EN

MOBOTIX References

The HiRes Video Company

MOBOTIX

Complete HiRes Video Solutions

high-resolution, digital & cost-effective recording

With an excerpt from the product portfolio and information about the innovative MOBOTIX technology

01/2011

www.mobotix.com

HiRes Video Innovations

The German company MOBOTIX AG is known as the leading pioneer in network camera technology and its decentralized concept has made high-resolution video systems cost efficient.

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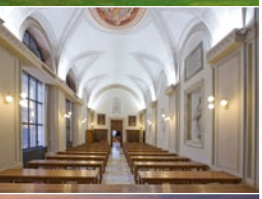
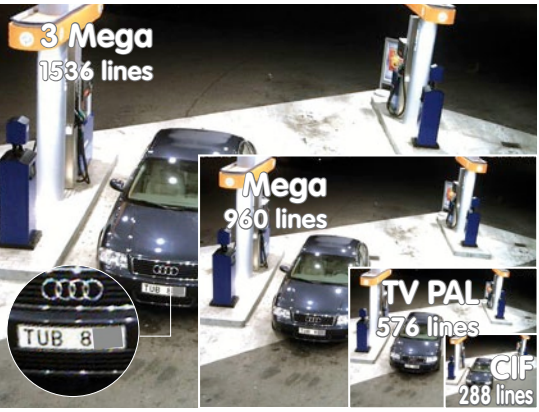
Content



The MOBOTIX Concept

Was Somewhat Out Of The Ordinary…



HiRes Video Innovations And Technology Leader

The German company MOBOTIX AG is known as the leading pioneer in network camera technology since its founding in 1999, and its decentralized concept has made high-resolution video systems cost efficient.

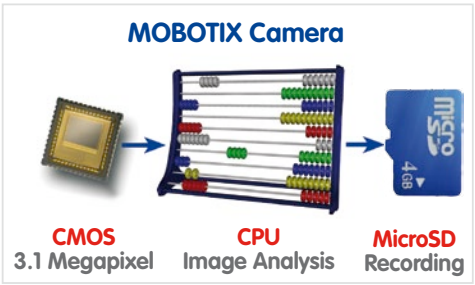
MOBOTIX has been producing megapixel cameras exclusively for many years now and is regarded as **the global market leader for high-resolution video systems**.

Why High-Resolution Systems?

The higher the resolution, the more accurate the detail in the image. With analog technology, a recorded image generally has no more than 0.1 megapixels (CIF). **One single MOBOTIX camera with 3.1 megapixels records around 30 times more detail**. As a result, larger image areas with up to 360° allround views are possible, thus reducing the number of cameras, and therefore the costs. For example, four lanes of a gas station can be recorded with one MOBOTIX camera instead of four conventional cameras.

Disadvantages Of The Old Centralized Standard Solution

Usually, cameras only supply the images while the processing and recording is done later on a central PC using expensive video management software. This traditional centralized structure has many limitations, since it requires high network bandwidth and the PC processing power is not enough for several cameras. An HDTV MPEG4 film already puts considerable strain on a PC, so how can it be expected to process dozens of high-resolution live cameras? **Traditional centralized systems are therefore less suitable and unprofitable when compared with high-resolution systems due to the high number of PCs needed**.



Network Video

MOBOTIX has redefined video. Whether on the Internet, in traffic management, building surveillance or banking environment, the MOBOTIX camera is connected to the network like a printer and live and recorded images can then be retrieved from any PC without installing any software.

… Is The Benchmark Today

The Decentralized MOBOTIX Concept

Unlike other systems, **with the decentralized MOBOTIX concept, a high-speed computer** and if necessary, digital **long-term memory (MicroSD Card)** is built into every camera, providing several days of recording time. The PC and the video control center now serve only for viewing and controlling the cameras (PTZ), not for analysis or recording. This makes it unnecessary to purchase expensive video management software, as the most important and computer-intensive functions are already integrated in the MOBOTIX cameras.

The Benefits

MOBOTIX video solutions therefore require significantly:

- **fewer cameras** due to the more accurate detail of panoramic images with megapixel technology,
- **fewer storage devices**, because in the decentralized system, 10 times the standard number of cameras can simultaneously store high-resolution HDTV video with sound on one PC/server.
- **lower network bandwidth**, because everything is processed in the camera itself and the high-resolution images therefore do not have to be constantly transferred for analysis.

Robust And Low-Maintenance

MOBOTIX cameras have neither mechanical motors for lenses nor for movement. Without any moving parts, they are therefore so robust that maintenance is reduced to a minimum. The unique temperature range from -30 to +60 °C (-22 to +140 °F) is achieved without heating or a fan at only 3 watts. Since no PC hard disk is required for recording, there are no parts that wear out in the entire video system.

Standardized Network Technology

The networking of cameras incl. power supply is encoded and occurs via a normal computer network and not via video cable. This has the advantage of connecting from anywhere in the world with glass, copper or even wireless access using affordable standard IT technology components.

Innovative Hemispheric Technology

The MOBOTIX ...

Perfect Room Overview

With the innovative MOBOTIX Hemispheric Technology, an entire room can be ideally monitored. For instance, one single, and particularly elegant and discreet Q24 hemispheric camera replaces the time-consuming and expensive installation of several standard cameras. This camera, a world first, is evidence of the MOBOTIX commitment to innovation as the global leader in megapixel video security systems.

High-Resolution 180° Panorama

When several cameras are monitoring a single room, it is difficult to understand the room layout due to the different viewing directions of each camera. This makes it hard to comprehend the overall setting. **The new panorama function of the Q24 delivers a widescreen image of a high-resolution 180° allround view.** High image quality is achieved through the use of a 3.1 megapixel sensor and the new hemispheric lens of the Q24.

- **No blind spots** from wall to wall and from floor to ceiling
- Ideal for securing **a room** or entrance area **with only one camera**
- The hemispheric camera also delivers two (opposite) **double panorama images**
- **Fewer cameras, less cabling, lower costs and more discretion**
- **All objects in view of the observer** – in contrast to a conventional solution with multiple cameras
- High image quality thanks to the **high-resolution megapixel sensor** (**3 megapixel color sensor** or **highly-sensitive megapixel black and white sensor** for low-light conditions)

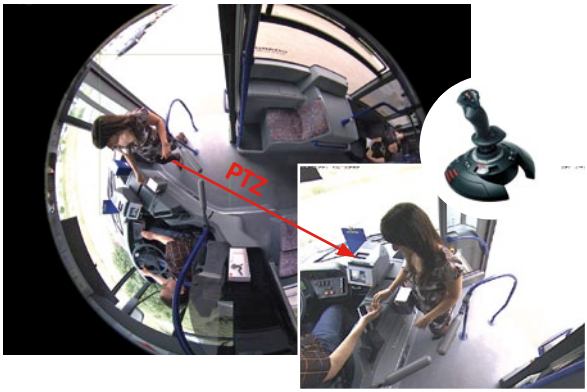
Very Simple Installation

Just install the camera on the ceiling, wall or pole, connect the network cable or wireless module, and you're done! Probably no other camera can be connected more quickly or easily than a MOBOTIX camera. And because fewer cameras are needed, the installation costs drop even further.

... Hemispheric **Camera**

Virtual PTZ – Without Motor

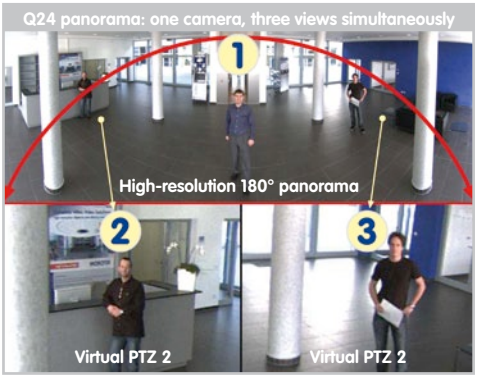
The Q24 also zooms in on details. The image of the hemispheric camera can be continuously enlarged and any image section examined using a joystick, for example. Thus you have a **mechanical PTZ camera without the maintenance or wear and tear**.



While zooming into a section in the live image, a full image can be stored in the recording for later analysis. No PTZ-camera in the world that operates with a motor can do that!

One Camera, More Views

The surround function of the Q24 **(ceiling mounted) immediately replaces four conventional cameras** and shows four different directions simultaneously in quad view on a monitor. **Virtual PTZ is available for each of the four views.** Together with the 180° panorama, the Q24 can deliver two more views simultaneously, making it possible to see the overview and to focus on two scenes at the same time (Display Mode 'Panorama Focus').



Highly User Friendly

The full image from a hemispheric lens (fisheye) is difficult to analyze. MOBOTIX solves this problem by straightening the uneven lines from the camera software perfectly already the live image. The user PC does not experience any additional strain as a result of this process, as image correction and generation of all desired image views takes place in the camera itself. Thus it is possible to display a large number of panoramic cameras simultaneously on a single PC.

Software Included

With MOBOTIX, the software for controlling the camera and searching for events can be used at no charge. You can easily control the video system from any standard PC. This even works worldwide via a DSL Internet connection.

Innovative Technology

The Superior MOBOTIX ...

MOBOTIX Storage Concept Without Bottlenecks

These days, video data is normally pre-processed and stored centrally on a PC or digital video recorder (DVR) using video management software. Video and audio streams from all installed cameras are directed to this central device. In this case, using high-resolution cameras often results in data jam. Above all, storage is inefficient, because if the PC has limited computing power, the high-resolution video with a high frame rate must be sent directly to a storage device before it can be processed.

Standard system requires an extra PC including software for analysis and storage

If, like with MOBOTIX cameras, the camera adjusts the image format and the frame rate to the correct values for the specific application (at a gas station, two frames per second are enough for the recording), it relieves the load both of the network and of the recording device (PC, server). MOBOTIX cameras can of course also minimize the recording independent of the live video, and the sound channel is recorded even with video recordings of two frames per second.

No Storage Limit

The decentralized MOBOTIX concept enables the user to save around 10 times the number of cameras on a single storage device because the camera manages the recording itself (on a PC, server, NAS), thus reducing load on the device. For this reason, practically speaking, there is no memory limit for the entire system because theoretically, each camera is able to manage its own terabyte-sized storage device via the network. Another benefit of this concept is the use of affordable, reliable NAS drives that do not require any special software.

Choose Your Storage Location

Every single MOBOTIX camera can be configured to record internally or externally via the network. If necessary, a USB stick can be connected by cable directly to the camera, but on the other side of the wall, where it cannot be stolen.

... Storage Solution

SD Card Memory Reduces Storage Costs

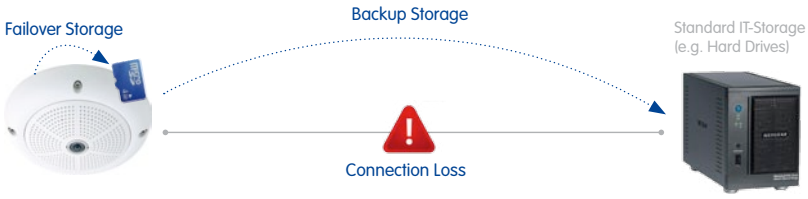
MOBOTIX cameras are also able to store up to 32 GB of video in their integrated memory. Thanks to this high storage capacity and the option of recording only the sequences in which an event occurs, external storage devices such as hard drives are rarely required. This saves on storage devices and network infrastructure and reduces the maintenance cost of mechanical components such as hard drives or fans. The internal SD cards (flash memory) are digital and since they do not have mechanical components, they are maintenance-free.

A single 32 GB SD card has space for:

- 1 week of continuous recording from four gas station lanes
- 2 days of video in TV quality
- 100,000 clips of 10 s each in high-resolution
- 1 million images

Ideal For Difficult Network Conditions Or WLAN

MOBOTIX cameras are ideal for difficult network conditions or WLAN connections because the internal flash storage bridges network failures or bandwidth fluctuations and synchronizes data when a connection is re-established with the external storage device.



MOBOTIX systems are decentralized and secure, even without a PC for storage

The option of backing up the internal memory at preset times (for example, at night) reduces the load on the network and, in many cases, enables shared use of the existing network infrastructure (with Software Update 2/2011).

