

Developing smart and flexible production:

Norwegian university sets up new manufacturing lab packed with robots

The Norwegian University of Science and Technology (NTNU) has developed a new educational laboratory in Ålesund to facilitate learning and extend the implementation of automation and robotics amongst manufacturers in the region. The lab is packed with a wide range of OMRON solutions – both hardware and software.

Laboratory for research and manufacturing

The new “ManuLab” has primarily been developed for research, but its facilities can be used by researchers and manufacturing companies throughout Norway. Some of the key research areas that the lab is used for include metal forming; high-energy laser welding; additive industry and industry 4.0 with wireless communication; sensor networks; learning factories; digital twins; augmented reality and virtual reality; machine learning; and advanced cognitive automation. In terms of manufacturing, the ManuLab can be used for testing out potential automation applications – for instance, on the production line.

Leap towards Industry 4.0

The concept of the lab came from the university’s desire to help Norwegian manufacturers to take a big leap forward in production by migrating their processes to Industry 4.0 in the move towards the connected factory. However, the existing lab was old-fashioned and its systems weren’t connected. This meant that the university would need a new lab that could provide ‘proof of concept’ for manufacturers and that could also be used to train students.



A new educational laboratory facilitates learning and implementation of automation and robotics.

OMRON was chosen as the sole supplier of industrial automation solutions for the new laboratory, with the company's partner, Amatec, acting as the integrator. OMRON's Area Sales Manager, Torbjørn Hoel, explains: "Initially, we had competition from another company. However, we presented our philosophy of 'innovative-Automation' – which is our vision for revitalising the manufacturing industry - and also our concept of flexible production using mobile robots. The university really liked the presentation and we won the contract."

The lab includes two Viper robots, four OMRON TM collaborative robots and four LD autonomous mobile robots, a Quattro robot, Sysmac machine automation controller and many other items.

Testing smart and flexible production concepts

Torbjørn continues: "This is now a fantastic lab, in which real production can be carried out. It provides great opportunities for research and for manufacturers in Norway to test out their ideas and concepts. They can try out prototypes and test how they work and find out how best to implement robotics in their production lines. It's therefore a great showroom for smart and flexible manufacturing, and fits in perfectly with our strategy of providing integrated, intelligent and interactive solutions."

The project was completed in September 2020. Professor Ola Jon Mork from NTNU comments: "OMRON were constantly surprising us. It was very helpful having a local provider of total solutions, including robotics, that also had an in-depth knowledge of automation. In addition, the company's team were extremely competent and helpful."



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About NTNU

NTNU is a university with an international focus, with headquarters in Trondheim and campuses in Ålesund and Gjøvik. NTNU has a main profile in science and technology, a variety of programmes of professional study, and great academic breadth that also includes the humanities, social sciences, economics, medicine, health sciences, educational science, architecture, entrepreneurship, art disciplines and artistic activities. For more information, visit: www.ntnu.edu.

About OMRON Corporation

OMRON Corporation is a global leader in the field of automation based on its core technology of „Sensing & Control + Think.“ OMRON's business fields cover a broad spectrum, ranging from industrial automation and electronic components to social infrastructure systems, healthcare, and environmental solutions. Established in 1933, OMRON has about 30,000 employees worldwide, working to provide products and services in around 120 countries and regions. In the field of industrial automation, OMRON supports manufacturing innovation by providing advanced automation technologies and products, as well as through extensive customer support, to help create a better society. For more information, visit OMRON's website at: industrial.omron.eu.