

FOREWORD

Today's challenges in automation include developing cost-effective solutions for tasks with inherent variability or uncertainty and requiring frequent re-programming to deal with small-series production. These new robot applications are quite complex, involve different sensors like force and vision, and can include human-robot cooperation. To address these challenges, new ways of robot programming are needed. One approach is constraint-based robot programming, in which the robot task is not programmed as a procedure with sets of points and trajectories, but in terms of declarative constraints, which describe how a robot should behave to deal with varying circumstances. As a first industrial application, constraint-based programming enabled the development of an ultrasound-based fold-glue joint inspection application at Audi Brussels by FRS Robotics, achieving far better inspection results compared to the existing manual inspection process. This approach can flexibly handle variants of the workpieces and direct physical human interaction, realising true human-robot cooperation for a challenging task, that would be difficult to achieve for the human or robot separately. We believe this is only the tip of the iceberg of what new robot programming techniques can achieve, and initiatives like COTEMACO are highly valuable for boosting and disseminating these techniques to accelerate industrial adoption.

Wilm Decré
KU Leuven



Fostering a digital food industry

An interview with Dirk van Ledden

Food Tech Brainport (FTB)

Q: How did you get involved in COTEMACO?

DVL: I have been working with SMEs for around 25 years, mainly focusing on business development and project management. In recent years, the focus of my work within the food industry has been upscaling good food ideas. With the launch of the Food Tech Brainport field lab in Helmond, I was exposed to the possibilities of robots and cobots and the crossover between the high-tech and agri-food industries that will take place in the coming decade. If we look at the 15% acceptance rate of automation in the agri-food sector, it is clear we still have a long way to go. This drew me into the COTEMACO project, which I officially joined at the start of 2020.

Q: What motivates you the most in COTEMACO?

DVL: Lately I have been visiting our participating SMEs with a new view of their operational activities. I am now fully focused on promoting human-robot cooperation. In the Agri-Food sector, employees often have to complete monotonous tasks and endure high physical load - usually in cold environments. In the Netherlands, recruiting employees for this kind of work is becoming increasingly difficult. However, I am convinced that, if we focus on improving the social aspects of automation, major steps can be taken within the food industry through human-robot cooperation. Being part of the development and implementation of this process towards a better workplace is what motivates me most.

Q: Has COVID-19 affected COTEMACO activities within FTB?

DVL: The pandemic has accelerated the technological and digital transformation of organisations, including SMEs. Companies are exploring robotic process automation (RPA) and other intelligent automation technologies to address new business opportunities and market pressures. We've also realised that a people-



Dirk van Ledden of FTB in the Netherlands

oriented approach is crucial for successful work in the future. Currently, one practical difficulty is social distancing, and the inability to interact with companies within the field labs. We are trying to determine how we can show the applicability of these technologies to potential users during these strange times. Also, SME employees don't often have the time to watch a webinar for an hour. We tackled this at Food Tech Brainport by arranging "COVID-proof" visits at the SMEs' locations. We now record matters digitally and discuss this with our technology partners. We then come up with a concrete tailor-made technological

"The pandemic has accelerated the technological and digital transformation of organisations, as well as SMEs."

Dirk van Ledden

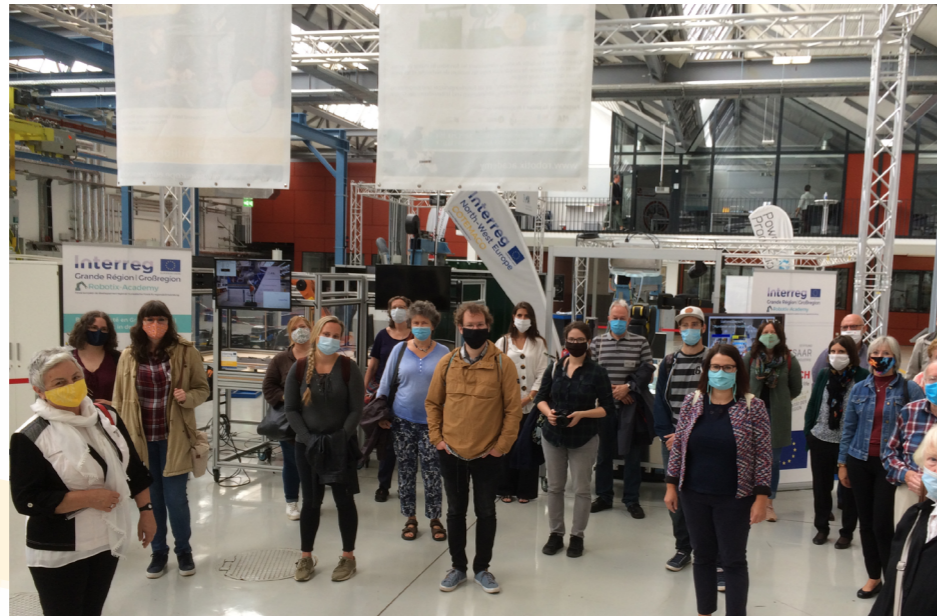
solution. This process is less time consuming for the SME and provides them with immediate answers on how human-robot cooperation can be integrated into their operational processes.

