Sercos machine vision for packaging machines

The number of manufacturing processes which use machine vision to help control production flows or drive subsystems continues to increase. To keep pace with this trend, machine vision systems require a high-speed interface capable of supporting equipment control applications.

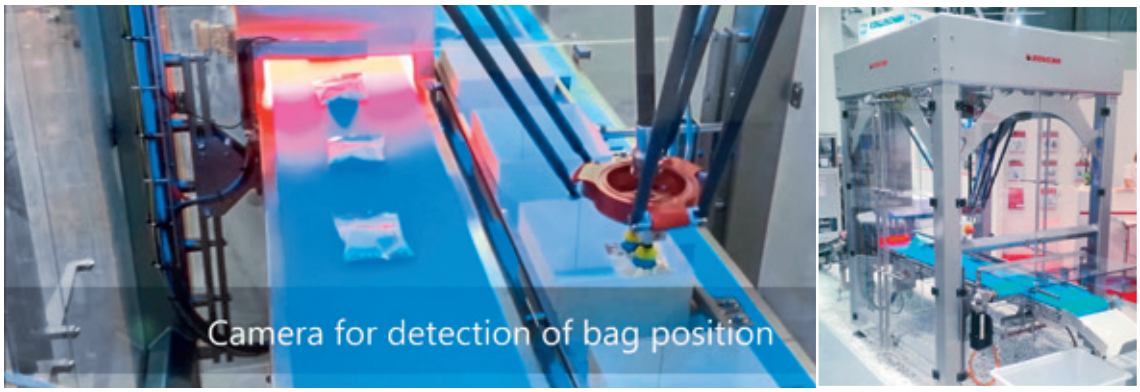

Image 1: Rovema develops new pick- and-place robot with built-in Vision & Control machine vision components.

Vision & Control is very aware of this trend and offers intelligent cameras and multicamera systems with a Sercos® real-time Ethernet interface. In partnership with packaging machine manufacturer Rovema, Vision & Control has developed an innovative Sercos-based solution for shelf-ready packaging of various products.

Rovema packaging lines have a modular design. The machine vision module used for position detection of pillow bags on an infeed conveyor is based on a similar design approach. The machine vision module sends position data for the packaged products to the picker module. The BVC180 pillow bag machine in combination with this module forms a compact packaging line which has no control cabinet. Elimination of the control cabinet is a welcome feature for the many customers who may want to add other highly-integrated units.

Candy in particular, which comes in bags with many different shapes, colors and textures, is a real challenge for machine vision. A light tunnel with diffuse, shadow-free internal lighting eliminates reflections and susceptibility to stray light. The vicolux® smart light emits red light to complement the blue background, maximizing bag contrast and ensuring reliable detection of the bags. The DLC3005 lighting controller guarantees that the lighting performs reliably under varying ambient conditions.

Efficient programming of the pictor® T303M-SC machine vision system makes it possible to detect a minimum of 180 bags per minute. The vcwin® pro programming environment can be used for intuitive generation of test programs with powerful machine vision functions. The end user can make modifications on their own to accommodate different bag designs. The compact pictor® T machine vision unit performs image capture, position and orientation detection, as well as transmission of the data to the picker module on the Sercos automation bus.

Integration of the Sercos real-time Ethernet interface into Vision & Control machine vision systems establishes a direct interface to the system controller. This approach supports distributed control architectures, reduces service effort and cost and saves space. The Sercos bus guarantees maximum performance and precision for synchronized communications in automation environments. In addition, standardized device and function profiles reduce the effort needed for commissioning.

Image 2: vicolux® lighting systems equipped with power LEDs deliver bright, high-contrast images for reliable image analysis.

Image 3: pictor® series smart-cameras are ideal for compact automation systems.