MACHINE VISION FOR SAFETY & SECURITY

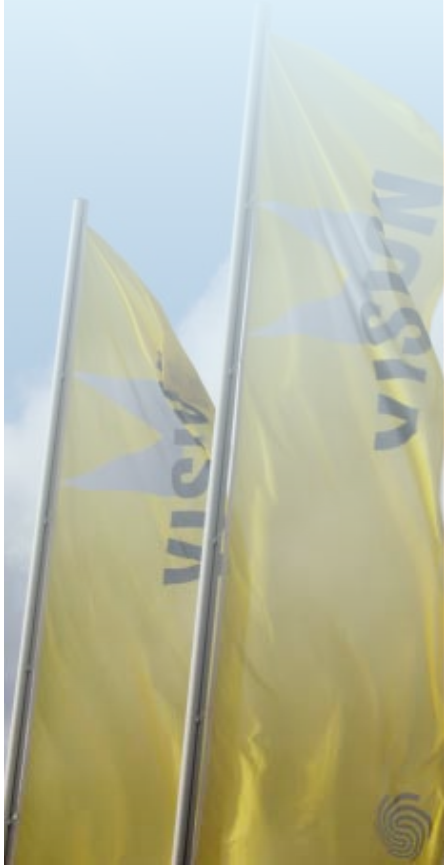
INSPECT's Branch Newsletter for VISION 2010 | September 2010

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



No Entry

IP Cameras Keep an Eye on Production Facility in Croatia

The German company Haix Schuhe GmbH has been developing special footwear for firefighters, police, military personnel, and hunters since 1948. For their new production facility in Croatia, Haix Obuća was looking for a flexible, high-performance video surveillance system. For indoor and outdoor surveillance of the production facility, the cameras had to provide the ability to adjust to varying lighting conditions from very bright during the day to dim at night.

Haix Obuća also needed motion detection functionality that would help prevent break-ins and property damage. Bandwidth consumption was an additional concern, requiring the video surveillance solution to have specific compression capabilities while still delivering high-quality images. This combination of requirements pointed to an IP-based video surveillance solution.

Solution and Benefits

Haix Obuća uses two different Basler IP camera models. For indoor use, Haix Obuća decided on Basler BIP-640c cameras that can automatically adjust the iris opening, exposure time, and gain in response to changing lighting conditions.

To allow for outdoor surveillance, even at night with almost no external light available, Haix Obuća uses Basler BIP-640c-dn cameras with true day/night capability. These cameras are equipped with a mechanism that places an IR cut filter in front of the sensor in day mode and removes the filter in night mode. This allows the cameras to correctly represent colors using the visible light available during the daytime and to produce high quality black and white images when there is only IR light available at night. To protect the cameras from dust, moisture, and extreme temperatures, they were placed in protective housings. All of the cameras are connected to a central monitoring station via an Ethernet network. Basler IP cameras each have the ability to transmit up to three image streams. All of the streams can be encoded as motion JPEG, and one of the streams can also be encoded as either MPEG-4 or H.264. On each stream, the user can adjust the output scaling, frame rate scaling, AOI, and encoder mode to lower the amount of bandwidth that the camera is using.

www.basler-ipcam.com/

Caught on a Camera

New Generation of Traffic Enforcement System Is Machine Vision Based

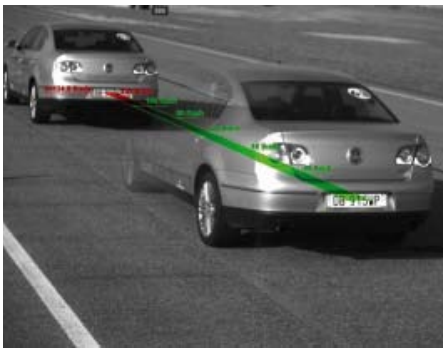
VISION 2010
Hall 4 Booth D33

Italian traffic control company Kria developed and patented T-Exspeed. T-Exspeed is an innovative and fully automated system that entirely relies on digital machine vision cameras and computational stereo software algorithms to track and detect traffic violations.

T-Exspeed operates without the use of external sensors and is able to detect multiple traffic violations such as excessive speed, red light violations, forbidden left or right turns directly from images taken by high resolution digital industrial cameras that repeat the real-time stereo process 24/7. The system can measure vehicle speed up to 300 km/h and track many vehicles in parallel (up to a three-lane footprint), in both directions.

