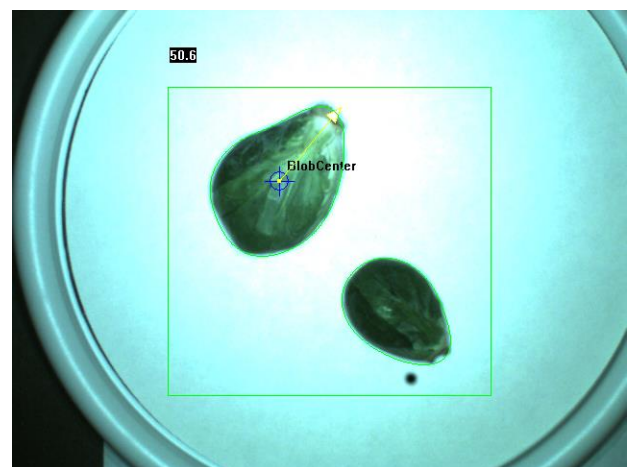


Case Study

Baumer Teaches a Robot How to Pick and Package a Perfect Brussels Sprout

Baumer's vision technology and design expertise automate produce packaging by enabling a high-speed delta robot arm to identify and pick high-quality Brussels sprouts from a conveyor.

Rising market pressures, an unpredictable labor pool, and increasing demand for lux product presentation are all fueling growth in automated solutions for food packaging. OEMs are working hard to engineer innovative robotics and control systems that address these trends. But as one OEM discovered, they needed the expertise of Baumer's Vision Design Center to explore the benefits of machine vision technology for their system.



Leveraging a GIG-E high-resolution color camera, and distributed lighting, Baumer developed a vision system to guide a high-speed delta robot arm to identify and pick the highest quality Brussels sprouts from a conveyor.

The OEM had developed a high-speed robot system to pick and place Brussels sprouts from a moving conveyor belt into packages to one side of the line. But the solution required a vision system able to locate sprouts, determine their orientation, and work in conjunction with the robot system to guide its arm and gripper accordingly. Adding to the challenge was the fact that Brussels sprouts on the conveyor were often not singulated.

Scripting a Robot Picker

The Baumer design team proposed affixing a GIG-E high-resolution color camera over the conveyor belt and illuminating sprouts with evenly distributed lighting. The hardware configuration offered plenty of captured image data to work with. Baumer's free [award-winning vision software](#) did the rest, locating individual sprouts, identifying their long axis, and guiding the robot's arm and gripper.

The Design Team scripted the initial software routine to first perform blob analysis to locate individual sprouts in the image and provide easy comparison of good and bad products. The software's filtering tools smoothed the outlines of imaged sprouts to simplify location of the blob's centroid in order to differentiate its long and short axes to determine orientation.

In addition to industry-leading vision hardware, software, and design expertise, Baumer was further able to offer the OEM a selection of encoders and trigger sensors to seamlessly help integrate vision system functions with robot controls.

Baumer Group

The Baumer Group is one of the worldwide leading manufacturers of sensors, encoders, measuring instruments and components for automated image processing. Baumer combines innovative technologies and customer-oriented service into intelligent solutions for factory and process automation and offers an unrivalled wide technology and product portfolio. With around 2,700 employees and 39 subsidiaries in 19 countries, the family-owned group of companies is always close to the customer. Baumer provides clients in most diverse industries with vital benefits and measurable added value by worldwide consistent high quality standards and outstanding innovative potential. Learn more at www.baumer.com on the internet.

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