PRESS News

ISRA VISION

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PRESS NEWS

Reliable detection of the tiniest components: Equipped with quad cameras for fastest cycle times in bin picking

Bin picking is now easier than ever before: Leading toy manufacturer integrates robot-based bin picking system

A new system for bin picking now makes this process available even for the tiniest components. Because the downstream process step requires precise positioning, the leading manufacturer of plastic building blocks based in Denmark uses the compact sensor for the highly complex separation of the tiniest parts. With its four cameras, the system scans the entire container volume. Parts detection is extremely fast even for glossy or coated surfaces: Powerful LED lighting enables minimal scan times of significantly less than one second.

When the popular plastic building blocks are produced, the parts fall out of the injection molding machine into a bin. The high-gloss surface makes the separation for assembly extremely complex. Approximately 20 different types are processed at this stage of production, with sizes of about 60 x 200 mm. Another challenge is posed by the subsequent step in the process, which demands maximum picking accuracy. High-precision object detection is therefore needed. MiniPICK3D meets this requirement, easily implementing extremely short cycle times. The sensor is able to reliably detect and automatically pick components with an edge length of just a few millimeters – such as plugs, injection-molded elements, electronic components or precision engineering components. Equipped with four cameras, the sensor ensures a comprehensive overview of every container as well as the required preci-

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sion and speed. Small components are not just a challenge due to their small size: Their low weight means that robot systems can move them very quickly over generally short transport paths. This makes fast scanning times and precise object detection indispensable in order to enable optimal cycle times.

Quad-camera technology guarantees high data quality

The quad-camera technology of the MiniPICK3D sensor uses four integrated cameras to scan the full volume of every container. MiniPICK3D is designed for bins with a volume of up to 300 x 200 x 150 mm in particular. The different viewing angles of the four integrated cameras enable several different perspectives of the same object. These multi-view images ensure that each component is reliably detected and picked, even with shadows in the field of view or light reflections from component surfaces. Moreover, thanks to special embedded processor technology, the sensor achieves scanning times of just a few hundred milliseconds, regardless of the surface structure or the components to be detected. In a fraction of a second, powerful LED lighting provides all the reference points required to detect the components to be picked reliably and at high speeds. In addition, several parts can be picked after a single scan, thus saving time. Particularly in combination with collaborative robots, this opens up new applications for the bin-picking solution in a range of industry sectors, including assembly and logistics.

Ready for Industry 4.0 – equipped with Wi-Fi and OPC/UA

MiniPICK3D receives the information it needs to recognize the components to be picked in the generated point cloud in the form of CAD data.

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The sensor automatically calculates the optimum collision-free robot path to pick the parts. An integrated plausibility check ensures smooth operation. Furthermore, the sensor also learns new component shapes with the help of a CAD database. Easy teaching with CAD teach-in allows virtually any possible component shape to be set up and detected quickly. MiniPICK3D is simple to integrate, compatible with all common robot brands and can be operated as a fixed installation or on a mobile robot. Equipped with Wi-Fi and the OPC/UA protocol, the sensor is also perfectly positioned for connected production and Industry 4.0.

Further systems in ISRA's bin picking product family are the IntelliPICK3D-PRO designed specifically for challenging production conditions, and the new PowerPICK3D, which enables new top speeds for bin picking of larger components.

Images

755_1.jpg
The MiniPICK3D detects objects measuring just a few cubic millimeters with reliable precision.

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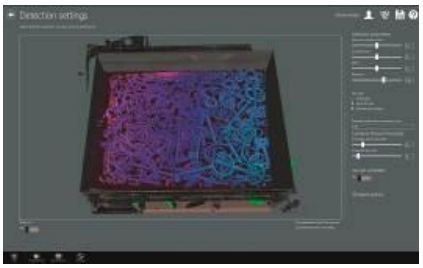
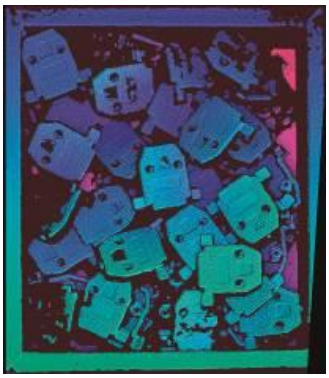
755_2.jpg
The quad-camera technology of the MiniPICK3D sensor uses four integrated cameras to scan the full volume of every container.



755_3.jpg
The multi-stereo quad-camera technology captures the entire volume of each container.



755_4.jpg
The MiniPICK3D scans with great precision, even when faced with a high degree of shadowing or glossy surfaces.

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