

Robotiq adds functions to robots

Industrial robots have been around for such a long time, and have captured the imagination in such a way, that it would be easy to think that almost all manufacturers have robots installed at their factories.

In fact, the majority of factories in the US do not have industrial robots. And if a country as advanced as the US doesn't have robots all over its manufacturing industry, then no country in the world has a manufacturing sector dominated by industrial robots. Not even Japan.

The vast majority of work done in factories around the world is still done by humans. The Boston Consulting Group estimates the proportion in the US to be around 90 per cent. Meaning, only 10 per cent of manufacturing tasks in US factories are done by industrial robots.

It could be argued that the specific tasks done by industrial robots are the most crucial, but most statistical analyses provide a broad brush picture of any landscape, and the industrial landscape would seem to have far fewer robots than one might imagine.

One of the most important reasons, perhaps the most important reason, for so few robots is that industrial robots have traditionally been very expensive. Purchasing an advanced robotic spot welder would have set you back more than \$180,000 in 2005.

A similar machine would have cost \$130,000 if you had bought it last year. Still expensive, but significantly cheaper than a few years ago. And prices are set to fall even further – by as much as 20 per cent in the next 10 years, according to analysts. And that probably does not account for the new generation of robots, which are designed using the latest components and techniques.

And, as most people are aware, the thing about technology, especially computing-based technology, namely robotics, is that the more advanced it gets, the cheaper it becomes.

But while the consumer electronics market can offer vast economies of scale to a successful product, niche markets such as industrial robotics move a little more slowly. And that lack of speed may have been a factor in much of the US manufacturing base moving east over the past couple of decades, to countries such as China, which offered enormous human resources even if they couldn't offer advanced robotics and automation technology.

Witnessing the mass migration of manufacturing jobs from North America to Asia were a group of inventive minds in Canada. On seeing more and more factories closing down, having lost out to factories in lower-wage countries, Samuel Bouchard, Vincent Duchaine, and Jean-Philippe Jobin decided that they wanted to do something about it.

They self-funded Robotiq, establishing it in 2008. The company would make robot tooling for manufacturing. Their hope was that it would help manufacturers become smarter and more flexible, more adaptable to a changing economy.

While China and Asia still come to mind when one thinks of manufacturing, the US Federal Reserve recently released statistics showing that US manufacturing is making something of a comeback, with modest but consistent growth over the past four years.

For Robotiq, this is good news, as North America has always been their main market, and the region that inspired them to start the company. The company's sales and marketing co-ordinator, Olivier Grenier-Lafond, reiterates the origins of Robotiq, as well as some of its main areas of interest.

Grenier-Lafond says: "Robotiq is a spin-off from Laval University Robotics Lab [in Quebec, Canada], and we just

Robotic tools
Robotiq started out with the grand ambition of saving the manufacturing industry in North America. It may have helped achieve that. Here, we interview the company's sales and marketing co-ordinator, Olivier Grenier-Lafond, to gain an insight into the robotic tools manufacturer



Olivier Grenier-Lafond, sales and marketing co-ordinator, Robotiq

celebrated the company's seventh anniversary. It was founded by Samuel Bouchard, who is the CEO, Jean-Philippe Jobin, CTO, and Vincent Duchaine. We focus on collaborative robots.

"There are two important differences between traditional robots and collaborative robots. The first is that their force limiting, shape and safety features make it possible to use collaborative robots without fencing for some applications.

"The second is that they are easier to program than their traditional counterparts. They can be hand-guided and their user interface is generally more user-friendly. So, they require less specialized knowledge.

"The main reason why this kind of robot is becoming more and more popular is their ease of use. It's easy to learn how to use them, easy to program. This reduces the cost of integration and the cost of training. More people in the factory can program these robots. The fact that you don't need fencing around is also interesting because the robot can be repurposed easily within the factory."

This ties in with the Robotiq founders' objective of helping robots to become more adaptable to changing economic circumstances. The company currently sells its products around the world to companies big and small.

Grenier-Lafond says: "We sell through our global network of distributors in around 30 countries to many different customers. From multinational corporations to small and medium enterprises that are just starting to automate their production line. Our robot grippers are also used by many universities and research centers – MIT, CMU, NIST, Fraunhofer, to name a few."

Robotiq has four main product lines, two of which are robotic grippers, one a force torque sensor, and a kinetic teaching system which enables robot operators to programme a robot without the need for in-depth programming skills.

Grenier-Lafond says: "Our most popular product is the 2-Finger 85 Adaptive Robot Gripper. It is designed to be compatible with all major robot manufacturers and it has an almost seamless fit for Universal Robots, the leading brand of collaborative robots. It is mechanically designed to match in size and shape.

"Also we have developed software to work easily with Universal Robots' programming methods. "All Robotiq grippers are designed as programmable robot grippers able to handle most parts in the industrial environment, eliminating the need for changeovers. The grippers can be used in a variety of areas: machine tending, assembly, advanced manufacturing, and research.

"The user has control over the force, speed, and position parameters, allowing for complete control of the gripper."

The Robotiq two- and three-finger grippers of today actually started life as a one-fingered device back on Laval University. It took two short years to go from the one-fingered to the three-fingered version. Overall, however, it has taken many years of hard work to get where the company is today, with its grippers, sensors and kinetic teaching products being used by major companies around the world.

While Robotiq started out thinking about the manufacturing industry, the market that was always going to be its route into other markets was the robotics industry itself. And now, Robotiq grippers are actually very popular with other robotics companies. In fact, the company's 3-Finger Gripper was used by no fewer than eight teams taking part in the Darpa Robotics Challenge, one of the toughest robotic competitions in the world. Two out of the three finalists used Robotiq grippers. ●



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