Q: Where do you see FTB in the future and how does COTEMACO come into play?

DVL: FTB is all about setting up unique collaborations within the food processing industry. We connect governments, educational and knowledge institutions, developers and the Tech community; where countless jobs are added daily and which develops technologies that shape the society of tomorrow. One of the focus areas of FTB is smart food processing, the area where high-tech and agri-food meet. That's why Food Tech Brainport joined COTEMACO in 2018. Our role here is to bring technology providers and food processors together and develop applications in which cobots and other digital technologies improve SME competitiveness and foster a better working environment for staff. In COTEMACO and beyond, we will continue to work towards improving food safety, ergonomics, quality and efficiency, through the use of sensors, AI, OEE, photonics, and much more.

Update from Lead Partner

Ger van den Kerkhof | Flanders Make



COVID-proof tour of ZeMA's field lab for the Interreg programme

Like many other projects, COTEMACO entered a new reality in mid-March of this year. The COVID-19 pandemic has had a severe impact on our project, the SME support programme and the way we had to manage the consortium. Although the project partners managed to stay in touch with their SMEs, many companies had other priorities and have been struggling to survive – some sadly even had to close down. Luckily, the abundant offer of digital platforms and technologies made virtual consortium meetings and interactions with SMEs possible. This allowed us to keep on having our monthly consortium meetings and keep track of project results. With the second COVID-19 wave ahead we expect this situation to continue over the coming months.

Nevertheless, due to the prolonged efforts of the consortium partners, the funnel of SMEs interested in cobots and digital shop floor solutions is still growing. Currently, the COTEMACO project is interacting and collaborating with over 15 SMEs in the different regions to help them integrate these new technologies. It is certainly commendable that both Food Tech Brainport and Flanders Make have successfully guided two SMEs through the support programme early

this year. The Food Tech Brainport team even managed to secure a financing solution for the participating company to support the actual investment in a cobot. Congratulations to all involved! We're also looking forward to seeing how current SME collaborations will evolve in both the Saarbrücken and Lincolnshire regions over the next few months.

Our last partner meeting in April, originally planned to be held in Lincoln, was adapted into a two-day online event where we focused primarily on the COVID-19 consequences for our project and best practices of SME cooperation. Learning from each other's successes (and failures) is key to our project! Despite

this year's restrictions, the partners still managed to arrange and attend some physical, socially distanced events, such as on-site SME visits and ZeMA's recent field lab tour for representatives of the Interreg programme. The project also participated in several online events, including the "Virtual Industry Fair" where Voka-Limburg and Flanders Make manned a virtual booth on behalf of the project.

To stay up to date on project activities and events, as they happen, be sure to follow COTEMACO's social media channels. Links to these can be found at the end of this newsletter – *happy reading!*

"The Food Tech Brainport team managed to secure a financing solution for the SME to support their investment in a cobot."

Ger van den Kerkhof

Meet the first two companies to complete the SME Support programme

Food processing SME Mariën Bakkerij Producten N.V. and manufacturer of innovative health, sport and fitness products Aminolabs, are well on their way to cobot adoption, having made it through the **COTEMACO SME Support programme**.

Mariën bakery solution: Mobile Cobot system with integrated smart sensor system

Mariën Bakkerij Producten N.V. was supported by the Food Tech Brainport team, which assessed their challenges, walked the company through cobot opportunities, helped to set up an implementation plan, and even managed to secure funding for cobot integration in the Mariën factory. Both Mariën and their technology provider – Van Wees Waalwijk – will receive a grant of €60.000 from the European Horizon2020 S3FOOD programme.