MOBOTIX Saves Only What Is Necessary

Only relevant image detail (fading out sky, ceiling etc.); only relevant events (e.g. movement in the image); long-term recording only with temporarily increased frame rate during event, but no storage limitations in the MOBOTIX system thanks to modern NAS storage technology.

Innovative Technology

The MOBOTIX ...

Robust, Low-Maintenance Technology

The real added value of increased functionality is reflected in product features such as **long product life and robust construction**. In general, MOBOTIX cameras have no mechanical moving parts. This makes the cameras very resistant to wear and tear and reduces both maintenance costs and power consumption.

Alarm Management And Forwarding

Integrated sensors enable MOBOTIX cameras to recognize when an event has occurred. If necessary, the cameras will respond immediately with an alarm tone and establish a direct video and sound connection to the headquarters or to a security guard.

Absolute Data Security

The security barriers built into the camera are extremely secure. The camera images are only accessible to authorized persons and are encrypted via SSL when they are transferred over the network.

Notification Of Failure

MOBOTIX cameras will automatically report any impairment or failure. This ensures maximum reliability and readiness for use.

Subsequent Searches

Events rarely confine themselves to just one spot. So even when you are looking at an enlarged detail in live mode, it is always a full image that is recorded. And in this full image, any section can always be enlarged later or whenever necessary.

MxControlCenter Software

In addition to the normal control center functions such as displaying and searching for events and reporting alarms, the professional video management software MxControlCenter from MOBOTIX also provides functions for efficient installation and management of large-scale camera systems.

... Added Security Value

Sound Increases The Chance Of Detection

In the event of an alarm, MOBOTIX cameras can turn on their built-in microphones and record lip-synchronous sound. They are therefore an even greater help in analyzing a situation and easing clarification. In addition, the video system can be used for bidirectional communication via a speaker/microphone.

No Problems With Backlighting

MOBOTIX cameras are not affected by glare from direct sunlight. They deliver meaningful, detailed images all the time because the camera software supports easy programming of independent **exposure windows** to cope with specific situations. This makes them ideal for front offices with large glass fronts.

Vandalism-Proof Models

In critical environments or for outdoor use, it is often best to choose **vandalism-proof** MOBOTIX cameras. Their steel housing resists even severe attacks while the camera delivers a perfect picture of the attacker.

Overview: MOBOTIX Security Benefits

- High-resolution, detailed camera images
- Direct connection to the camera in the event of an alarm
- Transfer of images without loss of time
- Greater deterrence due to improved chance of detection
- Secure system with authorized access only
- Authentic video and sound recording (lip-synchronous)

Keeping Track Of All Alarms

The alarm search capability combines various functions that make it much easier to look for events. You can search for events across several cameras with automatically synchronized time tracking. The event that triggered an alarm can be analyzed in more detail in the event view.

Hemispheric IP Video Door Station T24

A Better **Overview** ...

Hemispheric camera *with LEDs*

- Full intercom
- Lip-synchronous sound
- Event-controlled recording
- Outdoor light and doorbell button

Keypad *backlit*

- Keyless entry with transponder or PIN
- Check/leave messages
- Open/lock door
- Modules can also be installed individually

Info module *backlit*

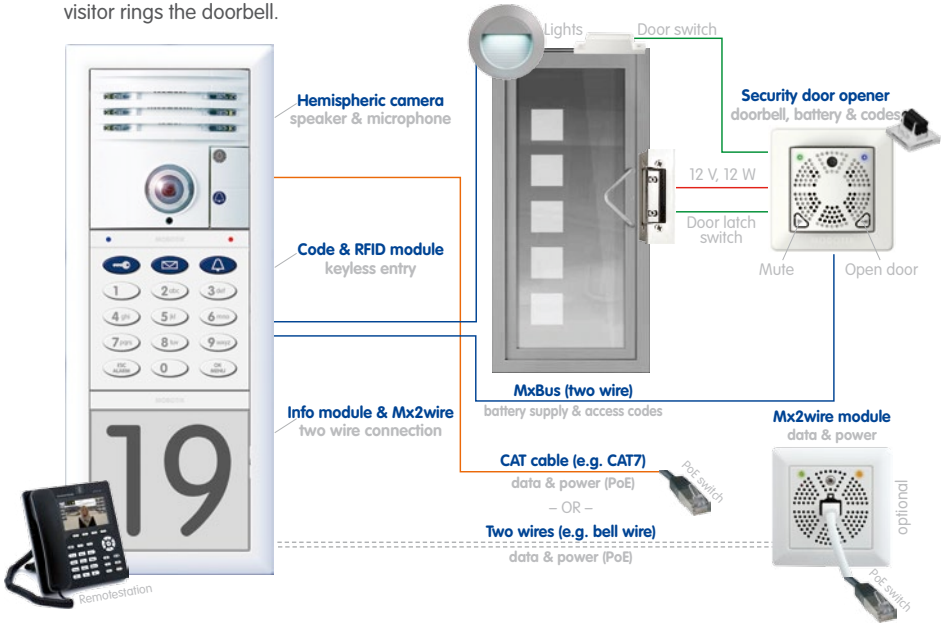
- With **M2xwire** unit (optional)
- Data transfer and power supply via two-wire connection
- Instead of network cable connection
- For two-wire cables up to 200 m

Original MOBOTIX T24 Image – 1280 x 480

... Greater **Security**

NEW: The Hemispheric IP Video Door Station From MOBOTIX

With the IP Video Door Station, MOBOTIX is introducing a new line of products in the area of door communication and access control. This product line supports the VoIP/SIP video telephone standard. The T24 automatically stores video and sound for all events that occur in front of the building if there is movement in the image or if a door switch is triggered, for example, when a visitor rings the doorbell.



The Powerful Complete Video Solution ...

- **Allround view with no blind spots** from wall to wall and from floor to ceiling thanks to hemispheric technology
- **Recording with sound** of all events occurring in front of the door, automatic around the clock
- **Video intercom around the world** using IP phone or computer with remote door opening function
- **Integrated message function** for leaving and playing back messages directly at the door
- **Keyless entry** using PIN code or transponder with intelligent time function
- **Very simple installation** optional without Ethernet cable using two existing bell wires

A Module System Made In Germany

The camera module can be used as a compact basic video door station thanks to the integrated doorbell and light buttons. Modules can be combined in different ways as necessary. MOBOTIX offers solutions for one, two or three modules in flush-mounted or on-wall models.

MxControlCenter

Professional Video Management ...

The **MxControlCenter (MxCC)** is the video management software developed by MOBOTIX. It includes all functions required from a professional security control center. Particularly in combination with the decentralized high-resolution MOBOTIX cameras, MxCC can make full use of its potential. It's a complete security system from a single provider at an unbeatably low total price.

Proven Many Times Over Worldwide

For years, MxCC is being used in projects of all sizes – even with 1,000 cameras and more (for example, Donbass Arena, Ukraine, the University of Singapore).

No Storage Limit, Unlimited Number Of Users

MxCC runs without third-party software, does not require any licenses, supports an unlimited number of users, cameras and storage devices and is completely free of charge.

Individual User Interface

All functions can be managed centrally by an administrator, a group or an individual user in the system.

Simple Installation And Configuration

MxCC runs on any standard PC, automatically finds cameras and storage devices in the network and configures all cameras at the push of a button.

Layout Editor For Real Building Plans

All MxCC functions were designed and developed for the real practical requirements of a wide range of projects.

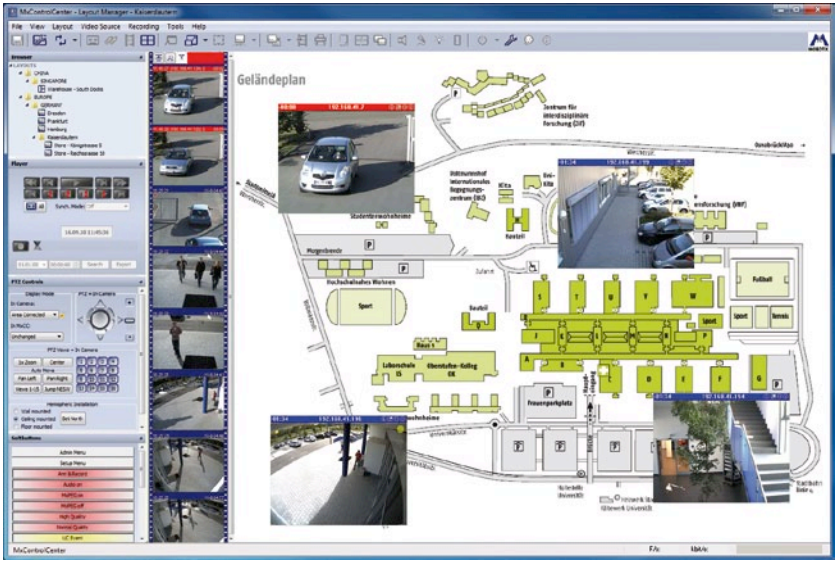
Integration Of Different Camera Types

In addition to MOBOTIX network cameras and door stations, users can also integrate analog and motorized cameras in MxCC.

... For All Applications

With the MxControlCenter video management software, users can integrate **an unlimited number of cameras** at any location and connect them to create a straightforward and powerful video security system with centralized or local, user-dependent operation and evaluation.

This modern program is tailored to suit high-resolution MOBOTIX network cameras and features a **user-friendly interface and camera view**, convenient video search, practical alarm handling, automatic camera integration, video storage on file servers and a useful configuration and update assistant.



You don't have to be a software specialist to set up MxCC. An **installation assistant** guides the way, step by step. MxCC automatically finds all cameras installed in the network as well as cameras that were recently added or deleted and allows the user to configure and remotely operate these cameras, even during continuous operation.

No costs, no risk: Just sign up now on the MOBOTIX website and download MxCC for free: www.mobotix.com > Support > Software Downloads.

Economic Monitor Wall Solution

The thin-client concept integrated into the MxCC is an innovative invention patented by MOBOTIX. For extremely economical, custom-sized monitor walls that can be operated centrally from a single PC without additional software.

Selected MOBOTIX Products

Allround

M24M

from € 598

- **Exchangeable lens camera** for indoor/outdoor use (IP66)
- **3MEGA-resolution** (QXGA, 2048x1536 pixels)
- Exchangeable lenses from Super Wide Angle (90°) to Tele (15°); optional with CSVario or Hemispheric (180°)
- With optional color sensor (1 lux at 1/60 s, 0.05 lux at 1 s exposure time) or with B/W sensor (0.1 lux at 1/60 s, 0.005 lux at 1 s exposure time)
- Microphone and speaker with full audio functionality (VoIP and SIP telephony with video)
- Universal wall/ceiling mount with concealed cabling
- Internal DVR (up to 32 GB), recording without network load

DualNight

M12D

from € 1,098

- **Dual camera** with brilliant image color quality during the day and highest sensitivity at night thanks to t**wo separate image sensors for color and B/W**, for indoor and outdoor (IP65)
- **3MEGA-resolution** (QXGA, 2048x1536 pixels)
- B/W sensor (at night or IR lighting): 0.1 lux at 1/60 s, 0.005 lux at 1 s exposure time
- PIR sensor for motion detection in the dark
- Microphone and speaker with full audio functionality (VoIP and SIP telephony with video)
- Integrated switch functions (3 x In, 1 x Out), RS232
- Internal DVR (up to 32 GB), recording without network load

MonoDome

D24M

from € 448

- **FixDome camera** for flexible mounting, for indoor and outdoor – IP54 (Basic)/IP65
- **Optional vandalism, On-Wall and In-Ceiling sets**
- **3MEGA-resolution** (QXGA, 2048x1536 pixels)
- Exchangeable lenses from Super Wide Angle (90°) to Tele (15°)
- With optional color sensor (1 lux at 1/60 s, 0.05 lux at 1 s exposure time) or with B/W sensor (0.1 lux at 1/60 s, 0.005 lux at 1 s exposure time)
- Internal DVR (up to 32 GB), recording without network load

DualDome

D12D

from € 998

- **DualDome camera with two individually positionable image sensors,** for indoor & outdoor (IP65)
- Simultaneous monitoring of different room areas using two separatly directionable lenses
- **3MEGA-resolution** (QXGA, 2048x1536 pixels)
- 180° panorama (optional with D12Di-180°)
- PIR sensor for motion detection in the dark
- Microphone and speaker with full audio functionality (VoIP and SIP telephony with video)
- Integrated switch functions (3 x In, 1 x Out), RS232
- Internal DVR (up to 32 GB), recording without network load

Network Video

MOBOTIX has redefined video. Whether on the Internet, in traffic management, building surveillance or banking environment, the MOBOTIX camera is connected to the network like a printer and live and recorded images can then be retrieved from any PC without installing any software.

