Dear Readers,

There is one date in the year a specialist in the industrial vision market can hardly miss: The VISION. From November 9 till November 11, this fair again takes place in Stuttgart – and again, the organizer expects professionals from all over the world to give you comprehensive information on the trade fair for machine vision and the many innovations in the industry. In this newsletter, we have compiled what you will be able to see there. We also supply you with some information on the solutions offered by exhibiting companies, especially the ones already in use all over the world. Maybe you are looking for a solution to a similar problem? Just check their booths – we have provided the relevant information above and below the articles.

Enjoy reading our newsletter,

The INSPECT team

Decoration Goes Digital

Printer Labels Food with Industrial Vision

De Grood Innovations has invented a printer for food manufacturers: The FoodJet printer is designed to accurately deposit a variety of thick food materials such as frosting, yogurt or sauce onto food substrates. The system's series of pneumatic membrane nozzle jets deposit small drops onto the moving food products. These drops then form a digital image in the shape of a decoration or a surface fill.

Decorating requires higher resolution and smaller nozzle (droplet) size while filling can be done using big drops and lower resolution. The FoodJet printer has a flexible, modular architecture that can be configured to any production process. This allows for a vast number of decorating and filling options. Changing the angle between the printer head and movement direction of the conveyor allows the resolution to be set. Using heads behind one another permits "multicolor" printing, where colors are applied in different layers on top of each other. Placing heads next to each other allows for a wider working. While the physical placement of the printer head offers a lot of possible configurations, other variables like nozzles, pressure and dispensing time also increase the printing possibilities. The printer needs little maintenance, is easily cleanable and very cost-effective and therefore suited for bakeries and manufacturers of ice cream and milk products. The printer has an option for machine vision – without it, bakery products could not be prepared. The Vision System determinates position and size.

Very Flexible

Flexibility is an advantage of the vision system, which is based on a Matrox Iris GT smart camera. The application was

VISION 2010
Hall 4 Booth C18

developed with Matrox Design Assistant, an integrated development environment that is bundled with the camera. The software allowed De Grood to create a flow chart of the application instead of coding programs or scripts. This eliminates the need to program in any standard programming language like Visual Basic, C, C++ or C#.

www.matrox.com

The Egg Inspector

Quality Control for Hen's Eggs

VISION 2010

Hall 4 Booth A75

Some 95 billion eggs are consumed in the European Union per year. This tremendous quantity as well as the strict quality criteria no longer allows for manual inspections. Such a highly sophisticated task can only be tackled by very powerful image processing systems and industrial-grade high-tech applications.

For absolutely secure egg detection, industrial image processing needs to solve several problems before being able to provide unrestrictedly reliable results.

First, a number of reference eggs are drawn upon to define the 'Golden Egg,' which serves as a benchmark egg for image processing. The system must be able to detect the following anomalies and variations from the 'Golden Egg,' variations which themselves can vary from one country to the other: Soiling of the egg's surface with feces, egg white or yolk, cracks in the shell and dents as well as anomalies with regard to the surface of the egg and any potential turbidity of the egg.

Spectral Analysis

To determine the weight, the size of each individual egg must be determined, in order to calculate the weight on the basis of this data. Asentics image processing systems are used on conveyor systems around the world to inspect and qualify up to 300,000 eggs an hour. Depending on the conveyor system, this mammoth task calls for the implementation of 24 cameras. In 150 ms, all relevant errors are securely detected. Brown eggs are a special problem: strongly varying shades of brown and colored spots may not be detected and identified as soiling. For this, Asentics makes use of spectral analysis. The eggs are illuminated with a respective form of light. The natural fluorescence effect of the egg is used to suppress the pigmentation. The light covers up soiled parts of the egg and these are reflected as dark spots on the camera image. In addition to an all-encompassing surface inspection, the eggs are precisely weighed via size determination and sorted and classified by grade – depending on the system up to 3,000,000 times a day.

