



Munich, October 12, 2015

Technical article

"Colleague robot" conquers electronics production: productronica adds robotics to exhibition portfolio

Already today, many companies and branches of industry are automating—and now robotics is taking over new areas in electronics production. That is why, for the first time ever, this year's productronica, the world's leading trade fair for electronics development and production, has added the topic of robotics to its exhibition portfolio. The reason for this development is obvious: Mass production and constantly increasing competition are forcing companies to produce their products faster, better and cost efficient, also in electronics production. Certainly, a case for robots. After all, they work with maximum accuracy and precision and can mass-produce products while maintaining a high level of quality. Flexible lightweight robots can be used multipurpose for a high number of tasks. Thanks to enormous progress during the past years, under certain conditions they can even collaborate with their human colleagues.

Global demand for mass-produced products such as laptops, smartphones and tablets has never been greater. To make such a large number of products available to everyone at a competitive price, companies must keep the overall cost of production to a minimum and make production processes as efficient as possible. That is why more and more of them are deciding to automate certain processes and to integrate robots into the production process. Robots perform tasks precisely and cost-effectively and have a high level of repeat accuracy. In many cases, the tasks that they perform cannot even be performed manually, so it would not be possible to manufacture certain products without automation.

Lightweight robots making their way into production halls

Besides large, heavyweight industrial robots that are used in giant assembly lines in the industrial sectors such as the automotive industry, companies also

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rely on flexible lightweight robots for smaller tasks. These robots are so lightweight that they can easily be moved from one work area to another and used multipurpose. Thanks to multifunctional interfaces, they can also be easily programmed by employees using touchscreens or tablets. So the robots can be integrated into different production processes, regardless of location task. The ability to program them is becoming increasingly easy and requires less external expert know-how.

Robots are already being used in companies of all sizes in various branches of industry such as the automotive, food and pharmaceutical industries. Thanks to human-robot collaboration, using them becomes also attractive for small and medium-sized enterprises for which fully automated production used to be too costly or unsuitable. Now "colleague robot" is also making its way into electronics production, as Stefan Sagert from the VDMA (German Engineering Federation) Robotic + Automation Association explains: "These robots can quickly and easily be integrated into nearly any electronics and technology production operation and are particularly well suited to final assembly, for example. They also have potential when it comes to assembling large components and parts that are not standardized—at any place where insertion machines are not suitable and the work is too monotonous for people. In these situations, robots are able to assemble components with a high level of precision and reliability."

People and robots working hand in hand

Collaborating robots work directly next to humans without protective fences. The robot serves as the worker's production assistant while the worker monitors the process and then initiates subsequent production steps. Human-robot collaboration has become possible due to innovative safety technologies which ensure optimum protection for the worker. Certain standards such as ISO 10218 stipulate safety requirements. An example of this kind of safety feature is safety-oriented standstill monitoring, where the robot moves when the worker leaves the shared workspace and stops as soon as the worker enters the shared

workspace again. There are also robots that feature speed or distance monitoring or use force-limiting features to protect human workers.

At the same time, robots can also relieve employees of having to perform monotonous and less demanding tasks. For example, the flexible helpers can be used for pick-and-place tasks that used to be performed manually - tasks that were considered tough and physically demanding. If a robot takes over these responsibilities, the employee can focus on more demanding tasks that are less monotonous.

In this context, it is important that automation on the factory floor does not result in the loss of jobs at all. Even if wages for monotonous, unskilled labor increase and therefore companies start automating to cut costs, jobs will not be lost, as Stefan Sagert explains: "On the one hand, using robots will create new areas of activity and, as a result, new jobs for people in which the robot performs assisting tasks for the worker. On the other hand, robots must be operated, programmed and maintained—so we will always need qualified employees who can perform those tasks."

Robot use: Electronics production is ready to go

Just like "classic" robotics applications, now human-robot collaboration is making its way into electronics manufacturing—at least for placing electronic assemblies into their housing or in research and development. Using robots to manufacture components or electronic assemblies is even more exciting. Right now limits are being tested—the introduction of new machine solutions is expected at productronica.

This much is clear: electronics manufacturing offers a high potential to robotics, and more than ever before, robots are also becoming a fundamental part of the production process—which is why they will have enormous influence on the industry, companies and competition.

That is why productronica has decided to contribute to the ongoing development of robotics in the electronics-manufacturing sector by making it a separate focal point. The first well-known robotics manufacturers such as Epson, Stäubli, IAI and AEB are already exhibiting at this year's show from November 10–13.

productronica's objective is to establish the robotics sector at the fair in the long term, increase the number of exhibitors and further promote the topic in the process. This is productronica's way of guiding the entire industry into the future, much as it has in the past.

Additional information about the fairs:

www.productronica.com

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Voucher copy requested



The Flexpicker from ABB: Highspeed-Picking at electronics production

Picture: ABB

About productronica

productronica is the world's leading trade fair for electronics development and production and is supported by the Productronics Association in the German Engineering Federation (VDMA) as a conceptual partner. It has taken place in Munich every two years since 1975 and is a core element of the electronics trade fair network of Munich International Trade Fair. 2013 1,220 exhibitors from 39 countries and more than 38,000 visitors took part at productronica. The next productronica takes place from November 10 – 13, 2015. www.productronica.com.

productronica worldwide

In addition to productronica, Messe München also organizes productronica China and productronica India. Its network of electronics trade fairs also includes electronica in Munich, electronica China, electronica India and eAsia.

Messe München

Messe München is one of the world's leading trade-show companies. It organizes some 40 trade shows for capital and consumer goods and key high-tech industries in Munich alone. 14 of those events are number 1 in the world in their respective industries. Each year more than 30,000 exhibitors and some two million visitors take part in events held at the Messe München trade-fair center, the ICM – Internationales Congress Center München and the MOC Veranstaltungszentrum München. In addition, Messe München organizes trade shows in China, India, Turkey and South Africa. Messe München has a global business presence with affiliates in Europe, Asia and Africa and more than 60 foreign representatives serving more than 100 countries.

About VDMA Productronic and VDMA Electronics, Micro and Nano Technologies

The Sector Group Productronics is part of the VDMA Sector Association Electronics, Micro and Nano Technologies. It represents about 75 member companies along the entire process chain of electronics production. The member companies produce machines, equipment, materials and components for a wide range of electronic products, including semiconductors ("microchips"), printed circuit boards (PCBs), electronic assemblies, flat panel displays, data storage, photovoltaics and electrical energy storage. The VDMA sector association Electronics, Micro and Nano Technologies leverages synergies between the two sectors groups Productronic and Micro Technologies. In these groups, activities that match the specific requirements of each sub-sector are defined and implemented. Joint activities are launched in the sector association.

<http://emint.vdma.org/en/home>

The German Engineering Federation represents more than 3,100 companies in the engineering industry, many of which are small and medium sized enterprises. With 1,006,000 employees all over Germany (June 2015) and a sales turnover of 212 billion Euros (2014) the engineering sector is the biggest employer and one of the leading sectors of German industry.

<http://www.vdma.org>