3D Real-time Detection

The original T-Exspeed system is based on three Prosilica GC cameras while the newer and slimmer version, T-Exspeed 2, relies on three board-level Prosilica GB cameras. The stereoscopic set-up allows two GB2450 monochrome cameras to compute the speed and trajectory of each passing vehicle by simulating depth perception and analyzing the distance between the sensors and the vehicle. The vehicle's speed results from the distance covered between two images. The third camera, a color camera, is programmed to capture a shot of a vehicle when a defined traffic violation occurs as a legal evidence document. T-Exspeed is already implemented on highways and metropolitan areas in Italy and has been approved by the Italian Ministry of Transportation. The average certified error rate is less than 1% on speed in the 20–240km/h range.



www.alliedvisiontec.com/emea

Keep in Sight

Intelligent Camera Systems for Security

VISION 2010
Hall 4 Booth C72

Video surveillance systems are in usage worldwide around the clock. London for example is nearly seamlessly video monitored by CCTV cams at strategic locations.

The recording technology has improved consecutively over the years in regard to resolution and range with HDTV and high dynamic range cameras nowadays. Many systems are available on the market, which operate under rough weather conditions and in half light. The video surveillance is done by security staff or is constraint to video-recording. The ever increasing numbers of CCTV installations demand intelligent devices which self-decide, whether an acute hazard situation is apparent and an emergency signal is to be delivered to the police or the fire brigade.

Watchdog

The intelligent camera has to be aware of the situation. A person unconsciously perceives other persons and rates their actions. A computer can not do so. A first attempt is to classify people by their eyes, their faces and their postures. This is actual research and development in the realms of computational neuroscience and computer vision. In a first step Fraunhofer IDMT developed a real-time calibration-free eye tracker system. It consists of a simple stereoscopic optical system with integrated electronics and intelligent pattern recognition with lens, CMOS sensor und field programmable gate arrays with modest complexity. The method is based on a bio-inspired contour follower (fig.). The system is consequently expanded to more complex tasks like the action script "person moves to a house."

Due to the integration into the camera system, there are no additional requirements in relation to the camera size. Forecasts show that the market for intelligent video surveillance systems will develop dynamically.

www.idmt.fraunhofer.de

A Safe Port

Calais Installs Thermal Imaging Cameras for Security and Surveillance

VISION 2010
Hall 4 Booth D74

Being the major port between mainland Europe and the UK, a lot of people try to use the Port of Calais to enter the UK illegally.

"We are trying to prevent that these people access one of the ferries that daily go to the UK," explains Hervé Couret, Port Facility Security officer and Manager of the Security Department. "Not only because it is illegal to do so, but also because when they are trying to do this, they often bring themselves into great danger and can be killed in an accident. A harbor where giant ferries are going in and out on a continuous basis is a dangerous place to be swimming or floating around in a small rubber boat, particularly at night."

A Secure Place, Day and Night

"Since we needed to have a system that could give us a clear image of the situation in the darkest of nights, in all weather conditions, we opted for thermal imaging," explains Couret. Today, thermal imaging cameras can be equipped with uncooled microbolometer detectors that provide excellent range performance. Not only are they a lot less expensive than cameras with a cooled detector. The fact that they do not contain any moving parts considerably reduces downtime and maintenance costs and increases their life cycle.

"We mounted the two SR-50 thermal imaging cameras on a standard pan/tilt mechanism. In addition, they are mounted on a pole so that they can easily overlook an entire area. Thanks to their range performance, we can overlook the shore line from where people try to cross the Channel illegally."

Easy Integration

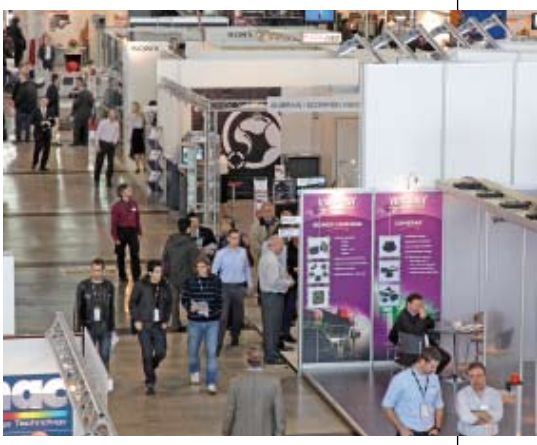
"We completely integrated the SR-50 cameras into the TCP/IP network. Just like all other cameras in the network, the thermal imaging cameras can easily be manipulated with a standard joystick."