Hemispheric

Q24M

from € 598

- **Hemispheric 360° allround view** for complete room monitoring
- Complete panorama view, ideal for access control
- Simultaneous Quad-display of all four room corners
- Digital continuous pan, tilt and zoom
- With optional color sensor (1 lux at 1/60 s, 0.05 lux at 1 s exposure time) or with B/W sensor (0.1 lux at 1/60 s, 0.005 lux at 1 s exposure time)
- Robust and maintenance-free, without mechanically moving parts
- Alarm function, speaker and microphone integrated
- Perfect design with low installation height, compatible with all D24 accessories
- Internal DVR (up to 32 GB), recording without network load

IP Video Door Station

T24

from € 798

- VoIP/SIP-enabled MOBOTIX door station
- The doorbell triggers a network connection to a video telephone or PC
- Superior overview thanks to the 3.1 megapixel hemispheric camera with vPTZ
- Automatically stores all activities outside the door with sound (triggered by doorbell, motion sensors or electrical contacts)Power supply via network cable or (already existing) bell wire
- Also precisely matches the modular door installation system from SIEDLE
- Modules can be integrated, such as doorbell buttons, motion sensors or lighting controls

MxEasy

€ 0

- Easy-to-use **video management software**, ideally designed for the wide range of functions of the MOBOTIX cameras
- Administration and display of up to 16 MOBOTIX cameras
- Supports decentralized system concept and works with internal camera recording (Internal DVR)
- Simple, quick setup; user-friendly and intuitive operation
- Transparent layout of operating elements; compatible with touch panels
- Ideally suited for small office and home surity environments
- Platform-independent format (Windows, MAC; Linux)

MxCC

€ 0

- Professional unrestricted version, included with every MOBOTIX camera
- High performance with 30 smooth video streams
- Synchronized and simultaneous event search on several cameras
- Image post-processing (contrast, zoom, distortion correction)
- Integration of analog & digital PTZ cameras
- Administration and display of any number of cameras

Standardized Network Technology

The networking of cameras incl. power supply is encoded and occurs via a normal computer network and not via video cable. This has the advantage of connecting from anywhere in the world with glass, copper or even wireless access using affordable standard IT technology components.

Cost Benefits In Every Respect

The Most Important Cost Benefits

1. **Increased Resolution Reduces Amount Of Cameras Needed**
   1536 lines, high-resolution sensors give a better overview and allow monitoring an entire room with just one camera.

2. **Reduced Installation Costs At Any Distance**
   Standard Ethernet connection enables the use of common network components such as fiber, copper and wireless (WLAN).

3. **Intelligent Cameras Reduce The Number Of Storage Devices**
   The decentralized MOBOTIX concept enables the user to save around 10 times the standard number of cameras using just one storage device.

4. **Event-Controlled Image Format Minimizes Storage Costs**
   Automatic image adjustment (frame rate, size) in the case of movement, noises or sensor action reduces bandwidth and storage requirements.

5. **Low Power Costs, No Extra Heating**
   Anti-fogging without heating allows the system to be powered throughout the year using network cable or two wires (PoE standard) and saves on the cost of power cabling.

6. **Backup Power Supply Costs Reduced By 80%**
   Low power consumption, approx. 4 watts, enables year-round PoE (no heating required) with one centralized UPS from the installation room using network cable.

7. **Robust And Practically Maintenance-Free**
   Fiberglass-reinforced composite housing with built-in cable protection and no mechanical moving parts (no auto iris) guarantees longevity.

8. **Software For A Thousand Cameras & Storage Devices Included**
   The right premium operating software for every application: MxEasy for compact video solutions, MxControlCenter for the professional control center.

9. **Unlimited Scalability And High Return On Investment**
   More cameras and storage can be added at any time – even while the system is in use; image format, frame rate and recording parameters can be camera-specific.

10. **Additional Functions And Other Extras Included**
    Sound support, lens, wall mount and weatherproof housing (-30 to +60 °C) (-22 to +140 °F) are included in the camera delivery; microphone and speakers available for most models.

The Most Important Technical Advantages

High-Resolution Digital Image Instead Of TV Quality 1
Megapixel sensor and image processing inside the camera generate sharp images with a higher resolution than HDTV, allowing them to be recognized as evidence in a court of law.

Hemispheric Technology For An Overview With No Blind Spots 2
360° allround view or 180° widescreen image, corrected for perspective; only one camera is needed to view the entire room or train platform without any blind spots.

Bridging Of Recording During Network Failures 3
In-camera data storage (up to 32 GB) can even bridge longer network failures or bandwidth fluctuations (for example with wireless networks).

Professional Software For Systems Of Any Size 4
This control center and recording software, which is free of charge and used in tens of thousands of systems around the world, sets no limits on the number of users, cameras or servers.

Very Low Network Load 5
Efficient video codecs, motion detection and data storage of up to 32 GB in the camera guarantee a very low network load.

No Storage Limit 6
There is no storage limit for the entire system because each camera is able to manage its own terabyte-sized storage device (NAS) via the network.

Sun And Backlight Compensation 7
CMOS-sensor without auto iris, digital contrast enhancement and configurable exposure measurement zones guarantee optimum exposure control.

Day & Night Maintenance-Free 8
MOBOTIX dual cameras with two sensors and digital switching between day and night modes operate reliably with no mechanical components in all lighting conditions.

Simultaneous Recording, Event Search And Live Viewing 9
Live video for multiple users, simultaneous recording and event search possible in seconds from anywhere in the world via a network connection.

Sound And SIP Telephony 10
Lip-synchronous sound (live & recording); every camera is also a video IP telephone compliant with the SIP standard, featuring camera control and automatic alarm calls.

MOBOTIX In The World's Largest Disco

Privilege Discotheque, Ibiza

Difficult sound and lighting conditions

At Ibiza's Privilege Discotheque, 35 MOBOTIX IP network cameras look after the security of the guests. Situated between Ibiza Town and San Antonio, the disco is visited by more than 10,000 guests each day and is officially the "largest night-club in the world" according to the Guinness World Records book.

Spectacular shows, colorful lights and an exceptional sound system create difficult operating conditions that only MOBOTIX cameras can handle. Visitors to the disco from all around the world can safely enjoy the many bars, restaurants, patio areas, gardens and swimming pools knowing that no matter where on the disco premises, MOBOTIX cameras will not miss a thing. The Privilege Discotheque thus offers its guests an unforgettable Ibiza experience with the latest video technology for security.

MOBOTIX Secures World-Famous Soccer Stadium

Parc des Princes Stadium, Paris

New French legislation on video monitoring

The French engineering company Ingenica has been contracted to install a network-based video monitoring system featuring MOBOTIX cameras in the Parc des Princes stadium in Paris.

Home to the French first-division team, Paris Saint Germain, the stadium had already hosted numerous top international soccer games, such as the final of the European Championships in 1984, the third-place play-off at the 1998 World Cup finals, and the UEFA Cup final in 1998 between Inter Milan and Lazio Rome. The stadium was reopened in 1972 after being completely reconstructed, and now has a capacity of around 50,000 spectators.

The new IP video monitoring system will be used primarily to control the crowds arriving at the turnstiles at the stadium entrances. Like at the World Cup stadium in Kaiserslautern, Germany, the system will use the high-resolution D12 and M12 network cameras from MOBOTIX. They will also be used to monitor the stadium's perimeter while a game is in progress, as well as to detect intruders when events are not taking place. In order to ensure that the large volume of video data is stored reliably, a system with MOBOTIX was installed that also satisfies the new French legislation governing video monitoring in public places.

Thus, depending on the nature of application, the systems must offer a minimum image resolution of 704 x 576 pixels (around 0.5 megapixels) and guarantee image enlargement (panning) with detail at a minimum resolution of 90 x 60 pixels. A frame rate of at least 12 images per second is also required. Incidentally, 95% of the systems currently installed in public places in Germany do not satisfy these requirements since unlike the MOBOTIX concept, they are based on an obsolete, 60-year old TV standard.

Abu Dhabi International Airport Decides For MOBOTIX

Abu Dhabi International Airport

Integration of automatic object and face recognition

The project at Abu Dhabi International Airport clearly demonstrates that excellent solutions can be achieved in the security sector using IP video technoloy from MOBOTIX. Along with the high level of detail of the network cameras, the key factors in choosing MOBOTIX products were the low memory requirements and the coverage of the monitored areas with a relatively small number of cameras.

Highlights of the system include integrated automatic object and face recognition, central control, network-wide redundancy against system failure, and secure off-site recording. The system's smart-video capability will be expanded in subsequent development phases.

MOBOTIX Provides Security At A US High School

Jackson High School, Cleveland/Ohio

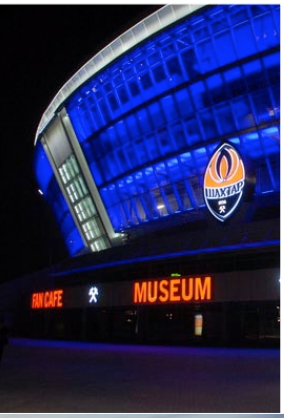
Detailed image recognition and intercom via camera

Jackson High School in Cleveland/Ohio has replaced its obsolete analog video monitoring system with a new digital, high-resolution system based on MOBOTIX cameras, the free-of-charge MxControlCenter, and bi-directional VoIP communication. This has a resulted in considerable savings and now provides previously unattainable image quality both in live streams and with recorded videos.

"We had enormous problems with our old system in trying to clearly recognise students or see particular incidents. The new IP cameras from MOBOTIX record extremely detailed clips and offer an incredible improvement in image quality", says Doug Winkler, Business Manager at Jackson High School. "The closer we can keep an eye on our school, the better we can protect our students and teaching staff. So far, the reaction we have received from the parents has been very positive. They welcome the fact that we have been able to improve the safety of their children at school."

Modern Video Security System In Donezk (Ukraine)

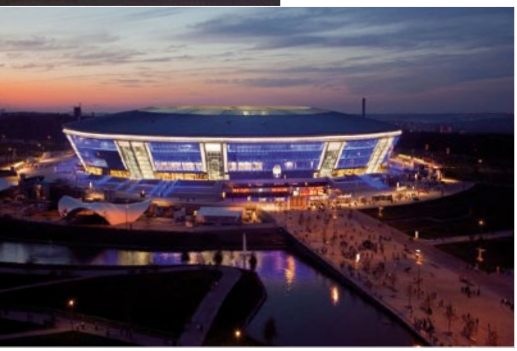
Security In A UEFA-Certified Stadium



The Donbass Arena in Ukraine was opened on August 29, 2009 with a sensational party which was attended by the Ukrainian president himself. This arena was the very first Eastern European football stadium to fulfill the UEFA criteria for an elite stadium and will host an important venue for the 2012 European Football Championship.

The most important factor is always to ensure maximum security for the guests. In an emergency, it would take 8 minutes to evacuate the entire stadium, which seats 51,504. "We want our visitors to feel safe here and to enjoy their stay. For this reason, we rely on cutting-edge security technology," says stadium manager Olexandr Atamanenko. The 528 MOBOTIX cameras have an eye on everything.

This video system will enable security staff to identify every person as they enter or leave the stadium as well as during their stay. It also allows staff to observe and control crowds of visitors at the entrances and exits of the stadium and at the entrances to the stands. Other key areas in which cameras have been installed include the restaurants, the parking lots and the gift shop.



High Resolution, Robust And Reliable: MOBOTIX

"We chose MOBOTIX cameras based on their impressive array of features," explained Sergey Burgela, Chief of Security at Donbass Arena. "I would like to mention the image quality in particular. I can zoom in on a potential troublemaker and I immediately have a detailed image of his or her face that I can send to the police, who can then identify the responsible person."

The cameras enable the security personnel to identify visitors that are known to have caused trouble in the past and arrange for them to leave before the game begins. The video security system also helps security staff to identify offenders even after the offense was committed.

