



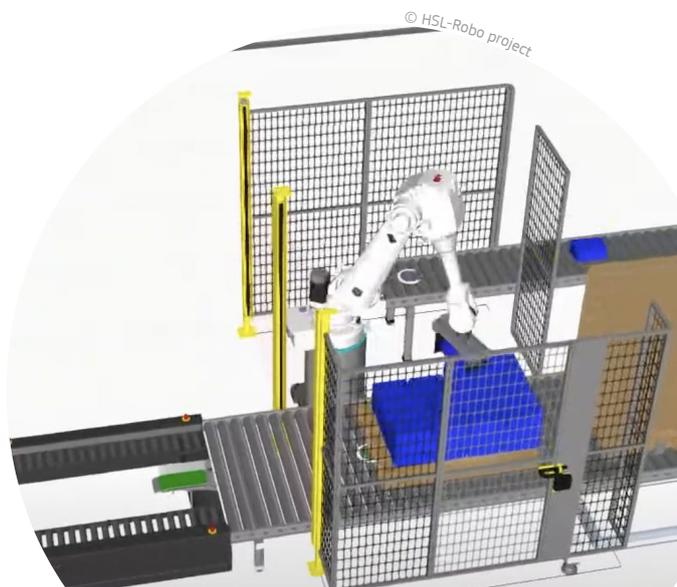
EAFRD-funded projects

# HLS-Robo

## Robotics and young experts for the needs of rural businesses

In the HSL-Robo project, SMEs, researchers and students worked together to innovate how robotics can be utilised in rural companies. The project brought together students and experts from the local University of Applied Sciences and companies of three provinces.

Through expert visits at their premises, local SMEs received expert support in identifying areas of improvement and were assisted in choosing technological solutions to increase production automation, energy efficiency and cost-effective operations. Concrete solutions were sought out through technology studies and pilots carried out as student projects directed by project workers, teachers and company representatives.



### Location

Pori (Finland)

### Programming period

2014 - 2020

### Priority

P1 - Knowledge Transfer and Innovation  
P6 - Social Inclusion and Economic Development

### Measure

M16 - Cooperation

### Funding (EUR)

Total budget 135 400  
EAFRD 56 868  
National/Regional 78 532

### Project duration

2020 - 2022

### Project promoter

NGO PAIK

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## Results

More than 100 SMEs were contacted, and technology or energy walk tours were arranged in 27 companies. Altogether nine seminars and workshops and four info events were organised with more than 200 participants.

As a result of the 18 demonstrations of the HLS-Robo project, two robot investments were made in the participating companies during the project. The companies improved their knowledge, received expert support in identifying areas of improvement, made robotic investments and met skilled professionals. The students learned through concrete robotics development work by collaborating with researchers and project workers, improved their skills and enjoyed employment opportunities.

The project improved the perception of R&D activities and cooperation with the RoboAI laboratory of the regional university.

The project formed a regional network of 21 industrial enterprises which is expected to continue beyond the project period.

## Lessons & Recommendations

- Finding and especially convincing potential busy partner companies to commit to the project was not a straightforward process. Groundwork and great partnerships are particularly important for this.
- Concrete and future-orientated cases motivate students and the whole team. Getting to know the companies, their representatives and processes beforehand is important.
- Students often thrive when given responsibilities and 'real-world' problems to solve, with guidance available when needed. This approach and the participation of forward-looking micro- and SME companies are the ingredients for success.

## Context

For over a decade, in Finland and in the project area, companies' investments in technology have been lower than in other countries. Rural SMEs need to improve their competitiveness through energy efficiency, cost-effective production and the rationalisation of investments. The industrial revolution enabled by digitalisation and new technologies is underway and the demands of production, carbon neutrality and digitalisation are constantly increasing.

To keep up with the times and to make sound investments, rural businesses must be aware of the potential of cost-effective and low-carbon production. All development activities and investments should be guided by new technologies and the latest know-how. To stay competitive in the future companies in the HLS-Robo region must learn to embrace change.

Historically SMEs in rural areas have invested capital in production equipment moderately well, yet they have not always ensured that the equipment delivers the best possible benefits. When the order backlog remains at a satisfactory level and each day is spent on delivering products and acquiring new orders, there is not enough time to think how to improve operations. If this aspect is neglected for too long, challenging questions arise. Where should you start in developing the company to meet the challenges of the future? What problems to tackle first and what type of development will be crucial to provide customers with even better quality while improving cost-effectiveness? It takes courage for SMEs to take the time to identify these steps and to plan the order of priority for development activities.

Rural towns in the HLS-Robo region (Huittinen, Loimaa and Sastamala) are experiencing depopulation, with a consequent shortage of skilled workers. The situation is expected to become even more challenging in the future and robotics plays a significant role in the future SMEs of this rural area.

## Objectives

The project sought to enable micro, enterprises and SMEs in rural areas to become more competitive by adopting cost-effective solutions and practices.

