On-camera 3D laser triangulation for web inspection in real-time

By courtesy of digMAR GmbH

The Austrian company digMAR GmbH, a supplier of customer-specific system solutions, has decided to use NET´s GigEPRO cameras with integrated real-time image processing for the carpet-cutting machines of its customer KURIS. NET´s Open Camera Concept® allows customers to implement their own algorithms directly in the camera for unique vision solutions.

Application

The test object is constantly moved under the camera laser system, generating a large number of 3D profiles, which form a single, complete three-dimensional reconstruction of the object accurate down to sub-pixel level.

Challenge

Due to the extra-wide web (>4 m) and fast inspection speed (50 m/min) conventional image processing solutions are not capable to process the big data streams in time on the PC.

Solution

The Open Camera Concept® allows a considerable reduction of data to be processed by the PC for real-time quality control. Thus, computational intensive tasks like 3D laser triangulation can be executed in real-time.

Results

- Real-time image processing enabled
- Significant scalability of the application
- Security of proprietary algorithms in the FPGA
- Cost-effective improvement of system architecture
- Future modifications to the application possible through the Open Camera Concept®: detection of external and internal contours, holes, material height and height errors.

"The unique benefit compared with conventional equipment and cameras is scalability, as multiple GigEPRO cameras are used for real-time applications. This enables high-resolution images and a relatively large object width," says Dietmar Götz, managing director of digMAR.

Interested in our customer´s application? See here for more: www.digmar.at