The cameras, which are equipped with high-resolution 3.1 megapixel sensors, not only deliver extremely sharp images, but they are also able to provide a complete view of much larger areas when compared to conventional cameras with lower resolution.

"The MOBOTIX bid required fewer cameras than the offers from other manufacturers," said Burgela. It was also a bonus that we are able to use the existing IT infrastructure. All cameras are supplied with power using PoE switches and they are connected to a network which includes an NAS system with 210 terabyte storage capacity.

The robust, weatherproof design and the lack of mechanical components made another compelling case for the products from Langmeil, Germany. They require neither heating nor fans and need very little maintenance. Because they are equipped with two separate day/night sensors, the cameras deliver clear images around the clock.

And speaking of light sensitivity: The powerful stadium lighting that makes Donbass Arena shine like a diamond at night requires backlight-proof sensors like those that come as standard in MOBOTIX cameras.

Decentralized Memory Solution, Simple Installation

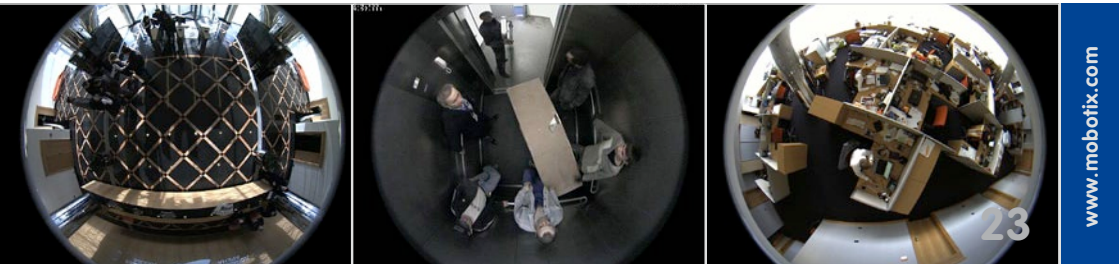
"Above all, it was the decentralized concept that won me over," said Evgeniy Konovalenko, head technician of the security department. Image processing and event control take place in the cameras themselves. This not only dramatically reduces the load on the network, but it also allows users to do everything they need – live video transfer, recording and event search – simultaneously. "We transmit the live video to 42-inch monitors at four workstations and use two 19-inch monitors for searching in the archive," says Konovalenko.

MOBOTIX Even Provides The Software

"We work with MxControlCenter on every one of these screens. This software is very user-friendly, making it easy for the security staff to operate," says the technician. And the incredible thing is: This software is provided by MOBOTIX free of charge along with the cameras and updates can be downloaded quickly and easily online. The professional IP video management system supports the decentralized recording technology of the cameras, which requires only around a tenth of the number of servers needed by conventional systems. "This is another reason why we chose MOBOTIX," said Burgela.

Ukrainian MOBOTIX Partner Wins Recognition

This major project was completed by Unitop, the official MOBOTIX sales partner in Ukraine. The former IT company, founded in 1991, has worked with MOBOTIX on over 50 installations since their first cooperative project in 2008. The team made its case against the competition and won the contract with a comprehensive total concept.



Maximum Security For Courthouse And Jail

Designed by architect James Reilly Gordon circa 1911, the Bergen County Courthouse is a fine example of the Beaux Arts classicism that typifies the civic architecture of the period. Its imposing design reflects the pride and confidence in government that characterized public buildings in the early twentieth century. The Bergen County Jail in New Jersey serves the community as a central reception and processing center for pre-trial male and female adult detainees whose confinement is necessary to ensure a court appearance.

Technology overall is state-of-the-art in the facility, featuring computer control of all inmate housing areas, an integrated perimeter security system, a site-wide duress/panic alarm system and a computerized Control Center. However, the Bergen County Courthouse and Jail had some particular challenges that their analog CCTV cameras simply could not meet. One of those challenges was that these cameras did not offer the level of image quality to identify persons in the holding cells or in the courthouse. In addition, they wanted a more detailed view of the complete area. The jail also needed higher resolution images and cameras that could not only integrate with their network but also open and close doors and gates, survey wider areas than their current cameras, and not be adversely affected by extreme temperature and weather conditions. "We spend the taxpayers' money wisely, so we needed a system that meets all our needs with maximum cost efficiency" says Leo P McGuire, Sheriff of Bergen County. "My teams critically analyzed the market before any decision was made."

After discussions with MOBOTIX, Bergen County officials became convinced that MOBOTIX had the ideal system - in terms of highly intelligent, advanced digital imaging and extremely sturdy camera design - to enable better overall surveillance of both the courthouse holding cell and the interior and exterior portions of the county jail.

Installation

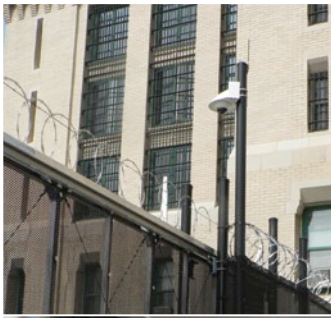
Bergen County purchased 80 cameras, with most of those being used at the jail and the others at the courthouse. With both indoor and outdoor locations, the complete variety of MOBOTIX cameras are on the job. The original estimated amount of cameras was significant reduced by the use of dual lens D12Di cameras and Hemispheric Q22 cameras with 180 degree views.

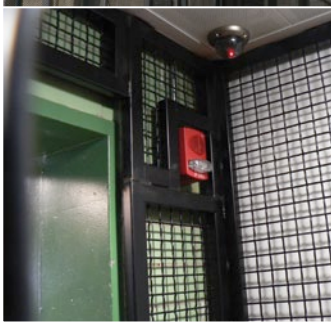
Image Quality

One of the things that impressed Bergen County most about MOBOTIX was the exceptional quality of their video surveillance camera high-resolution images. "We had never seen such clear images from video surveillance cameras," said Phil Lisk, Director of Information Technologies for the Bergen County Sheriff's Office. "Even under very critical light situations, with extreme back light, we are able to see crisp clear images from the cameras in the courthouse and the jail."

Durable Design

Bergen County had particular concerns related to the extreme cold in the winter and how that could affect outside cameras. MOBOTIX cameras are built to withstand all sorts of weather conditions and hostile environments: from -30 to +60 °C (-22 to +140 °F) without additional cooling or heating, allowing Power over Ethernet (PoE) all year round. The fiberglass reinforced and shockresistant MOBOTIX cameras protect the network cable and connections against vandalism as well as severe weather conditions. There is no worry in this case about deterioation due to camera lenses fogging over.





"It was a great relief to know these cameras would not require any additional maintenance in outdoor winter conditions, such as blowers or heaters," said Phil Lisk.

Audio Features

The fact that MOBOTIX cameras have both audio and video features introduces an interactive aspect that is a big advantage for Bergen County. "In a corrections setting, you need to see and hear what's going on, so this works very well for us," said Phil Lisk.

Other Advantages

Because MOBOTIX systems provide 30 times more detail than the average analog camera, one MOBOTIX camera can watch multiple targets and thereby reduce the total number of cameras required. Intelligent, direct storage management on an NAS or fileserver elliminates the need of digital video recorders and reduces the overall cost of storage by a ratio of 10 to 1. For Bergen County, this has translated into a much higher level of safety and security at a much lower cost. In addition, due to the the internal camera ringbuffer overcoming wireless fluctuations, Mobotix cameras are an excellent fit with the wireless mesh system Bergen County uses for some of its outdoor cameras. In this case, cameras set on telephone poles bring the signal back on a mesh network, and can handle up to 25 Mbps of data. "By the way" says Phil Lisk "No other system that I have seen provides this kind of quality with such a low network load."

The World-Famous Vatican Apostolic Library

The Vatican Library ranks among the most renowned research libraries in the world. Its modern history began in the mid 15th Century. Pope Nicholas V resolved to release the Latin, Greek and Hebrew works – which had grown to 1,200 texts during his time as pope – to scholars for consultation and inspection.

Over the course of the centuries and all the way up to the present day, the library continued to expand. It now contains 150,000 hand-written texts, 1,500,000 printed books, 300,000 coins and medals and 100,000 cards and engravings.

The library grants free access to lecturers and researchers from universities and technical colleges, academics preparing their doctorate papers, students authorized to consult the material in the library and researchers who can produce their qualifications in the form of scientific publications. Since July 2007, certain parts of the building have been undergoing renovation and modernization work. Since then, the library has been closed to the public.

MOBOTIX To Monitoring Ancient Manuscripts And Precious Books

On September 20, 2010, the library reopened its gates. As part of the renovation work, the library was equipped with a modern video surveillance system to prevent any unauthorized removal of the collection. The library's management wanted to heighten security in the reference rooms and archives using the best available video technology. In the words of Luciano Ammenti, the library's IT services coordinator:

"It was an incoming bid comparison and the recommendation of Rome-based system integrator Seret Spa that led us to MOBOTIX. Our goal was to gain general and systematic control over any item being used in the reference rooms and over the movement of the people inside the library. Essentially, we wanted to have a perfect control system in all rooms so that we could record all events in the building."

A Project With The Strictest Requirements To Protect The Past

The library's management wanted to finish the installation of the video surveillance system long before the final reopening of the library. Many areas, such as the manuscript cellar, had been monitored for months in advance using video surveillance. A total of 78 cameras were installed at critical points in the library (reference rooms, exits and storage areas). These included eight D24 dome cameras and 70 M12D cameras. It was the innovation and originality of this project that set it apart from other security systems. Together with the RFID technology (Radio Frequency Identification) used in

the microchips integrated into the user's library card and the books, the surveillance system can be used to monitor people according to the books they are using and track their movements inside the library. The 20 MOBOTIX cameras positioned at the library's exits are activated by the motion detection system when people leave the building. This way, it is possible to identify these people and assign them to the correct library card and the books that they are using.

Thanks to artificial intelligence software specifically developed for this project, it is possible to assign the microchip to the corresponding video clip from the camera, allowing the operator to evaluate the recordings quickly and easily using a single search key, for example the book title, the name of the person or the time at which the person left the building.

All images from the video cameras are saved at a computing center for data analysis for a period of one year. This cutting-edge system ensures the security of all volumes in the library and any anomalies can be identified immediately. If a person removes a volume without authorization, an alarm will be activated the same instance the person leaves the building through one of the library's exits. The responsible person at the circulation desk can then evaluate the recording from the camera and inform the security staff as needed.

A Close Partnership Now And Into The Future

Luciano Ammenti is enthusiastic: "We are incredibly satisfied with this project because we now have a video surveillance system that really stands out from any of the other systems in use today. The IP megapixel technology from MOBOTIX delivers excellent quality recordings.

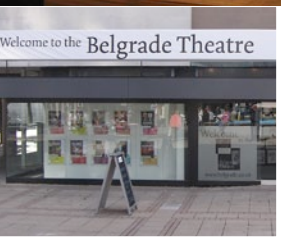
For us it was important to have clear and distortion-free images so that we could recognize individual faces and easily identify the people in the library. With the D24 camera mounted on a pan/tilt head allowing 360° tilting, this video surveillance system offers us flexible live video control options in all areas of the library.

The cameras are easy to install, so we didn't have to make any structural changes to our 16th Century building. With the support of MOBOTIX and system integrator Seret Spa, we were able to develop a specific software that we could use to monitor the entire system and to make use of its full range of features.

The close cooperation that was built up over the course of the project – and which will certainly be maintained into the future – forms the basis of another successful project to increase the efficiency of the system and to reduce the strain on security staff."

Belgrade Theatre In Coventry, UK

HiRes Video Improves Safety And Security



The Belgrade Theatre was the first civic theatre to be built after the war and was opened in March 1958 as part of a largescale redevelopment of the City of Coventry. Now an English Heritage grade II listed building, the Belgrade Theatre took its name in recognition and thanks for a gift of timber from the Yugoslav city of Belgrade that was used in the construction of the auditorium. Holding 866 seats in its two-tier main auditorium, and just under 300 seats in its new studio sized second auditorium, the theatre remains one of the largest regional producing theatres in the country.