www.flir.com/gb/

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 2010 – Highlights

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

Date:
09.11.–11.11.2010

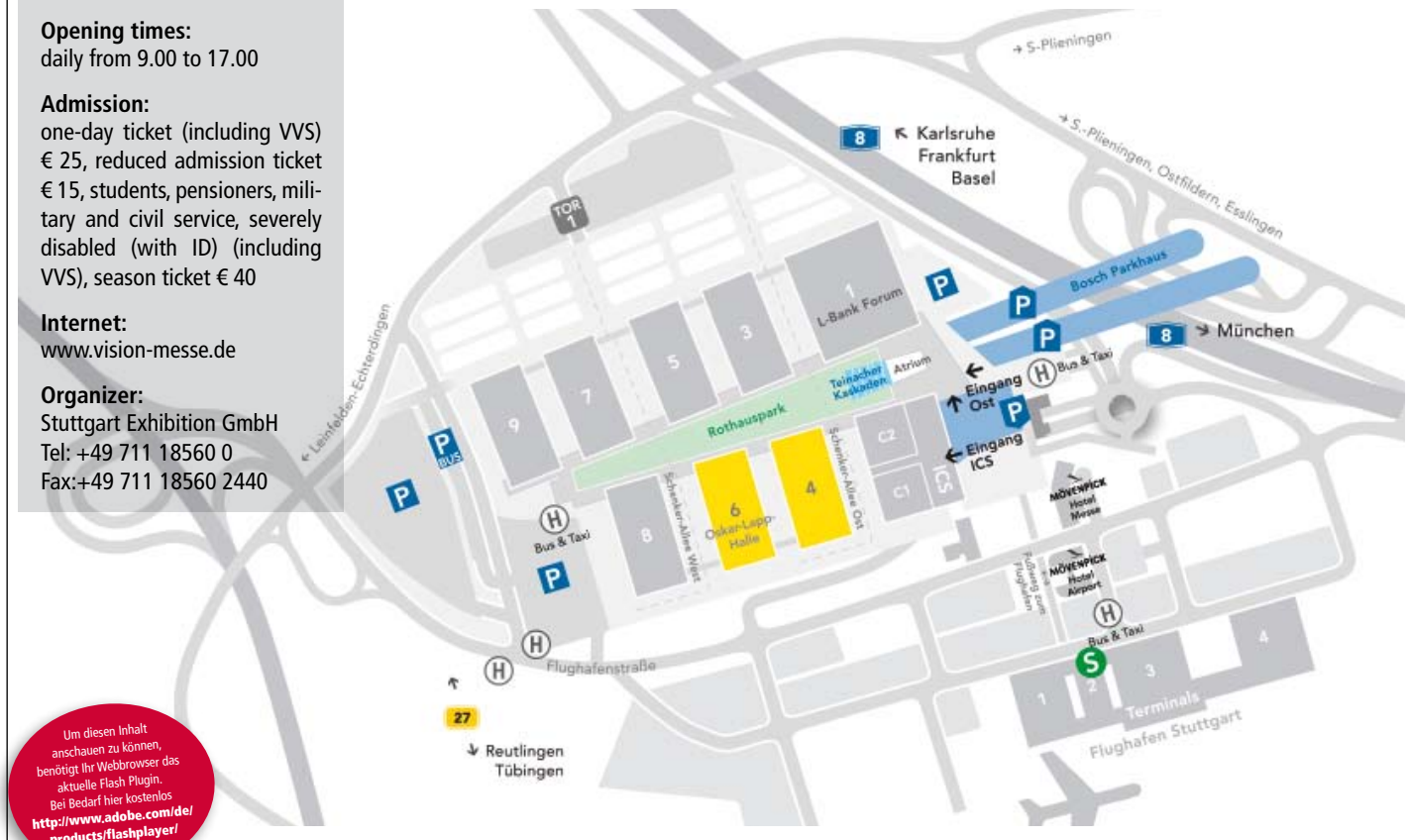
Opening times:
daily from 9.00 to 17.00

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
Tel: +49 711 18560 0
Fax:+49 711 18560 2440

NEW STUTTGART TRADE FAIR CENTRE



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