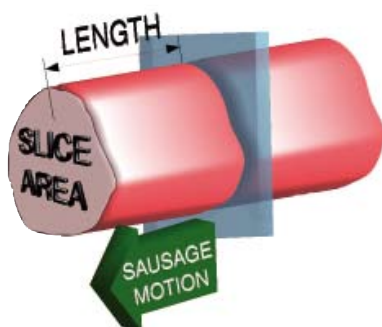www.asentics.de

Cutting Sausages

A New Approach to 3-D Imaging for Accurate Volume Measurements

VISION 2010

Hall 4 Booth C51

A new approach to multi-camera 3D imaging is set to make a big impact in accurate volume measurement for irregular shaped objects such as sausages in the food industry.

Stemmer Imaging in the UK has proved the possibilities with a sausage measuring and slicing system. In principle, the measurement method for the volume of a body is straightforward: measure the cross sectional area of the product as it moves along a conveyor belt and multiply it by the length to give the volume. When the appropriate volume has been measured, a slicer can be activated to cut the sausage to size. Since a sausage is not uniformly cylindrical, the more cross-sectional 'slices' that can be measured, the more accurate the volume measurement. Since only the surface profile can actually be seen at any point along the sausage, the cross-sectional area must be calculated using measurements of the profile. The solution for irregular shaped objects (sausages, for example) is to use a three camera/laser system approach to make a measure of the area. In order to make this possible in practice, two conveyor belts are used. The gap between them allows the cameras and lasers a clear line of view of the sausage as it passes from one conveyor to the next.

Three Cameras

Whilst this seems straightforward in principle, the challenges are to put all the 'slice' points into the same reference coordinate system in order to obtain a circular slice, and to cope with "overlapping" areas in order to avoid "double counting" in the computation. The overlap occurs because sections of the perimeter are visible to two cameras at the same time. Calibration is achieved using a specialized calibration piece, precision machined from stainless steel, which is imaged on the conveyor belt in the same way as the sausage itself. When the calibration parameters are applied to each of the three camera-laser sets, the reconstructed points for the measurements on the perimeter of the sausage will be put in the correct place. The points can then be sorted to eliminate overlap and prevent the possibility of double counting.

www.stemmer-imaging.com

LENGTH

SLICE AREA

SAUSAGE MOTION

VOLUME = SLICE AREA × LENGTH

Tomato Soup at Call

Vision System Inspects Unlabeled Cans
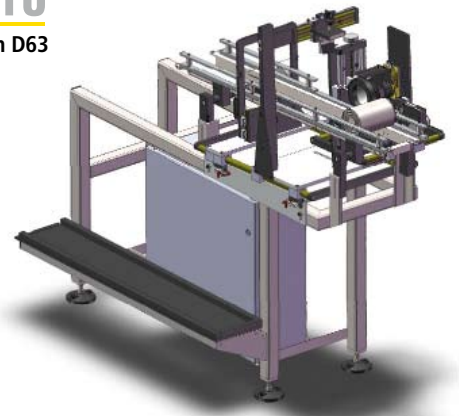
VISION 2010

Hall 4 Booth D63

Producers of canned foods typically make a large volume of a particular product, such as tomato soup, then store the cans in a warehouse without labels while waiting for orders from customers.

The cans are labeled just before shipment. The cans go by at a speed of one every 60 ms, so conventional manual inspection is not possible. The only known effort at applying machine vision to this problem used a camera connected to a frame grabber board on a computer. Its weakness is that the specialized hardware is not designed for use in a factory environment. The cameras and frame grabber boards are susceptible to heat and dust.

Under Control

A new approach by Matrix Technologies utilized recent advances in vision system technology to develop a better approach to brightfield automated inspection. The key to the new approach is the use of the Cognex In-Sight 5600 vision system to inspect the product codes against the bright can background at a speed of 1,000 products per hour. With this application, the ability of PatMax tool is used. Rather than reading individual characters the application is configured to simply look for an image that matches the three-digit product code. A new product code can be configured simply by putting a can with the new code in position to be viewed by the vision system and positioning a rectangular box around the product code. From that point, the vision system will detect that product code even if it is in a different position or at a different angle as long as it is in the field of view. This approach is much simpler, more robust and more economical than the machine vision technology used on this application in the past.

www.cognex.de

The Images of the Industry

VISION 2010 from November 9 till November 11 in Stuttgart

Waiting is over – at last, all friends of machine vision again can enjoy developments and innovations for three days.