The Theatre is also the centre of the community with over 70,000 visitors each year attending theatre productions, school plays, training workshops and corporate events. The security of our visitors and staff is a major concern for the theatre and we have had CCTV installed since 1987"; however the old analogue system was somewhat unreliable and the quality of the black and white images meant that actual identification of individuals was almost impossible, especially in areas with low lighting." comments Paul Duncombe, Deputy Buildings Manager.

The old system proved difficult to search through in the event of an incident, but with a major £14 million refurbishment programme between 2005 and 2007, Paul persuaded management to upgrade and improve the CCTV system. "The refurbishment included a major upgrade to the cabling infrastructure and allowed us to move to an IP based CCTV solution integrated into the building design."

Following a tendering process the theatre chose Active Communications as lead contractor for both the cabling and CCTV solution. "We wanted a CCTV system with better video quality and potential audio as well," explains Paul. "We also needed a simple to use interface that would allow us to view cameras from multiple locations."

Over many years Active Communications have developed a strong customer base providing services to small/medium enterprises and large multinational Companies with economical, reliable and customised solutions that dramatically increases their efficiency and productivity.

After a detailed site survey, the technical team from Active Communications and Paul established essential locations for 27 cameras, delivering 39 views for a complete 100% coverage of all public areas within the theatre. Using a mixture of single and dual lens MOBOTIX cameras, the new CCTV system provides megapixel level quality and audio reception fed back to one major location and can be used on other computers by remote access if needed.

Each camera is activated by built in motion sensors and footage is stored on a centralised rack of NAS units. "In the event of a NAS box failing, the system will notify us via email and we can quickly replace the drive with only a few minutes delay."

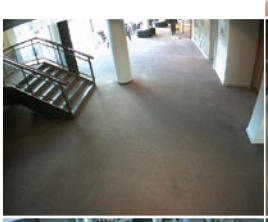
The Theatre was also impressed by MOBOTIX's decentralized approach to CCTV which reduces network traffic. In this distributed architecture, all image processing, recording logic and decisions are made in the camera itself.

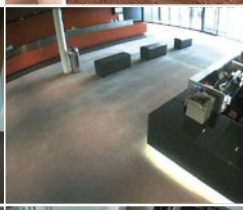
For example, in video motion recording, recordings will be made only when movement occurs in certain areas. An intelligent CCTV solution will send images only when it needs to record them to its storage device. In contrast a traditional centralised system will be constantly sending images to the central location so that the software can make the decision to store it or disregard it. This means that there is always a network overhead, even when there is no movement.

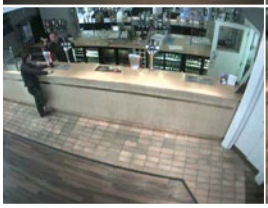
Result

The Belgrade Theatre has implemented a 27 camera MOBOTIX solution which covers 5 floors and over 100,000 sq m. The solution provides HiRes video and synchronised audio to three separate monitoring locations and has helped to improve the safety and security of 70,000 visitors over the last year.

Active Communications successfully installed both the new structured cabling and CCTV network on time and within budget and the new system has worked well. "The quality of the images is very good. We are able to pick out clear and recognisable faces of anybody within the 20,000 sq feet of the public areas. Every time a camera is activated, the footage is recorded with a time stamp which makes looking back to find an incident relatively easy," Paul explains.







Overall, the CCTV installation has been a success, "We now have a system that provides better coverage, better quality images and audio, improved reliability and is much easier to use" explains Paul.

The MOBOTIX solution has been in place now at the Belgrade for almost two years and has performed flawlessly. The low energy maintenance free solution has also helped it maintain its commitment to achieve a comfortable and pleasant environment whilst managing its CO2 and making optimum use of energy.

The Snow Centre UK – Keeping An Eye On The Slopes

Winter All Year Round

With the perfect slope, the perfect snow, the perfect location; The Snow Centre in Hemel Hempstead is Britain's newest indoor snowsports destination. Designed to deliver the alpine conditions every skier and snowboarder dreams of, guests can enjoy a huge 160m main slope. The centre is a British Association of Snowsports Instructors (BASI) centre of excellence.

The final 25,000 square foot site opened in May 2009 with car parking for 250 vehicles and receives up to 10000 visitors per week during peak times.

Protecting The Piste

From the first meetings with the architects and the construction firm, due care and consideration was given to how The Snow Centre could be secured effectively and discretely. One major area of concern is the "Snow Box", which contains the two main slopes and 80 tons of snow kept at minus 2 Celsius. The box is lined with a special insulating membrane, which makes running new cables a complex and expensive undertaking. Any CCTV cameras within this area would need to work reliably at low temperatures while offering good quality even with the glare from the perfect white snow.

As David Surrey, Commercial Director for The Snow Centre explains, "The CCTV system needed to be both high quality and reliable with the ability to cover the entire Snow Centre from the Snow Box all the way through the car park and main gate."

Converged Network Design

Switchnet is a highly respected MOBOTIX AMP partner. The firm prides itself on being vendor agnostic and maintains CCTV and networking expertise. With this independence in mind, in early 2008, the Switchnet project team evaluated the proposed Snow Centres architectural plans and had several meetings with the facilities managers. Based on the requirements of The Snow Centre, Switchnet came up with a MOBOTIX based design.

"The Snow Centre had no legacy infrastructure, a good IP network and requirements for high quality images and sound across indoor, outdoor and cold climate conditions," explains Gregg Pike, Operations Director for Switchnet, "In this environment, MOBOTIX was the natural choice." The design for the CCTV system would utilise the mixed Gigabit Ethernet and Fibre optic infrastructure that Switchnet planned to install to support IT, telephony, wireless internet and IP-TV throughout The Snow Centre.

Deterring Unwanted Guests

However, around Christmas of the same year, The Snow Centre building site was hit by a number of incidents of vandalism. Fearing delays to the project, the building contractor McAlpine turned to Switchnet for help. The response was a high mounted MOBOTIX CCTV camera with night vision lenses, which recorded footage of teenage intruders' in the site a few nights later. The footage was passed to the local Police who warned the offenders with clear photographic evidence and the vandalism stopped.

Reliability Even In The Cold

The build project progressed smoothly with MOBOTIX cameras installed in the Snow Box in March of 2009. "One of the key features of the MOBOTIX cameras is their ability to operate at low temperatures," explains Pike, "The cameras in the Snow Box don't require any heaters or protective housing and the quality was exceptionally high." All 40 cameras are monitored from a security station within The Snow Centre using MxControlCenter software. By using a decentralised CCTV concept, The Snow Centre has required only a modest investment in its security station infrastructure while benefiting from sophisticated video and alarm management with an integrated layout manager to help operators quickly zoom in on areas. After a brief period of training, The Snow Centre facilities and security teams quickly adapted to its use and are able to respond to incidents quickly.

Flawless Operation

Since the opening of The Snow Centre, the MOBOTIX CCTV solution has performed flawlessly. The installation is discreet yet offering 100% coverage over all public accessible parts of the facility. "The safety of our guests and staff is of paramount importance to us," comments Surrey, "Our investment in MOBOTIX and diligence of our facilities and security teams ensures that we are able to protect everybody both on and off the slopes."

Holland Heineken House In Beijing

An Olympic Security Project In China

Network cameras from MOBOTIX were used to monitor the Holland Heineken House during the Summer Olympic Games 2008 in Beijing. Job Groenendijk, CPO RSE Security Consultant for Technoprevention at Proseco, and Ernest Brink, technical consultant at CNI Europe, give an account of their experiences below.

The Holland Heineken House (HHH) made its inaugural debut at the 1992 Olympic Games in Barcelona as a joint initiative of the Dutch Olympic Committee/Dutch Sports Federation (NOC*NSF) and the Heineken brewery. In early August 2008, HHH opened its gates for the ninth time in Beijing and served as the main meeting point for Dutch athletes, their families and friends, fans, journalists, and other visitors. The building featured a 100,000 square foot main hall used for the victory ceremonies and to display works of art by Dutch artists. It also housed a royal lounge, a VIP lounge, and other facilities for athletes, the press and sponsors. There was a variety of restaurants, an embassy helpdesk, a travel agency, several fan shops and offices. In short, HHH was a unique venue where a range of events were held, one that required a professional camera surveillance system. "We were looking for motion, noise, and infrared detectors for many different applications and locations," states Groenendijk. "We also wanted the best available image quality to ensure it would be possible to quickly identify any persons captured on film, should that be necessary. Because we had to work around the clock – often times under the glare of disco lights – with a network that was unique in the conditions it presented, the analog camera system installed by the Chinese did not meet our requirements. After exhaustively testing multiple products from several manufacturers, we came to the conclusion that MOBOTIX network cameras were best able to meet our needs for the planned applications. These cameras offered a further advantage in that they are extremely sturdy and require no maintenance, both of which were major factors in the decision as the units would be packed and unpacked three times and transported 8,000 kilometers in a shipping container."

Improvisation

In total, 26 MOBOTIX cameras were installed to provide video surveillance, mostly the model D22 along with a few M12s and the new Q22. All cameras were connected by UTP copper cables to three network switches which in turn were linked together and to the central control unit using fiberglass. And since the MOBOTIX cameras received power from the Ethernet connection, no separate power cables were required, which saved both time and money. "Although you can save a lot of time by

preconfiguring the network settings, it is impossible to rule out every unforeseen unpleasant surprise when you install the system on site," says Brink who already had this experience. "And just this happened in Beijing, when we were suddenly instructed one day before the official opening that we were being assigned new IP addresses and would therefore need to reconfigure the system at the last second. Furthermore, we suffered a complete system failure during the night. We began looking for the cause of the problem by inspecting the equipment we had brought with us, until we discovered that the Chinese surveillance system cut off power each night at 2 a.m. Even a UPS would not have helped us here. In seeking a solution, we reconfigured the system so that all devices would automatically reboot in the morning when the power was turned back on."

Original images by MOBOTIX cameras.

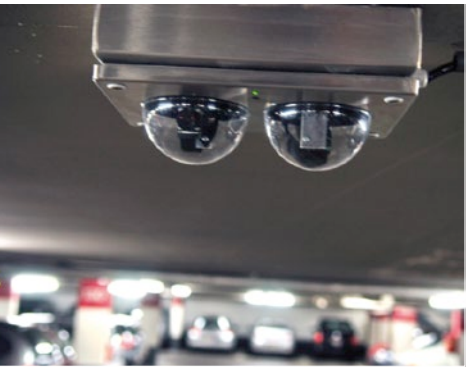
More Secure Than Ever

At the official opening of HHH, Erica Terpstra, head of NOC*NSF, thought the ninth Holland Heineken House was more beautiful than ever. "It was also more secure than ever thanks to the most modern camera system in the world," states Groenendijk. "There were several incidents where the cameras proved their value, but luckily nothing too major. In the area of security, the MOBOTIX system was used primarily to assist on-site security personnel and to help reconstruct incidents. On a further note, some of the cameras were used to make high-resolution recordings of the victory ceremonies and other presentations."

Remote-Controlled From Over 8,000 Kilometers Away

Another advantage of the MOBOTIX solution was that any camera or sensor could be remotely configured, in this example from a distance of 8,000 kilometers. And last but not least, the cameras placed minimal demands on the network and were fully reliable. With Proseco's positive experience at HHH, MOBOTIX was able to get two new orders – from Heineken Experience and the brand store in Amsterdam.

Security In Public Parking Facilities



It is clean and smells surprisingly pleasant in the underground garage. There are arrows everywhere pointing the way. An elevator and stairs lead directly to the main attractions of the Belgium city of Ghent. Drivers do not need to worry about their cars because the city has taken great efforts to make its underground garages as safe as possible. This includes the installation of MOBOTIX cameras. The Parking Authority of the City of Ghent is in charge of all parking activities for the city and its surroundings. In total, Ghent has over 22,000 street parking spaces and 4,700 in public parking garages.

Focus On Service For Parking Customers

The parking spaces must be managed and monitored. For the city it is important to give users a feeling of security and to fight vandalism and theft. So, the city of Ghent is going a step further by offering a special service for its parking customers: video recordings of all incidents such as vandalism, break-ins and disorderly conduct. In addition to the deterrent function, the cameras are also of use in the later reconstruction of crimes. Formerly, some garages were equipped with analog cameras; however, the security officer could only use their images as a monitoring support. It was impossible for them to recognize license plates or the face of a criminal suspect. Geert Allary, IT Coordinator of the Ghent Parking Authorities, soon saw the advantages of the MOBOTIX solution, including cost savings, much higher image quality and extremely low installation expense.