The project promoted the targeted automation of production using robotics and machine vision, optimising the production and use of energy and exploring potential ways to use

waste energy. It looked for solutions to keep production costs low enough to ensure the capability for the development of operations.

The project aimed to lower the threshold for companies to adopt new technologies and create a new model for cooperation between SMEs, researchers and students and an employment and recruitment channel between the participants.

## Activities

Following a 2018 commission by three rural towns (Huittinen, Sastamala and Loimaa), Satakunta University of Applied Sciences (SAMK) prepared a preliminary study and interviewed industrial operators and representatives of urban economic development. The study found that the region's industrial companies struggle to find the time and resources for research and development (R&D) activities, even though they can identify development needs and want to keep up to date with technological developments, as well as develop their operations and competitiveness.

Based on the study, the industrial and economic development operators of the three towns (city business developers, Loimaa chamber of commerce and an entrepreneurs' organisation) took the initiative to develop the HSL-Robo project. The project was divided into four work packages, implemented according to the needs identified by each company.

**Technology tours and demonstrations:** automation technology experts carried out technology tours in the participating companies. They surveyed each company's development targets, selecting those to develop further. The project experts, company experts and the students of the Robotics Academy of SAMK carried out on-site demonstrations that illustrated the potential benefits of adopting the technologies/systems being developed in a lab setting. This helped the companies make further plans, such as investment decisions.

The results of the demonstrations (e.g. a café robot and a simulation of the robotisation of palletising activities) were announced and were made public on YouTube videos and the project's website, [hls-robo.samk.fi](https://hls-robo.samk.fi).

**Energy walk tours:** based on the energy efficiency targets defined during the technology tours, the project experts carried out 'energy walks' to survey the use of energy in the companies and identify possibilities of improving energy efficiency through the re-use of waste energy and the use of renewables. Companies received a report to help improve their energy efficiency, which included cost savings and up-to-date information.

**Technology seminars:** joint technology seminars were organised to present new technologies (e.g. machine vision, robotics and identification technologies) and their possible applications. This was done in a concrete and practical manner, using the demonstrations held in the technology tours. The purpose was to increase information and activate companies to develop their own production through automation.

Visiting workshops for the region's entrepreneurs were arranged in the RoboAI laboratory of SAMK. Here, participants were able to explore the use and programming of different robots hands-on in small groups. The visits also effectively supported the networking of the companies and received particularly positive feedback.

**Communications and reporting:** special attention was paid to communications during the project, including setting up a dedicated website for the project. In communications, the focus was on direct business contacts and student cooperation.

## Main results

More than 100 SMEs were contacted, and technology or energy walk tours were arranged in 27 companies. Nine seminars and workshops and four info events were organised with more than 200 participants.

As a result of the 18 demonstrations of the HLS-Robo project, two robot investments were made in the participating companies during the project. Based on conversations between the project holders and some of the partner company representatives, several other purchases are being planned or will be implemented after the project.

SAMK's expertise in automation and the latest technology and technical information were made available to the participating companies.

The project improved the perception of R&D activities and cooperation experiments by the partner companies, students and the RoboAI laboratory of SAMK.

The project aimed to form a regional network of 20 industrial enterprises. In fact, 21 companies were involved in the network during and after the project.

RoboAI is a Core Competence Center of Robocoast, which is one of the European Digital Innovation Hubs (EDIH). The actions included in this project are also part of EDIH activities.

One of the innovative aspects of the HLS-Robo project was the new way to implement development projects for companies as part of students' curricula, supported by teachers, technology experts and company representatives.

The experiments and demonstrations carried out in the project were progressive and some of them gave solutions to problems formerly unsolved.

The project's principle of operation is transferable to other sectors and locations. Development projects implemented by students for SMEs can be an important development resource for rural businesses in the future.

The project successfully connected students and companies in the region. As a result, companies hired students to work in the summer period, which familiarised students with the companies and their operations and challenges. A student made a dissertation in connection with the robot investment and the graduate was then employed in the company.

## Key lessons

Finding and especially committing potential partner companies is not a straightforward process. Entrepreneurs are busy with their everyday work. Attracting their attention is the key. Good groundwork such as the pre-study and - more importantly - active partnerships for example with local industry experts and networkers help in this area.

The students of the Robotics Academy of SAMK involved in the project and the project staff were highly motivated because of the concrete and future-oriented cases the teams had in front of them. The technology tours in the production sites and direct contacts with the companies played a significant role in this.

Students often thrive when given responsibilities and 'real-world' problems to solve, with guidance available when needed. This approach and the participation of forward-looking micro- and SME companies (in this case from Huittinen, Loimaa and Sastamala regions) were the ingredients for success.

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### Additional sources of information

[hls-robot.samk.fi](https://hls-robot.samk.fi)

[samk.fi](https://samk.fi)

[roboai.fi](https://roboai.fi)

[Video 1 The UR5 collaboration robot in a cafe](#)

[Video 2 Robotics in the food industry](#)

This project has been categorised under 'Digital futures' by the nominating National Rural Network