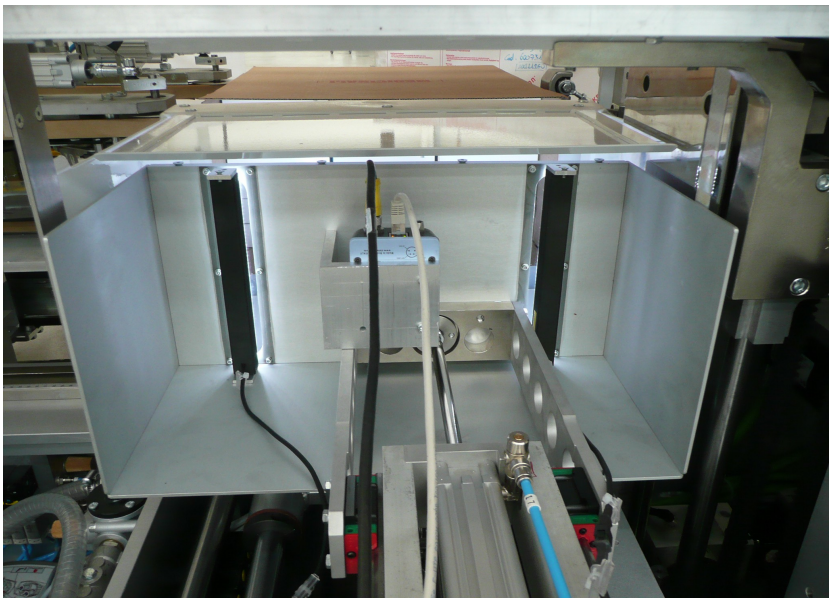
Cartons completeness check



SPECIALVIDEO has realized a vision system based on a Datalogic smartcamera that, applied to the cartoning machines, allows to verify the boxes presence in carton each layer before closing.

Product Description

The system recovers and controls the boxes layer image after each insertion in the case. The control is through the comparison with a reference image recorded during the format tuning . The normal small variations in the boxes position are recognized and accepted, while the case lack generates an alarm. The layers control does not require pauses to the normal machine production cycle and allows to verify the light boxes presence, which can escape to a normal control performed by scales .
The smart camera offers compactness advantages with competitive cost. The user interface is installed on a touchscreen panel connected to a Ethernet port that can be connected remotely at any machine point . Alternatively, the user interface can be built directly on the machine PC, if present.
The camera can be positioned on the pusher, as shown in the picture, or in a fixed position behind the pusher. In both cases it does not interfere with the machine and it is able to collect the images at the different various layers depths. If the position is fixed , a special unwarping algorithm compensates the perspective distortion

Learning a new recipe

In Figure 2 is shown the user interface at the moment when the layer is taken as reference. The grid rows and columns number is set by the user, providing a great flexibility for future applications. The single box size is automatically recalculated. It can also manually change the margin with whom the system can identify the case when it is not perfectly within the box edges, as shown in Figure 3.

Technical features

- Up to 8 layers of cartons
- Ethernet interface
- LED illuminators
- Teleservice
- 4 digital inputs
- 2 digital outputs