This year, the fair of all fairs for those who work in the machine vision market will take place in Stuttgart again: VISION 2010 will open early in November at Stuttgart Exhibition Centre. The entire international who's who in the machine vision industry will present their innovations at VISION 2010: world market leaders and small, highly specialized companies, component manufacturers and system integrators. As in the past, special attention will be paid to systems, solutions and applications in addition to components. What role is played by machine vision in recycling? How are products inspected and classified at high speed and in changing light conditions? What state-of-the-art system solutions and machine vision applications are available in different industries? Visitors will obtain answers to all these questions during the exhibition.

General Program

Visitors not only can come to see the exhibitors' booths for information on the latest developments, an attractive general program has been organized on top by Messe Stuttgart. The Application Park, where the complex interplay of image processing, handling technology and automation will be shown, takes place for the third time. The VISION Academy offers free entry-level seminars for newcomers in the imaging industry, and at the special exhibition "International Machine Vision Standards" visitors will learn how standards will make the application of machine vision easier.

www.vision-messe.de

VISION Academy

For newcomers of the machine vision industry: On all three trade fair days, the VISION Academy offers free seminars for beginners. Therein, system and solution providers present examples out of the industry and aim at making machine vision solutions more transparent.

▶ **East Entrance (opposite the VIP Lounge)**

VISION Integration Area

Sponsored by INSPECT

For those who look for customized solutions: Applications for different branches – from automotive industry to mechanical engineering, from food industry up to medical technology – are presented at the VISION Integration Area. Just follow the yellow carpet in hall 4 and discover the manifold solutions for your industry.

▶ **Hall 4 Booth A74–E50**

Expert Panel

For visitors who want to know how machine vision protects our environment, an expert panel on "Green VISION – Driving Factor for a Green Future" takes place on the second trade fair day. Five experts report in 10-minute impulse lectures how machine vision solutions help to preserve resources and to increase energy efficiency.

Sponsored by INSPECT

▶ **Hall 6 Booth A81**

Application Park

For those who playfully learn: On an area of 200 m², playmobil figures will be tested thoroughly. In 10 modular testing and machining centers, the figures pass color recognition, inspection on scratches and geometrical measurement. Finally, a housing-free robot hands the packed playmobil figure over to the visitor – to take home as a souvenir.

▶ **Hall 4 Booth A75**

Industrial VISION Days

For those with curious minds, the VDMA industrial machine vision again organizes the Industrial VISION Days. On all three days high-quality information is offered. In special lectures, state-of-the-art technology is described, standardization efforts are picked out, but also innovative and practical solutions will be shown.

▶ **Hall 6 Booth A81**

Robocup

Machine vision in an entertaining way: This is possible with the autonomous football robots from the Dutch University Eindhoven. At the VISION, they will pit against each other in a game of „two against two" or during penalty kicks.

▶ **Hall 4 Booth E32**

Special Show International Machine Vision Standards

Learn how standards make it easier to use machine vision, ask experts, talk to developers and see standards being applied in palpable applications.

▶ **Hall 6 Booth B73**

Venue:
Messe Stuttgart

VISION 2010

Date:
09.11.–11.11.2010

Opening times:
daily from 9.00 to 17.00

Admission:
one-day ticket (including VVS) € 25, reduced admission ticket € 15, students, pensioners, military and civil service, severely disabled (with ID) (including VVS), season ticket € 40

Internet:
www.vision-messe.de

Organizer:
Stuttgart Exhibition GmbH
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NEW STUTTGART TRADE FAIR CENTRE

Um diesen Inhalt anschauen zu können, benötigt Ihr Webbrowser das aktuelle Flash Plugin. Bei Bedarf hier kostenlos http://www.adobe.com/de/products/flashplayer/ herunterladen.