ROBOTIQ

ASSA ABLOY

The World's Leading Lock Group

Close the Skills Gap With In-House Robotics Expertise

Manufacturing workers are tough to find in Bucharest, Romania. In one of the city's main plants, Assa Abloy Romania, the skills gap is widening every year. The factory's management invested in robotics to automate simple tasks and fill value-added positions with their actual workers. This generated in-house robotics expertise that set an example for the whole Assa Abloy group.

Start simple

A walk into Assa Abloy Romania's factory may seem endless. About 500 people work here, assembling locks that are sent to other Assa Abloy factories worldwide, where they're transformed into finished products. Tons of different processes are performed, most of them manually by employees who have been working there for decades.

Through the alleys, young faces are a rare sight. "The unemployment rate in Bucharest is very low", says Adrian Iosif, Mechanical Design Engineer at Assa Abloy Romania. "Manufacturing work is not a desired place for most of the people, it's very hard for us to find workers."

In the fall of 2015, the time to break the status-quo had come. Assa Abloy plants across Europe, Middle East and Africa were asked by the company's global management to develop robotics projects that would improve productivity in their factory.

It was the beginning of what they call the automation revolution. Due to its lack of personnel, the Bucharest factory rapidly emerged as a leader in robotics for the Assa Abloy group.

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They started by automating the most simple and repetitive processes. “We wanted to automate the welded assembly between a front plate and a case. There used to be an operator who put both parts together manually,” explains Adrian Iosif. “We had in mind to build a flexible cell that could handle lots of parts at lots of stations.”

A Plug + Play solution for high-mix/low-volume production

Robotiq Plug & Play components rapidly emerged as a top solution. “We found the Robotiq 2-Finger Adaptive Robot Gripper, which is really adaptive to different parts. It was exactly what we needed. We also bought the Wrist Camera, which is very flexible and able to locate parts in a wide field of view. Anytime there is a new lock to assemble, you can teach a new part. You can teach as many parts as you want and choose which one you will use and that’s it, you change the production.”

Robotiq products are a natural fit with Universal Robots. Adrian Iosif reached out to local distributor RobotsNET Consulting to give it a try. “We were in discussion with Assa Abloy for some small application project in the beginning,” explains RobotsNET Sales Manager Razvan Isac. “We decided to lend them a Universal Robots UR5 for one month to test because they had some very interesting applications that could work with it. Since then we had very positive feedback from their side.”

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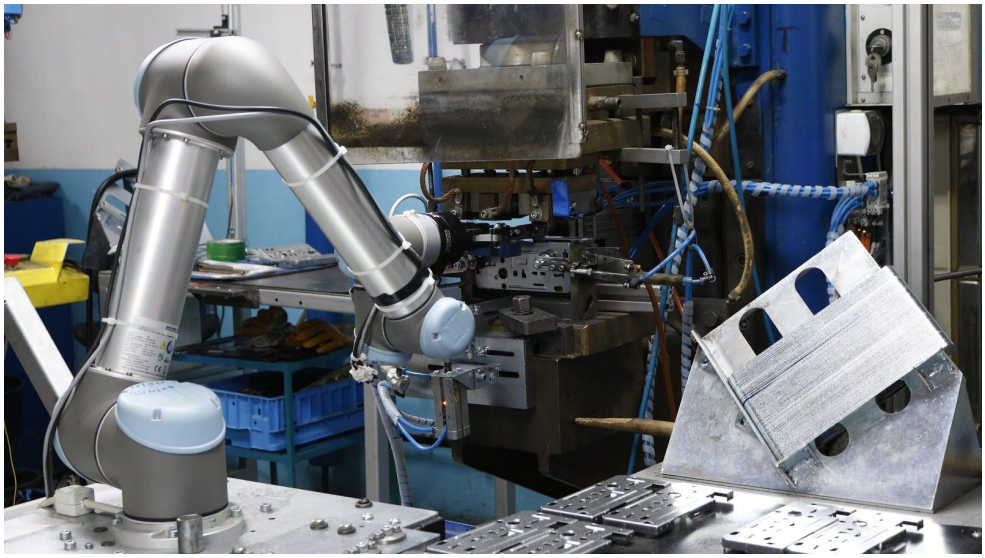
“As soon as we had the robot here, we started to play with it a little bit,” recalls Adrian Iosif. “We saw how easy it is to program. That made us want to buy it and see furthermore how we could benefit from it.” With all the cell design completed, the integration phase started as Iosif and his team were aiming for a cycle time that would improve productivity.

Locate, pick and place two parts in twenty seconds

Adrian Iosif wanted to automate the setup of a welding assembly that used to be done by a human operator. This included locating the front plate, placing it in the welding machine, picking the case and placing it correctly over the plate on the fixture. Finally, the operator would press the button for welding. Beating this time with a robot wouldn’t be easy. “When the first robot arrived, the reaction of the people was not very good. They said that the robot would not be able to produce at the same rate. And they were right at first.”



By trial and error, Iosif and his team were able to reach a 20-second cycle time. This would represent a 20% productivity gain while freeing human hands from a highly repetitive task. Adrian Iosif describes this pick and place robotic application as follows: “We have a table where the operator puts the cases. Using the Wrist Camera, the UR5 robot detects the case, grabs it with the Robotiq 2- Finger Adaptive Robot Gripper, and puts it in the fixture of the machine. After that, the Universal Robot goes for the front plate, puts it on the fixture, and then the command is made for the machine to weld.”

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This new process still requires a human presence for now, but makes life a lot easier for operator Moise Nicolae. “At the beginning, I had some technical challenges with the robot. But after a bit of time it became really easy and it’s very simple to work with the robot. It’s a big difference for me working with a robot because my task is much more easy.”

In-house robotics expertise

While an operator is still required at Assa Abloy Romania's first collaborative cell, the worker's duty is now a lot less futile. Plus, each operator will eventually be in charge of two collaborative cells. This step into automation is the first of many for Adrian Iosif, a mechanical engineer who learned a bit about robots in his previous job and started working with Robotiq and Universal Robots on this project: "I didn't have programming skills but I found it very easy, with logic knowledge, to program the robot, the gripper and the camera."

Iosif's motivation and enthusiasm is easy to feel. He shares it with the whole Assa Abloy Romania's automation department, a team that now includes 10 people, only a year after its creation. "It is tough and expensive to find integrators in Romania. They have a different solution for every different part. In our team, we have a manager and four engineers like me. We also have three students with us part-time and two technicians who help us build what we plan. The main role of the automation revolution happening here at the Romanian plant is also to set an example for our colleagues in other plants in Europe, to show what we can do with new technologies like collaborative robots."

This brings us back to the initial walk: visiting this massive factory. All kinds of robots can be seen in many areas. Some are hard at work, others are in test mode while some are not moving, waiting for future deployment. "We have lots of opportunities in this factory because it's a big plant and most of the work is done manually," Adrian Iosif insists. "The robots help us move our colleagues to the empty places that we have here in the factory."

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According to RobotsNET's Razvan Isac, the Assa Abloy case is a regular story in Romania, where manufacturing recruitment is a tough endeavour in which robots are used as backups. "This solution is an alternative," Isac explains. "Factories don't buy a robot to replace people, they buy it because they cannot find people. I've never seen someone lose his job to a robot in Romania."