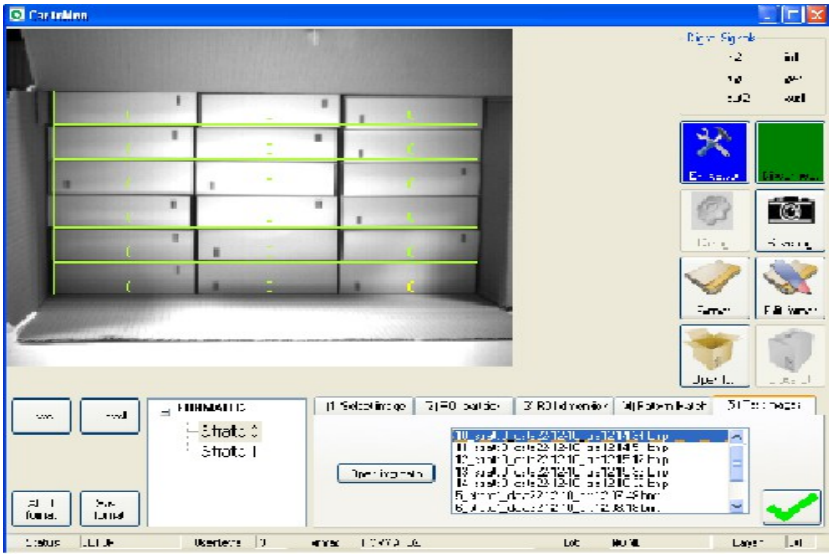


Figure 2 –Interface and reference sample

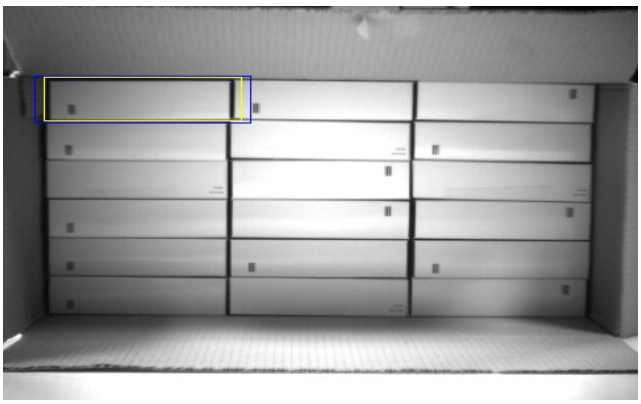


Figure 3 – Resizing the tolerance

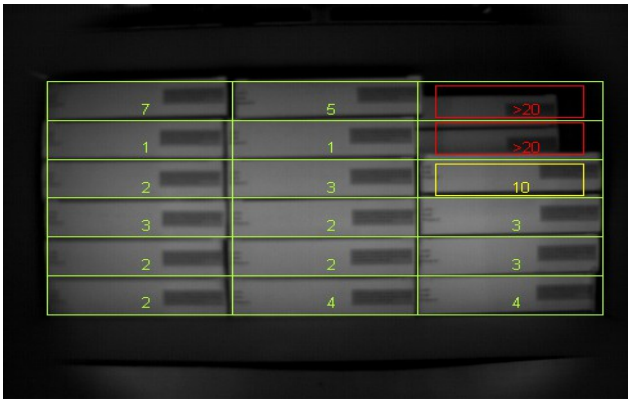


Figure 4 – Cases seen in the previous layer

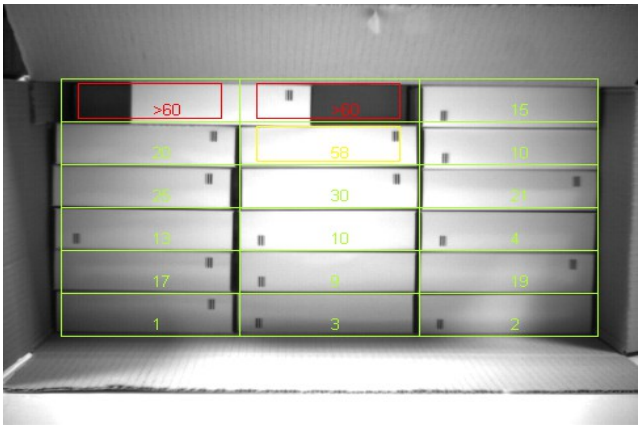


Figure 5 - A case partially occupies two positions

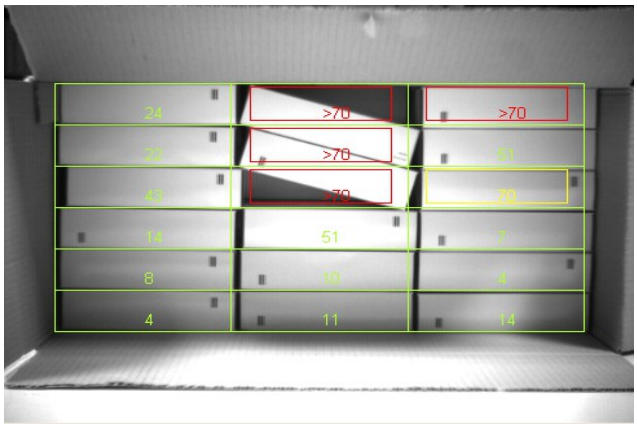


Figure 6 – A missing case and two oblique

This allows to handle even cartons whose dimensions are few centimeters greater than those of the compacted boxes.

System Features

The previously stored format recall is achieved through ethernet interface.
Within each grid section, the boxes presence is evaluated by assigning a score in correspondence with the sample stored; the system generates an alarm if the score exceeds a threshold.
It's also possible to certify the machine production on the disk storing the boxes contents images.
This page shows some incomplete cartons cases that may occur during the filling process.
In Figure 4 is shown two missing elements case that reveal the lower layer boxes. Figure 5 relates to a situation in which a case is displaced and partially occupies two positions. Another typical case, given by two elements partially fallen which occupy three positions due to a missing, is presente shown in Figure 6.

Features

- Secure Access password levels differentiated by the various Operator types

- Acceptance threshold variable manually

- Camera installed indifferently on a fixed component or the Pusher

- System resistant to light variations caused by the aging of components thanks to a compensation algorithm brightness

SPECIALVIDEO
Sistemi di visione
s.s. Selice n 42/C 40026 Imola (BO)
Tel. 0542 641114 Fax 0542 640460
E-Mail:info@specialvideo.it
web:http://www.specialvideo.it/