The company produces various types of bread, cakes and tarts, which for employees, involves a lot of bending down and lifting up heavy trays loaded with dough. Employees also have to carry out many dull monotonous repetitive tasks such as glazing bread with egg yolk or notching baguettes. As it is becoming increasingly hard to find new staff willing to do these tasks, Mariën set out to automate them, with flexible mobile cobots that can perform multiple actions and can be deployed at various working locations in one day.

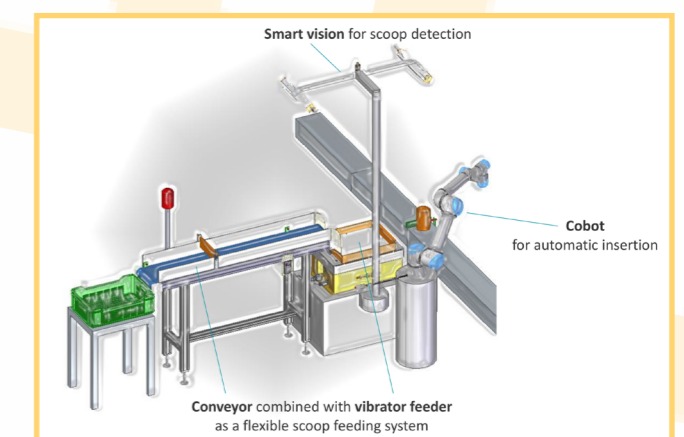
FTB identified a mobile cobot system to address the company's three main challenges: resource efficiency, food safety and quality control. The implementation process is expected to be completed by September 1st 2021.

Aminolabs solution: automated filling station

Aminolabs, which produces sports and health nutrition products, applied to the SME support programme to find an automated solution for the manual insertion of scoops in their production line.

After identifying a potential technical solution, featuring smart vision for scoop detection, a cobot for automatic insertion and a conveyor combined with a vibrator feeder as a flexible scoop feeding system, a thorough feasibility study was executed. The study included an overview of estimated costs, validation testing, cycle time estimation & economical feasibility, a list of potential subcontractors and suppliers and estimation of business potential. Bert Aerts, Production Manager of Aminolabs has thanked the Flanders Make team for their support:

"Thanks to the extensive research with practical tests conducted by the Flanders Make team in the context of COTEMACO, we now have the necessary certainty that robot automation at our filling station can meet all requirements...We are extremely satisfied with the extent to which they thought about a solution that works in practice, with thorough testing and clear reporting. They provided all the necessary input for the concrete elaboration of our business case."



MEET THE Partners

Discover the experts driving COTEMACO



John de Groot

Senior Business Development Consultant and Project Manager

Food Tech Brainport

Bio: I graduated in Computer Science in 1989 after completing a project on secured data collection and distribution in Tokyo. After this, I joined Acer where I was responsible for the European internal IT-management. For Philips IT (later on Atos origin) I was a business unit manager until I took over Dofra B.V., a jobber industrial factory in 2001. This company was transformed into a development and mechatronics production facility for industrial food processing machinery with customers in every continent. I bring my experience in computer science, automation of food production and knowledge on food specifics to the COTEMACO initiative.



Philip Eyckens

Project Leader

Flanders Make

Bio: I obtained a PhD at the Materials Engineering Department of KU Leuven (2010) on the topic of metal formability and Incremental Sheet Forming. I continued as Post-Doc developing simulation solutions in the fields of multi-scale material design and metal forming processes for automotive body lightweighting within the EU context. In 2019, I joined Flanders Make as a Project Leader. As well as COTEMACO, other projects in my portfolio focus on design methodology and automotive lightweighting.



Filip Vanderhoydonks

Innovation & Internationalisation Advisor

Voka - Limburg

Bio: As a Bio-engineer with a Master in Innovation & Strategic Management, I have a strong interest in the impact of technology on our current production processes. I'm eager to put my theoretical knowledge & experience into practice working with different SMEs closely together. By participating in the COTEMACO project I can directly help SMEs with the implementation of digital technologies.



