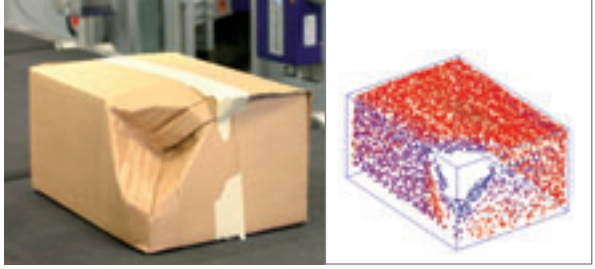

VITRONIC
machine vision people

VIPAC D2 - Automatic Contour Inspection and Recognition of Deformations

Reliable, automated storage processes using laser-based volume measurement and contour inspection

A countless number of goods in cartons with different measurements are delivered every day to distribution centers operated by retailers, mail order companies, logistics and industrial companies. If storage of such cartons in high rack warehouses is done automatically, damaged cartons, i.e. those with bulges and dents need to be sorted out at incoming inspection by using an automated contour inspection. If this is not the case, malfunctions of the automatic warehouse technology can result and the goods throughput declines.

VIPAC D2
- measures the volume of cuboid and irregular objects inline
- provides maximum measuring accuracy
- detects defects on five object sides
- offers volume measurement and simultaneous defect detection
- offers combinations of different functions

The volume measurement system VIPAC D2 from VITRONIC allows the automatic contour inspection of cartons thus providing an optimum basis for the trouble-free operation of warehouse technology and high throughput in distribution centers. Inline and with throughput speeds of up to 3m/s the system captures the measurement and contours of the transported items up to a package size of 2500 mm x 1000 mm x 1000 mm (L x W x H). In doing so, the system captures and measures cuboid and irregularly shaped objects in any rotational position along the conveyor sections.

VIPAC D2 uses lasers to set several thousand measuring points per object (point cloud) and uses these points to calculate length, width and height as well as the volume of each carton. Along with determining the volume, an additional software function for the contour inspection makes it possible to capture deviations from the ideal carton shape such as bulges and dents. To achieve this, the smallest enclosing cube is calculated for the carton and used as a basis for recognizing deformations.

Laser-based measurement:
VIPAC D2 uses the method of time-of-flight measurement: The sensor emits a fan-shaped laser beam wich is reflected by the object. The time it takes for the laser beam to arrive back at the sensor is measured. From this measured time, the speed of the light and the beam displacement, the system calculates the distance to the object. By means of a movement of the conveyor, the object passes under the scanner and a 3-D image is obtained.

VIPAC D2 inspects the contours of a damaged carton and generates the corresponding volumetric data (point cloud).

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