

WHITE PAPER:

Automation and robotics for a (cost-effective) fixed price

From the product to the platform: the igus® RBTX marketplace



Robotics is expensive and automation is complex. A platform for configuring solutions for Low Cost Automation proves this not entirely unrealistic assessment wrong.

Low Cost Automation has developed into the third, rapidly growing business area of igus®, in addition to e-chain® cable carriers and plain bearings. The basic idea for starting this success story was a simple insight—many users really enjoy using the large igus modular system to find the perfect solution for their application. However, many are just looking for a complete solution: an automated inspection location for circuit boards, a sprue picker for an injection-molding machine or an “affordable” robot for carrying out recurring assembly tasks (where the robot would only play a subordinate role). Often, further components like grippers, a camera or safety solutions are required.

New modular gearbox system, new robots

Regarding the product offer, there are currently many innovations. For example, fully integrated ReBeL tribo strain wave gears with motors, absolute-value encoders, force control systems and controllers. With a seventh axis, Epson robots receive an additional degree of freedom. For universal robots, an external rotary axis is now possible. Additionally, drylin® Scara robots – modular robots with four degrees of freedom – are now available. Cobots for the industry and service robots have also been added to the RBTX product range. The igus ReBeL costs less than 7500 USD (7578.51 euros) and carries loads of up to 2kg. This goes to show that the marketplace is becoming larger and more attractive, and igus is becoming a complete systems supplier for Low Cost Automation.



More automation options thanks to mobility at rbtx.com

Source: igus GmbH

Automation is easy—and cost-effective

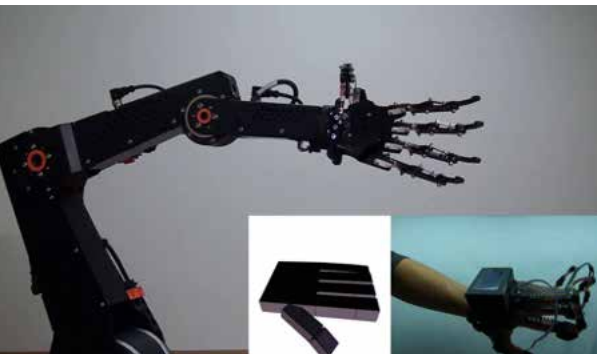
The user can see; automation is easy. And – according to the igus motto “tech up, cost down” – it is also affordable. In a nutshell, complete solutions usually cost around 24,780.08 USD (25,000 euros). The costs are also transparent; no basic robot module is more expensive than 5451.80 USD (5,500 euros), and the price is shown for every component on the RBTX website. This way, both the prices of single robot kinematics and prices of peripheral components are transparent and can be compared thanks to the “live price”.

From the product to the platform

Thanks to a new and popular business model, the so-called platform economy, these customers can also be served. igus created such a marketplace two years ago with RBTX.com. By cooperating with several partners, a modular system is offered, which can be combined to complete automation solutions. The platform product range includes robot arms, linear axes and parallel kinematics such as the delta robot, as well as grippers, automation software, motor drives, additional axes, sensors—everything that customers configure themselves is compatible. Guaranteed. Very important: users don’t have to worry about control systems and power electronics. They are included in the delivery, and operation is intuitive. Here, igus offers a “compatibility guarantee”. All components on the marketplace can be combined and used in tandem with both hardware and software. The freedom to mix and match parts from various manufacturers ensures the customer receives a specifically tailored solution ideal for their particular application. Along with the “low-cost idea”, this is one of the key promises of the platform.



Mix and match manufacturers with the RBTX marketplace



Gesture-cpntrled robotic arm

Source: igus GmbH

Practical example 1: Gesture-controlled robotic arm

Students at the Higher Technical Federal Training and Research Institute in Salzburg developed a mobile robot system with a gesture-controlled gripping system. The user wears a glove that translates gestures into movements to carry out handling tasks remotely. The glove itself was manufactured via 3D printing a flexible plastic material. All necessary electric components were integrated directly into the glove to avoid cable clutter. The robot itself makes use of a robolink arm from igus, paired with a PLC from B&R and a drive and battery system developed specifically for the robot.

Practical Example 2: Breaking machine for semi-boiled eggs

A signature breakfast in Singapore is the half-boiled egg. While machines already exist to prepare fried or scrambled eggs, they are too expensive to be practical across the industry. So, JSL Solution Pte Ltd designed a machine to prepare half-boiled eggs at a significantly lower cost. Multiple igus components were used in the design, including a threaded spindle, sliding element, and motors. Alongside various custom 3D printed parts and an Arduino controller, a complete system was designed to crack the eggs with increased productivity at lower costs.



Egg breaking machine

Source: igus GmbH

Practical Example 3: Pharmaceutical pick-and-place robot

Efficiency and accuracy are essential for the pharmaceutical industry. Medicines need to be accurately sorted with little-to-no hang ups to ensure customers get the medicine they need. To this end, Apostore developed a pick and place robot to take over storage of bulk deliveries. Combining a robolink arm from igus, a Beckhoff controller, and a 3D Smart Sensor Vision System, medicines are automatically sorted and stored, freeing up staff to take care of customers.



Pharmaceutical pick-an-place robot

Source: igus GmbH



igus RBTxpert

Source: igus GmbH



igus test laboratory for Low Cost Automation

Source: igus GmbH



RBTxpert: remote integration for Low Cost Automation with fixed price

No matter how simple the selection, assembly and commissioning of the automation parts is for the users. To start, they need an automation concept. This first step is often the most difficult, as that is where most cost traps can be found. Take the first step for free now with the RBTxpert service. This is a free live video consultation – even if it is about automation and robotics – that is not carried out by a chatbot or a humanoid robot, but instead by a real, experienced automation expert.

The process is very simple: customers enter their contact details and cornerstones of the project on the RBTX platform, choose their preferred date and time, and receive the link to the video conference. After the free live consultation by the automation expert, a feasibility check is carried out with different kinematics. For this, users are welcome to send in a sample of the workpieces. They will receive a free quotation including a binding fixed price for hardware costs between 2983.33 USD (3,000 euros) and 24,861.12 USD (25,000 euros) and integration work of less than 100 hours. In addition, they will receive a parts list tailored to their application. After the delivery of the hardware components, the expert will support the customer remotely during the commissioning.

Also new: the customer testing area

The RBTxperts now also offer customer-specific tests in the “customer testing area” as a further service. Here, for example, free handling tests of customer-specific workpieces are carried out, and customers are provided with a video of the proof of concept in action. These tests often lead to the realization that implementation is even easier than anticipated—entirely in line with the idea of Low Cost Automation.

Get educated with the robot programming workshop

Not only does the RBTX platform offer robotic components and solutions, but robot programming workshops are also available for those looking to learn more about robot programming, the structure of a robot cell, etc. Maybe you want to implement automation in your warehouse, but have no idea where to start. Or perhaps you have a baseline knowledge but want to expand and deepen your understanding of automation and robot programming. The RBTX workshop can give you the support and information you need to get started, and can even be specifically tailored to your individual topic requests.

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