

roboception

Robot-Mounted 3D Camera Replaces Manual Picking (and Vibrational Feed) on < 1 sqm

How a tedious manual assembly process was reliably automated



Munich, July 2024. nexxos GmbH of Gersthofen, Germany, focuses on individual industrial automation solutions with camera-guided robotics and cobot applications – from first concept to final integration and assembly.

When their customer requested an end-to-end automation of the assembly of an electrical housing – a process that had been performed manually until now – they faced a list of challenges.

Mounting printed circuit boards into a plastic housing seemed comparatively simple. The installation of three different cable glands that are fixed with two different nuts proved to be trickier.

The fact that – for logistical and economic reasons – these elements are supplied into the cell

as bulk material in chaotic, unmixed bins did not exactly make matters easier.

Add the fact that in today's automation projects, not only time is money, but space is money as well. And enter Roboception's 3D vision solutions:

"The hardware and software of Roboception provided the perfect flexible solution for our challenge to replace manual picking."

We mounted the rc_visard 3D-camera system on the gripper of an Agilus for separating five different parts from bulk material in boxes. The whole system has a footprint of less than one square meter."

said nexxos CEO Dr. Stefan Briefi.

In order to save a considerable amount of space as well as money, the nexxos team decided against the traditional solution of using a vibrational feed to separate the parts. Rather, they equipped their KUKA KR6 R900-2 Agilus with a robot-mounted rc_visard 65m stereo camera. The supporting rc_reason CADMatch software module runs on an rc_cube IPC.

The robot routinely accesses five load carriers, using the robot-mounted rc_visard to acquire an image of the respective load carrier and identify the best grasp point for the robot's picking of the required part.

"This solution not only minimizes the required floorspace to less than one square meter," says Stefan Briefi. "It also makes the system flexible: In case a part should change, all that is needed is for a new CADMatch template to be implemented into the routine."

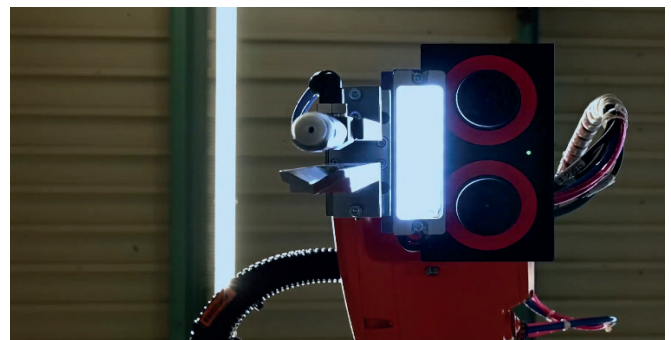
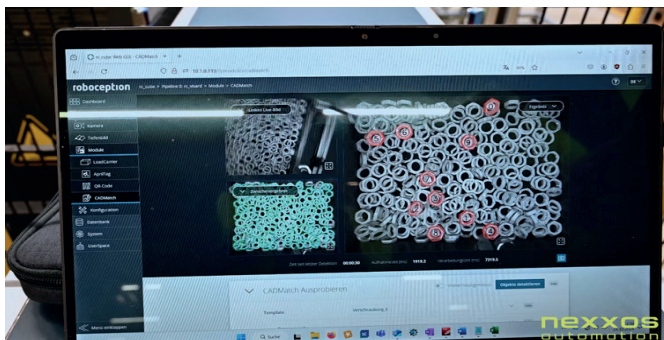
Briefi appreciates this high amount of flexibility, as well as the high level of sophistication of the software components: "The software perfectly met the requirements to the last detail. What's more, it is easy to operate through intuitive menus and settings – a real plus!"

He is convinced that nexxos will call on Roboception's portfolio again in the future – and certainly when it comes to "part separation and bin picking of complicated parts".

About nexxos GmbH

nexxos GmbH is an owner-managed robot systems specialist founded in 2021 and based in Gersthofen. The company aims to give customers a decisive competitive advantage through customized automation solutions.

www.nexxos-automation.de



Roboception GmbH

Roboception is a pioneer in the field of 3D sensor technology with innovative hardware and software products: The Munich-based company gives robots 'eyes and brains' and thus provides customers with key elements for the forward-looking and flexible automation solutions of Industry 4.0.

Roboception's stereo sensors and modular software suite effectively couple traditional image processing algorithms and artificial intelligence. They give any robotic system the ability to perceive and analyze its environment, as well as plan and execute actions - such as precisely grasping and placing objects in manufacturing, logistics, or laboratory environments.

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