Initial Test Was A Great Success

The Ghent Parking Authority started the first pilot project in 2005. Initially seven cameras were installed and they immediately brought the desired results. "The MOBOTIX cameras proved their value at the Ghent open air festival," states Geert Allary. "Thanks to the digital image storage, we were able to reconstruct several minor crimes without difficulty. The quality of the images was so good that they were accepted as conclusive evidence. The crimes were solved without in any way compromising the privacy of visitors." In the two years to follow, the Vrijdagmarkt, Sint-Michiels, Reep, Sint-Pietersplein and Belfort garages were fully equipped with almost 300 cameras in total. The MOBOTIX cameras monitor the entrances and exits, on all levels of the garage, the stairways, the emergency exits and the pay machines as efficiently as possible. The cameras are needed because it is not possible for security guards to be everywhere all the time and they must respond quickly to any incidents.

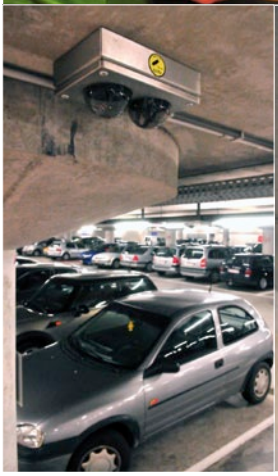
Original images by MOBOTIX cameras.

Remote Analysis Of Situations

In the guard room of each garage, the staff uses the provided MxControlCenter software to switch between live video images or watch footage recorded earlier. Every now and then, the security guard comes to the aid of a customer who is not quite sure how to use the pay machines. By having the cameras, it is not necessary for him to go where the machine is located, instead he can remain in the guard room and make his assessment from there. If, for example, the customer inserts the parking ticket into the slot the wrong way, the guard can offer assistance over the loudspeaker.

Reconstruction Of Crimes

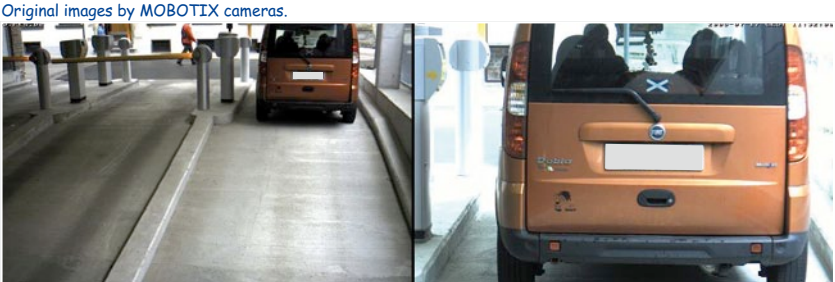
The Ghent police department was able to solve several crimes using MOBOTIX images. "A car window was recently smashed in and the navigation system inside the vehicle was stolen. With the help of the high-quality images, the police went in search of the perpetrators. That would not have been possible with analog images," states Geert Allary. The footage proves particularly useful for later investigations. Other incidents caught on video can also be investigated and eventually solved, including cases of public urination in the stairwells, vandalism in parking garages, burnt-out vehicles and theft.



MOBOTIX Demonstrates Its Innovative Strength

MOBOTIX is in regular communication with its customers to exchange experience and update them with the latest information. On this subject, Geert Allary states, "I find it really great that MOBOTIX is open to suggestions from customers and frequently includes new requests from customers in its design concepts. The company grows and develops in tune with the times and the market." In the future, the Parking Authority would like to continue its partnership with MOBOTIX and see new functions added to the software. The license plates of entering and departing vehicles are already being recorded. The system will now be expanded to allow users to query whether a car with a specific license plate is currently in the garage.

Original images by MOBOTIX cameras.



MOBOTIX Safeguards Quality Of Life In A Small City

Villennes-sur-Seine lies about 30 kilometers west of Paris in the middle of a protected nature reserve. With 4,788 inhabitants, the small and prosperous city offers its population a very high quality of life. However, repeated incidents involving vandalism, theft and burglary have prompted the city council to install a video surveillance system. This is meant to deter crimes against people and property in areas with a high risk of violence or theft. It also is intended to protect public buildings and institutions against such attacks.

City Surveillance And Traffic Control

MOBOTIX M12 day/night cameras were installed in September 2007. Two months later, the system was launched at eight critical locations: at a sports center, in a parking lot, near three schools, at an underpass, by a train station exit and at the main streets downtown. The city also wanted to use this system to improve and regulate the flow of traffic and to monitor vehicles. High-resolution digital camera was required to identify license plates of moving cars both day and night, as the police must have high-quality images to prove that a particular vehicle passed a certain location in order to build their case based on such evidence. For this reason, MOBOTIX cameras were installed at strategic locations where cars would have to pass when driving through the city.

An Effective, High-Performance System

"With the 19 cameras we have installed in the city center and near schools, Villennes-sur-Seine, with a population of 5,000, is a true pioneer in the fight against crime," highlights Pierre-François Degand, Second Deputy Mayor and Security Officer for the city. "The cameras deliver two things. Firstly, they deter crime and, secondly, they are useful should an event actually occur. In only a few months, we noticed a decline in petty crime and an increase in cases solved. Over 20 cases could be solved thanks to the cameras." The system will be expanded by 2011 to include other locations such as intersections.

Video Surveillance Systems Tailored To The Infrastructure Of Municipalities

City police departments and gendarmeries are the first-line users of the video surveillance system. This is backed up by government measures in the form of guidelines which push the development of video surveillance systems in a particular direction. This includes a French law passed in October 2006 that requires local councils to install the equipment needed to combat terrorism. This directive stipulates that certain technical standards must be fulfilled in regards to image quality. For instance, a recording must feature 576 vertical line resolution taken at 12 frames per second.

Due to technical limitations, analog cameras can at best deliver a resolution of between 0.1 and 0.4 megapixels, or up to 4CIF (PAL). It is therefore not possible to zoom in on key details such as the car's license plate or faces and hence solve a crime quickly and conclusively. To overcome this shortcoming, a decision was announced in August 2007 to establish binding technical standards that guarantee a minimum level of quality (camera capacity, storage, compression, transfer, image rendering, etc.). In view of the many laws in this area, digital IP technology is increasingly being used and replacing analog technology. As of today, MOBOTIX cameras are already able to deliver the required solutions and meet the needs of law enforcement for the discovery of evidence.

MOBOTIX Offers One Of The Best Image Qualities Available On The Market

Images are recorded and saved at a resolution of 3 megapixels thanks to image processing in the camera. Police officers find these high-quality images extremely helpful in identifying license plates and people. Furthermore, the resolution provides a better general overview, which means fewer cameras need to be installed.



Network Cameras Save Lives

Extreme weather conditions are no problem for MOBOTIX.

Dillingham is a busy coastal community located on Alaska's Bristol Bay. With a population of 2,300, the "Sockeye Salmon Capital" is best known for the abundance of salmon and its commercial fishing industry. From May to August each year, between 5,000 and 8,000 tourists and fishermen arrive in Dillingham to work the summer fishing season.

Additional Security Concerns

The large transient population in Dillingham during the summer creates additional security concerns for the city authorities. Over the last three years, the community has experienced a growth in the crime rate with an unusually high number of deaths and frequent cases of assault posing a problem for public safety. Although Dillingham has the only police station in the region that is staffed around the clock, the seven patrol officers on duty are no longer able to cope with the onrush of tourists and fishermen in the summer.

Highly Detailed Images Even Under Extreme Weather Conditions

The city decided to install a video surveillance system to enhance public safety in specific public locations and in areas where the risk of accidents is high. Town officials determined that this was the best solution for the city because it balanced the need for increased security while utilizing minimal resources.

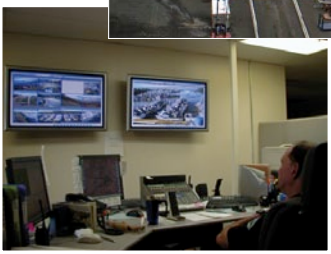
A number of different factors were considered in the selection and implementation of the surveillance system. On the one hand, the customer wanted a digital system, which significantly simplifies the installation and the temporary storage of the images. On the other hand, the cameras would have to be capable of withstanding the extreme weather conditions that prevail in this region – average temperatures from November to March often lie far below the zero degree Celsiusmark. The system also had to be easy to operate, eliminating the need for special training courses for the system operators.

"We knew that MOBOTIX cameras were already being used here in the area and that they had proven to be very robust, even under our difficult climatic conditions here," explained Richard Thompson, Dillingham's Chief of Police. The MOBOTIX systems proved to be superior to those of other suppliers in many respects. In addition to easy installation, these systems place a very low load on the network because the data is already compressed in the cameras.

Customized Solutions For An Individual Project

To connect the cameras positioned at different outdoor locations around the city and in a number of public buildings, MOBOTIX partner TecPro Ltd. (www.tecproltd.com) installed a secure network with sufficient bandwidth for the solution. The company utilized an encrypted wireless Ethernet solution to transmit and feed the data to the network at police headquarters. This effectively eliminated the need to install expensive data cables over long distances, thereby simplifying the installation and the subsequent system operation.

The security system is now in operation and consists of total eighty MOBOTIX M10 and D10 network cameras. Two to six cameras of each model were combined in clusters for the outdoor locations to provide different viewing angles of the areas being monitored from the same vantage point. Although these "clusters" require several cameras each, they have an advantage over rotating or swiveling cameras with moving parts because they maintain functionality reliably even under extreme weather conditions.



Above: Original image by a MOBOTIX camera.

No, Big Brother Is Not Watching You

The city openly addresses the possible conflict of interests with regard to citizens' right to privacy that using cameras for public safety have the potential to create: "It was never our intention to set up a system for comprehensive surveillance anywhere, and that is certainly not what the citizens want," said Thompson. This was another reason for choosing these cameras: MOBOTIX technology is able to use a very low image resolution to produce fogged out or "pixilated" portions of an image that are irrelevant to security surveillance, or to distort images of people recorded unintentionally by the cameras to protect their privacy. This function proved to be an important point for city administration to allay any fears the citizens had for their privacy. "The MOBOTIX cameras really fit the bill: they not only make security surveillance easier, they also protect the privacy of persons who are not associated, but adjacent to, areas under security observation," the Chief of Police continued.

Richard Thompson is happy with the results: "We are delighted at how high the quality and the detail of the images are. Now, we have a much higher likelihood of successful investigation, which saves us a lot of costs. Thanks to the reliable cameras from MOBOTIX, we can now guarantee the security and safety of our city, even during the peak season, without having to hire additional police officers, which would certainly increase our costs in the long term."

Colli Inter-Municipal Police Force Association

Ensuring Public Safety

Bergamo police in action.

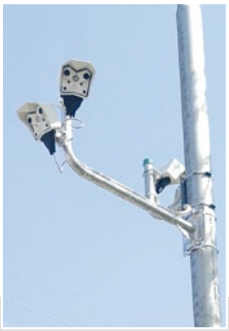
The inter-municipal police force association for Colli in the northern Italian province of Bergamo is responsible for ensuring public safety in seven local municipalities that are spread throughout an area covering 35 square kilometers. The association, which was set up in 2000, provides emergency services between the hours of 7 a.m. and 2 a.m. every day of the year, as a well as a drug-squad dog team.

The task facing the Bergamo police force was certainly not an easy one: ensuring public safety in a vast and naturally hilly area. That is why they needed a video surveillance system that would enable them to monitor certain high-risk areas in real time and to record short periods of activity in the area. In addition to this, the equipment used needed to be portable and the solution had to be extremely flexible and expandable to at least ten cameras per municipality. Obviously, covering the area with fiber glass cable was not possible. The budget was limited and the only element of the project that the association could provide was the power required at the surveillance sites.

Trusted Partner

E.L.T.A., a local installer, offered the Colli inter-municipal police force association a solution that included the installation of 80 wireless network cameras and a mobile emergency center connected wireless to the police control center. The most suitable cameras for this project were MOBOTIX IP cameras.