Ben van der Zon

Innovation & Internationalisation Program Manager

High Tech NL

Bio: I work for the Dutch cluster organisation High Tech NL (HTNL), responsible for international relations and collaborations. I hold a PhD in solid-state physics from Leiden University in the Netherlands and have worked in various R&D&I positions in the industry, government, institutes and academia. Currently, I offer my innovation-connecting services to companies and organisations like High tech NL. In COTEMACO, I am leading the long term sustainable development of the initiative.

Want to get in touch with one of our partners? [Contact us](#)

SECTOR News

ABB offers Augmented Reality on a Smartphone to Simplify Robot Installations

Source: Robotics Online

Discovering whether a robot is right for your application has never been easier following the launch of ABB's new Augmented Reality viewer, which has been added to ABB's powerful PC-based RobotStudio® offline programming software.

The RobotStudio AR Viewer app can be used to test any model created in RobotStudio, enabling users to get an idea of the size

and scale of a robot or robot cell and how it can be deployed on a factory floor to fit around any existing production equipment. Using Augmented Reality (AR) technology, the app overlays the modeled solution into the real-life production environment, with the ability to scale it to full size and rotate it through a variety of angles to achieve the best result.

The benefits of the AR Viewer

extend to being able to watch the model in action. A timeline feature makes it possible to check the cycle time and go quickly to a certain point in time in the animation, enabling you to find ways of enhancing performance or pinpointing a potential issue.

[Read more](#)

Factories worldwide used a total of 2.7M industrial robots in 2019, reports IFR

Source: The Robot Report

The International Federation of Robotics' new World Robotics 2020 Industrial Robots report shows a record of 2.7 million industrial robots operating in factories around the world — an increase of 12%. Sales of new robots remain on a high level, with 373,000 units shipped globally in 2019. This is 12% less than in 2018, but still the third-highest sales volume ever recorded, said the IFR.

"The stock of industrial robots operating in factories around the world today marks the highest level

DID YOU KNOW?

in history," stated Milton Guerry, president of the International Federation of Robotics (IFR). "Driven by the success story of smart production and automation, this is a worldwide increase of about 85% within five years (2014-2019).

The recent slowdown in sales by 12% reflects the difficult times the two main customer industries — automotive and electrical/electronics — have experienced."

[Read more](#)

The Baker-bot Revolution

Source: Bakers Journal

Apex Motion Control offers relief to small and mid-sized bakeries with their "Cobots" — their collaborative robots that do the mindless tasks or de-panning, piping, stacking and other repetitive motion chores.

For those who had never worked alongside industrial robots before, Riis reassures readers that they are safe, and have proximity sensors to stop them from either crashing into a human, or pressing too hard on a cake as it is decorating.

[Read more](#)



IN CASE YOU MISSED IT...

WEBINAR: The Future of Manufacturing in Europe

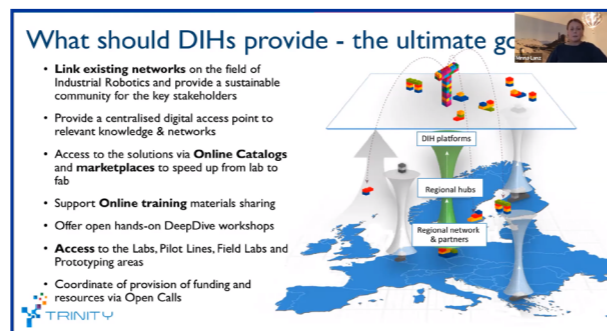
On Wednesday the 21st of October we co-hosted a webinar on the future of manufacturing in Europe, with European innovation consultancy Bax & Company. Our expert speakers explored the current state of automation, digitalisation of manufacturing across Europe, and future consequences on jobs.

Special thanks to Sergio Torrejón Pérez (Joint Research Centre of the European Commission), Minna Lanz (Trinity Robotics/Tampere University) and COTEMACO's own Ger van den Kerkhof (Flanders Make), for their valuable contributions.

If you missed out on the event, you can check out the recording on the Bax & Company YouTube channel by clicking [here!](#)



Sergio presented the impact of robots on the EU labour market



Minna highlighted the benefits of Digital Innovation Hubs for SMEs

CONNECT WITH US



VISIT THE ROBOT-HUB WEBSITE



FOLLOW US ON LINKEDIN



CONTACT US

Project coordinator
philip.eyckens@flandersmake.be

Send mail

Press and communications
a.mccready@baxcompany.com

Send mail

COTEMACO PARTNERS

