newsletter #1

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Welcome!

The Factory-in-a-day project will prepare a newsletter every half year to inform you and other interested readers on the progress of our project work. You can subscribe for the newsletters on our webpage. Forwarding our newsletter to other interested parties is, of course, highly appreciated.

Factory-in-a-day is all about bringing robotic technology to SMEs. Since the start of the project in October 2013, we have carried out four workshops with SME companies, solving specific tasks not yet carried out by robots. Videos of the results of these workshops are available on our [webpage](#). Read more on these highly interesting events on page 3.

Best regards,
Dr. Martijn Wisse, Coordinator

Quickscans and workshops

For our project, it is very important to connect with the end users (SME's) as soon as possible. TU Delft has created a two-step approach to get in contact with them:

1. We advertise (in media interviews) that we offer a *quickscan* for free. We visit an SME site for about one hour, zoom in on one human labor task, and give them a very short feasibility report.
2. In some cases, we organize a one- or two-day workshop to create a prototype robot solution for that task.

This approach has already put us in contact with more than ten companies, and we have already executed four workshops.

European Robotics Meeting

Dr. Wisse participated in the European [Robotics Forum in Rovereto](#), Italy, March 12-14. Together with two other projects that were funded in the same call, we had a presentation session on Hybrid Production Systems. These partners are LIAA and RoboPartner. We plan on setting up other events together with these projects in the future.



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ROS Industrial

What is being established in research already is going to be standardized and adopted by industry: The open source "Robot Operating System" ROS offers highly developed robotics software components which can be used in flexible industrial applications. Especially in dynamic environments with a variety of different work pieces there is a demand for highly flexible automation solutions supported by sensors and intelligent software components. A cost efficient, reusable and powerful solution is the open source framework ROS. It offers a huge amount of intelligent algorithms, methods and integrated libraries. An advantage is that software as well as hardware components can easily be exchanged due to a network based communication layer and standardized interfaces. One example for standardization is the simple message protocol which interfaces multiple industrial robot controllers and offers a common interface on the ROS level. Another focus of ROS-Industrial is to enhance software quality through a Model-Driven-Engineering approach and automated testing. This allows a time and cost effective software development and lowers the overall development costs.

In robotics research ROS is already a well-established standard. The next step is to bring this power to industrial applications. For this purpose the ROS-Industrial initiative was founded. Fraunhofer IPA will lead a European Consortium which will be kicked off in end of June 2014.

In the media:

- rosindustrial.org: [Factory in a Day](#), 29. October 2013
- A [film](#) on one of our SME workshops: IEEE Spectrum, 7 March 2014
- Radio 1 (National news radio), [De Robotrevolutie](#), 4 February 2014 (in Dutch)
- Boerenbusiness.nl: [TU Delft automatiseert plantmethode in 2 dagen](#), 24 February 2014 (in Dutch)





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Second Factory-in-a-day Workshop for SMEs

The second workshop out of the four mentioned above, was aimed at robotization of the task of placing yucca plant stems into pots. This work is still done manually up to now, with the problem of finding workers who are willing to do that kind of job as it is unhealthy for the back.

Within two days, with a team that did not know each other in advance, we created a functioning prototype system including 3D vision, control through ROS, adaptive grasping, and a UR5 arm. Even though it took until late in the evening to make the system run properly, the SME customer was highly impressed and immediately requested a quote for the price of developing a robust version of the system for them. The workshop also created quite a bit of media attention (in The Netherlands) inspiring other SME's to also consider robotization more seriously. Finally, for ourselves it was highly instructive concerning the lessons learnt: where did we lose too much time or which was in the calibration of the coordinate systems of robot arm and 3D camera.

The other workshops carried out so far were about the following topics: Picking tomatoes, packing of boxes and a student's workshop on putting nuts on threaded axles. To be repeated!



Robot planting Yucca stem,
© TU Delft

Welcome to our new colleagues:

- Simon Jansen (Philips, project leader)
- [Jeff van Egmond](#) (TU Delft, 3mE)
- [Adolfo Rodriguez](#) (PAL Robotics, Robotics Engineer)
- Kanter van Deurzen (TU Delft, IO)
- Argun Cencen (TU Delft, IO)
- Bas van Mil (TU Delft, 3mE)

Upcoming events:

- Project meeting in Stuttgart/Germany, May, 7-8, 2014
- RoboBusiness, Denmark, May, 26-27, 2014
- [Automatica](#) Trade Fair, June 3-6, 2014, in Munich/Germany, hall A4, booth 135

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More on: www.factory-in-a-day.eu