E.L.T.A. chose to install the MOBOTIX cameras in an IP-based wireless, broadband star-network. The star center of the network was set up on a centrally located neighboring hilltop that is high enough to be able to reach all of the remote points and the operations center. 45 MOBOTIX cameras (soon to increase to 80) have already been installed at key public places (schools, banks, post offices, sports centers, etc.) and they send images to the video-stream monitoring and recording center of the police force's operating center.



Colli Inter-Municipal Police Force Association

The project also includes the experimental rollout of a wireless coverage area to interconnect one police car being used as a mobile station. With the help of a portable computer, the mobile station allows officers to connect to the cameras in the region and to carry out certain actions

without actually going to the association's central office. "This police force is particularly proud of the mobile station as it is a facility that no other force in Italy can offer," explains Enzo Fiocchi, Commander of the Colli inter-municipal police force association.

According to Pierangelo Armati from E.L.T.A: "Video surveillance systems are often implemented using sophisticated technology that result in running costs that go way over initial estimates, and as a result they are usually left unused. Moreover, police officers are often unable to manage the complex software chosen by the installers. This is why we opted for technology that is easy to use and covers the essential functions".

Test installation of the wireless surveillance.

A Unique Project

This is the only such project to be implemented using MOBOTIX cameras and as such it has been used as an example for other municipalities in the region that are facing the same issues. This project owes its success to the use of MOBOTIX versatile cameras that provide obvious benefits both in terms of installation and use. Thanks to the professional control center software MXControlCenter, available free of charge with every camera, images from several cameras can be viewed live on a single monitor at the police control center at a high framerate.

With the solution, the Colli inter-municipal police force association of the seven municipalities can guarantee their citizens safety and security.

The control center of the inter-municipal police force association.

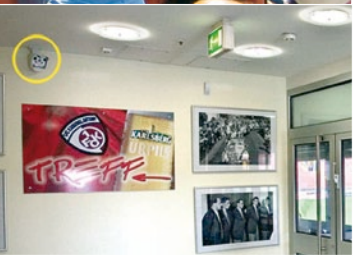
Security And Safety For Football Fans

Welcome Guests

During the 2006 World Cup Championship in Germany, Kaiserslautern was one of the 12 World Cup cities to host the games. Fritz-Walter Stadium on the Betzenberg hilltop was sold out during all four games in the preliminary rounds and the one in quarterfinal. A total of almost quarter of a million visitors were counted during the five games in the Kaiserslautern stadium. However, regardless of how enthusiastic people are about the games, it is important to realize that such large crowds also involve high security and safety risks, particularly when it is an international event with the entire world looking on.

Keeping Track

"I knew from the beginning that video surveillance would be important," said Chief Superintendent Uwe Giertzsch, who was also involved in developing the security concept for the 2006 World Cup in Kaiserslautern. "As police, we wanted to be visible, but to avoid anything that may make people feel uncomfortable, not to mention threatened. Nevertheless, it was vital that we maintain an overview of the situation at all times. To do so, we needed highly-detailed images of the situation on location in order to be able to recognize possible disturbances early and make the right decisions quickly."



Based on the requirements of the security staff, GPC GmbH (www.it-gpc.de), an independent engineering office, drew up the documents for the tendering procedure. They included a sophisticated video surveillance system that would be able to provide images of a wide area as well as to zoom in to captured full-format images of specific individuals. "We specified MOBOTIX cameras to monitor the entrance and other inside areas," said Claus Schmitt, Senior Consultant at GPC, "because our experience with this technology to date has been excellent in terms of costs, performance and quality. With respect to organization and economy, it is definately the most cost effective solution."

Cost Effective ...
... Thanks To Highly Detailed Images

One of the reasons that this technology is so attractively priced is the fact that MOBOTIX uses just one camera where other manufacturers need two. Consequently, only one camera was installed to monitor two turnstiles side by side. Despite this, the detail in the images is sharper because the images are recorded as megapixel (1280 x 960) images containing twelve or six times as many pixels as the CIF standard (352 x 288) or 2CIF resolution (704 x 288), the technology that is generally used in stadiums.

... Thanks To Economical Emergency Power Supply

There were also many other reasons why Kaiserslautern was, by implementing MOBOTIX, able to install the least expensive video surveillance system of all the World Cup stadiums. They include the reduced costs of installing the necessary cables using standard IT network technology components, even wireless is no problem, as well as the uncomplicated power supply. MOBOTIX deliberately designed its cameras using no moving parts to guarantee that they are very robust and low maintenance. As a result, they require no heating in the winter and consume very little power, i.e. under 3 watts, whereas other systems use between 7 and 10 and up to 25 watts in the winter. Providing an emergency power supply is easy and economical because a 240 V connection is not required.

... Thanks To Fewer Storage PCs

Thanks to the intelligence and processing power inside the camera, the number of storage PCs needed is low and using Linux as the operating system eliminates having to pay license fees.

Fans in an overview: The control center was displayed using the MOBOTIX MxControlCenter-software. A plan of the stadium was created graphically and color-coded to identify the seating sections by admission ticket.

Complex Requirements ...

"To provide better control for the monitoring of the entrance areas and the grandstands, it was also necessary to install swiveling and tilting analog pan-tilt-zoom solutions," Claus Schmitt added. Dome cameras were specified for the outside areas and high-resolution cameras made by TVI-Lederer for inside the stadium.

... Simple Integration

A 4-fold framegrabber card was used to digitize the analog camera images and integrate them into the MOBOTIX network. The control protocol of the Siemens dome cameras was also programmed into the MOBOTIX MxControlCenter-software so that the control commands could be transmitted via the network. In addition, all the MOBOTIX camera images were stored with 2 fps (VGA) – 16 fps would also have been technically possible – and the dome images with 12 fps (VGA) on different servers for five hours.

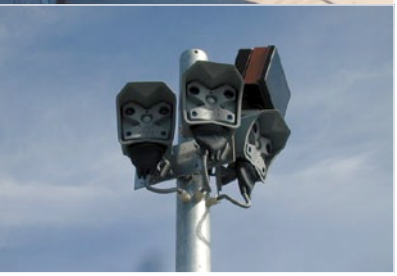
Video Management Included

No additional video management system was required to manage the total 87 cameras because all the necessary applications were included with the standard functions of the MOBOTIX cameras and the free MOBOTIX MxControlCenter software. Another advantage of the MxControlCenter: the images received from the many cameras can be displayed live on one screen at the same time using a high frame rate.

Compliments All Round

Chief Superintendent Uwe Giertzsch is very satisfied with the surveillance technology: "Our colleagues in the control center were extremely impressed with the camera support. They were able to identify any problems early and take appropriate action before the situation could get out of hand." The head of the stadium security team was particularly proud of the fact that colleagues who had worked in security in the other World Cup stadiums had nothing but praise for the new system. "They were really impressed by the technology."

Safeguarding Basic Research



Complete Surveillance: The building of Max Planck Institute for Chemical Ecology in Jena.

Plants, insects, and the variety of ways in which they communicate chemically are the primary focus of the research work conducted by the Max Planck Institute for Chemical Ecology in Jena. Since 2001 the institute is residing in a new, modern building on the Beutenberg campus in Jena. With 7,400 square meters of primary floor space, some 1,500 square meters of greenhouse capacity and an annual budget of around EUR 10 million, the institute's 270 research scientists and employees from 19 different countries have plenty of opportunities to study this exceptionally complex area of ecology.

Valuable Equipment

For Johan Brandenburg, technical director at the Max Planck Institute for Chemical Ecology, protecting the building has exceptionally high priority: "At our research center, we have a lot of expensive equipment, some of which cost as much as EUR 2 million, which we completely rely on for the purposes of our work. In addition, the building is quite remote and accessible from all sides – making it a potential target for vandals and burglars."

For a period of almost three years, a security company was responsible for protecting the building. "However, we were unable to achieve a satisfactory solution for round-the-clock surveillance. Security guards simply can't be at every single vulnerable point at the same time," explains Johan Brandenburg. "It became clear to us that we could only achieve the degree of protection we wanted with the aid of a powerful camera system."

Day And Night

The institute looked into a number of different solutions, compared their performances and assessed their features. During this process, Telegant (www.telegant.de), a service company specializing in communication, network, and security solutions, suggested the MOBOTIX M10-DN, a day and night network camera capable of delivering high-resolution images in daylight and in the dark. "The MOBOTIX system provided exactly the features we needed for continuous monitoring of our building," remembers Johan Brandenburg. "Having said that, there were still a number of issues that needed to be resolved."

Additional Difficulties

The cameras were to serve two purposes: to act as a deterrent preventing crime, and in the event of an incident, to provide usable images fast for successful tracking down of the perpetrators. "The

trouble is, if cameras are continuously recording hours looking for a crucial event," explains the technical director. "Another issue was that the cameras were not to point directly at the employees' working areas because we didn't want them to feel that they were being spied on."

The Solution

"For MOBOTIX cameras, these requirements presented no problems," reports Michael Hellmich, technical supervisor at Telegant's Network Systems unit. "After all, the cameras are equipped with LEDs that switch on whenever motion of any kind is detected in their exposure zones, thus providing somewhat of a deterrent. Thanks for the event-controlled image recording, the cameras only begin recording if they register movement anywhere in a pre-defined field. This makes finding events very fast and can help to save storage capacity."

However, for security reasons it was unavoidable that a number of cameras were pointed at windows where institute employees were working. "But we managed to find a solution for this problem, too," explains Michael Hellmich. "With the MOBOTIX cameras, you can mask off certain areas of the image or render them unidentifiable without impairing security. That way, employees need not feel as if they are being watched."

Autonomous Network

To provide the extensive building with comprehensive protection, 32 MOBOTIX M10- DN cameras were installed on four local area networks. These LANs are connected by a fiber optic backbone. The images are recorded on a server as well as on the built-in ring buffers.

Optimum System

How satisfied is the institute with its surveillance solution today? "The IP cameras have only been in active service for six weeks now and are currently still in the trial phase," answers Johan Brandenburg. "But I'm convinced that we have found the optimum solution with MOBOTIX."

Original images from the MOBOTIX cameras: Crisp, high-resolution images – night and day.

Education Of The Future – Paperless, Wireless And Safe

Republic Polytechnic Singapore: Safe campus thanks to MOBOTIX cameras.

The Republic Polytechnic (RP) is one of five polytechnics in Singapore – and one of the most modern in the world. The courses of study include communications and automation technology, information technology and applied sciences such as biotechnology and new media. Staff at the RP have notebook computers that are connected with the campus network via wireless LAN. Course information is exchanged using the polytechnic's own e-Learning system and even tests can be taken online. The RP represents the education of the future – paperless, wireless and safe.

A Model Of Education

The polytechnic built a mobile computer infrastructure in order to implement its concept of the paperless campus. In addition to the wireless data network, this also meant that all the students and staff use either a notebook or a tablet PC. Using their computers and the connection to the wireless networks, staff and students have everything they need to complete their work.

Spacious Campus

300 staff members of the spacious polytechnic are responsible for the administration and the management of the buildings and other facilities. Since the Republic Polytechnic has been designed to hold up to 13,000 students in the future, the administration has been looking for ways to reduce the staff needed to monitor laboratories, special areas and sports facilities. In addition, the poly-technic was also interested in increasing on-campus security. To meet these goals, the administration decided to have modern network cameras installed. Numerous network cameras supplied by German manufacturer MOBOTIX have been part of this high-tech environment since March 2005. The cameras are used for security and administration tasks and were easily integrated into the existing network infrastructure.

Increased Security With Less Staff

After a number of different offers and systems by various manufacturers were evaluated, the decision was made in favor of German manufacturer MOBOTIX, which is represented in Singapore by its distributor, Spiraltech Pte Ltd (www.spiraltechpl.com). Michael Tan, who was in charge of the polytechnic project, commented: "The Mobotix solution ensures high return on investment in the long run. Because this solution is 100% software driven, the cameras can be easily upgraded at no additional cost to provide better features and software enhancements."

Easy Access To Images

A total of 75 MOBOTIX network cameras were installed in March 2005, and all are connected via the Republic Polytechnic's fast fiber-optics LAN backbone. The recorded image data is transmitted in encrypted form and stored externally on the polytechnic's file server with a NAS storage capacity of up to 2 terabytes. Thanks to the ring buffer concept, it is possible to retrieve the recorded images over a period of several months.

Day And Night, Indoor And Outdoor

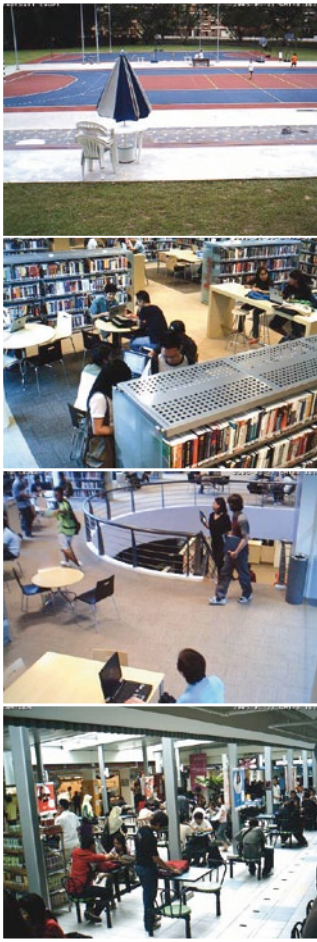
The system uses different indoor and outdoor models of the MOBOTIX M10, including the dual lens M10Di-Night, which is able to deliver brilliant, detailed images during the day as well as at night. The outdoor models are IP65-certified and do not require any additional casing. All cameras are equipped with an integrated image memory of 64 MB (for up to 2500 JPEG images in VGA quality) as well as FTP, e-mail and audio functionality.

Time-Controlled Recording

The polytechnic staff can monitor the current images transmitted by up to 25 cameras on a single monitor. They can also control and configure the system for event-controlled or time-controlled recording via a central management console without requiring any special training. Each camera, for example, can be set individually to record a specific time before and after events, including the sound from the camera microphone. Upon events, the cameras send emails with attached video clips. Because the images are already processed (i.e. the data is compressed) in the camera, the network load caused by the transmission is very low.

Expansion To 1,000 Cameras

The new Woodlands Campus with a total area of 5,000 hectares was finished in 2006 and the RP has since then moved into the new building. Also the network cameras have found their way into the new location. Since their approval a short while ago, the new campus now has around 1,000 MOBOTIX cameras installed. The MOBOTIX solution is also completed without any additional recording software. With the MxControlCenter, up to 40 cameras can be viewed simultaneously with audio on one single PC.



Original images by MOBOTIX cameras.

Security In The Hospital

Approximately 28,000 patients and another 100,000 outpatients are treated at the Maria Hilf clinics each year. With over 800 beds, the hospital is the largest in the city and in the bishopric of Aachen. Patients are treated according to the latest scientific findings and using the most modern medical technology. Close to 1,600 employees, including 190 doctors and 800 employees in nursing service make sure that the patients are well taken care of.

Working Profitably

"Personal care cannot be covered by usual medical insurance. But, to meet the standards of our humanitarian, personal approach, we have to work as profitably as possible in other areas", said Stefan Bahun, head of security for the hospital.

One area that was not operating economically in the past was the night-time gates. With lower visitor frequency and fewer emergencies or patients requiring transport compared to daytime, the night shift was not working at full capacity. That is when the idea was born to take advantage of technology and to centralize the night personnel at one of the three locations. The capacity that would be freed up this way could be invested in the day shift, which had to master an ever-increasing number of tasks. In addition to the telephone system, the "gate/information desk" also had to manage the parking guidance system, camera surveillance and patient information. This is also where all the alarm messages end up, whether it is a stuck elevator, problems with the oxygen supply or even a fire alarm. These issues had to be taken into consideration for the centralization of the night-time gates.

Controlled Access

Access control at the locations without a gate-keeper in the night hours remained a problem. "It is still necessary for emergency services and patients to be able to enter the clinics at night. But we cannot simply leave the buildings open to anyone. And communication via an intercom system alone just doesn't do the job." Stefan Bahun realized that this problem could only be solved by installing a powerful digital camera system. "Although we already had video technology, this analog system proved unsuitable for what we really needed. And because the buildings were already equipped with a good computer infrastructure with a powerful network, we decided to take advantage of that for the camera solution."

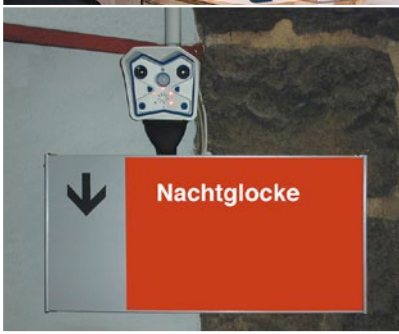
Easy Operation

Then someone happened to stumble across MOBOTIX in the trade press. "An important factor influencing our decision," continued the head of security, "was easy operation. In this respect, MOBOTIX already offers all the features we need, along with camera control via an Internet browser. But we also wanted to make things as simple as possible for the desk clerks."

This is where, at the suggestion of the Kaiserslautern-based manufacturer, uniserve Internet & Multimedia GmbH (www.uniserve.de) came into play. Uniserve developed "WINSTON", a camera management software solution that can be operated ergonomically, extremely easily, quickly and intuitively. This software solution also includes a floor plan as well as a camera overview and allocates special functions, such as a door opener, directly to the appropriate camera image.

Central Monitoring

Obviously, this solution was a big hit with the customer. Today, there are a total of 14 MOBOTIX cameras in operation at the three Maria Hilf clinic locations, thus providing central monitoring for all the entrances and access points. Other critical points, such as the cash desks and banking machines or the waiting room in the emergency room, are also under the watchful eye.



Central access point: All main access points and other critical areas at the three hospitals can be monitored from here.

"The Kamillaner Hospital has not been staffed at the front desk for ten hours at night since August 2004 and everything has been working perfectly," Stefan Bahun summarized. "We also plan to introduce the concept at St. Franziskus soon to complete the centralization project. On the whole, we are very pleased to say that this camera technology has increased the security level in our clinics. The investment has certainly paid off and I am very happy."

HiRes Video Innovations

With the help of event control, which activates the selected fields in the camera, events can be recognized and recorded. For safety reasons, these images are stored 72 hours.

Reliable Operation In The Antarctic Cold

The GARS in Antarctica.

Far Below Freezing

When searching for answers, scientists frequently have to cope with extreme conditions. The Meteorological Institute in Munich (MIM) for example, uses a weather station at an elevation of 2,965m (9,728ft) on Germany's highest peak, the Zugspitze mountain, to study the occurence of banner clouds. The German Federal Agency for Cartography and Geodesy (BKG), in turn, is one of the participants in the German Antarctic Receiving Station (GARS) project in O'Higgins/Antarctica. At the GARS site, a radio telescope permanently collects data on plate tectonics, i.e. the continental drift. While temperatures on the Zugspitze may drop below -25 °C (-13 °F), they may be as low as -40 °C (-40 °F) in Antarctica – accompanied by winds of up to 200km/h (130mph).

No scientist can be forced to permanently work under these conditions. That is why the researchers rely on video technology for digital image recording. The only problem is – where to find a video camera that operates reliably under such conditions?

In The Picture All The Time

In the beginning, an analog video camera was supposed to monitor the radio telescope 24/7 through a window of the German Antarctic Receiving Station (GARS). "Unfortunately, the camera only worked to our expectations when there was enough light outside and when the window was not snowed in," remembers information scientist Reiner Wojdziak who spends several months each year in Antarctica. Thus, a MOBOTIX camera was installed at a sheltered spot of the station's outside wall where it has to resist temperatures of as low as -40 °C (-40 °F).

The camera is integrated into the station's LAN and provides real-time images on this subnet. In order to save transfer capacity, current images are sent to the Internet only about every 10 minutes via satellite (http://vlbi.leipzig.ifag.de/ohiggins/ohigweb. jpg). "Since the MOBOTIX camera has been installed, we have permanent first class eye contact with the radio telescope and, thus, can monitor its position continuously," reports Reiner Wojdziak. "We are absolutely satisfied with this solution," he emphasizes.

At The Top

The MIM uses a MOBOTIX camera located at the environmental research station Schneefernerhaus (UFS) at an altitude of 2,650m (8,694ft) on the South slope of the Zugspitze mountain. The images recorded there are used to evaluate the measured ultra-violet light. For a breathtaking view from the Zugspitze peak, go to

www.schneefernerhaus.de/camera.jpg. Another MOBOTIX solution can be found on the German weather service (DWD) observation platform at the Zugspitze peak, a location where an online connection is not possible. Therefore, a mini network consisting of a Linux computer and the camera that is continuously documenting banner cloud development has been installed. During the day, the camera records a jpg image every five seconds. At night, the computer generates an mpeg film of the individual images, which is then sent to the Meteorological Institute in Munich for evaluation.

Schneefernerhaus environmental research station.

Deep Frozen Operation

"For location at the Zugspitze peak it was a prerequisite that the camera resists temperatures below -25 °C (-13 °F)," explains meteorologist Mario Mech. "For this reason, we tested the camera at the institute prior to its installation for an entire week at -35 °C (-31 °F) and it worked perfectly," he adds. Sturdiness is one of the core design principles of MOBOTIX cameras. To achieve this, the cameras do not have any moving parts such as zoom, pan or tilt mechanisms.

Sturdy And Absolutely Weatherproof

The third camera is installed on the institute's roof so that the visitors of the MIM website can check not only the current weather data but also view the resulting images. "Previously, we were working with a different web cam," tells meteorologist Heinz Lösslein. "But after some time, this camera had burnt areas on its image sensor that were caused by exposure to direct sunlight. And weather cameras are frequently exposed to direct sunlight," he states. "Astonishingly, the MOBOTIX camera has proven to be 'sun-proof' and, thus, is a very good choice for us," Heinz Lösslein continues.

"Also, Linux as the camera's operating system is very much appreciated by the university environment," emphasizes Dr. Joachim Reuder who is in charge of the UFS project. "On top of this, no other camera features such a wide range of networking possibilities, such as ftp, e-mail and nfs. No other camera system that I know of is better suited for our needs," he summarizes.

Security For Canals And Water Supply

Remote surveillance in South Florida with MOBOTIX.

In the beginning of the 20th century, most of south Florida was stil covered by swampland. As the cities began to expand, the swamps were drained to provide more land for agricultural use. This created an extensive network of canals and plumbing systems to supply drinking water and to irrigate the fields.

Today, the South Florida Water Management District (SFWMD) is responsible for the protection and administration of the water resources. The District's mission is to manage and protect the water resources of the region by balancing and improving water quality, flood control, water supply and by protecting the natural ecosystems. The jurisdiction of the district encompasses about 40 percent of Florida's land.

A Daunting Task

Operating and managing the extensive network is not an easy task. The District employs a workforce of 1,700 for the maintenance of the systems and to support the inhabitants. In addition to its headquarters in West Palm Beach, the SFWMD operates another seven offices and field stations throughout the region that serve as central working stations for the technicians and the field workers.

Safety First

The events of September 11, 2001 have changed the security requirements for many American organizations, especially those that serve basic public and community needs. For the SFWMD, this meant that security measures to prevent water contamination became top priority, while continuing to address conventional threats such as theft and vandalism. To meet these challenges, the District developed an integrated security concept including the installation of a modern access control system along with innovative MOBOTIX network cameras.

Although the existing video surveillance system transmitted images via the data network to the monitors in the SFWMD headquarters control center, the older analog cameras were not flexible enough in their application, and the system could not be expanded as desired. Consequently, Security Specialist Carl Shumate decided to migrate to the new generation of network cameras, a plan designed to produce a comprehensive network with a wide variety of applications in the field stations while reducing operating costs.

Alarm Via IP Notify

In addition to data transmission via wireless connections, the new systems were designed to support such IP functions as image transmission to websites or sending an IP Notify alarm message. The concept had also been designed to reduce network load. Shumate found what he was looking for in MOBOTIX. "After the evaluation team had studied numerous product lines and various possible solutions, it was jointly decided that MOBOTIX met with all our criteria and requirements", he says. The MOBOTIX systems support IP data transmission (IP – Internet Protocol), contain an integrated computer with a Web server and are able to store hundreds of images in the camera itself. Depending on the programming, the cameras can send images at particular intervals or event-controlled to a website or via IP Notify to previously defined addresses.

Original images by MOBOTIX cameras.

Because the older systems recorded continuously, they accumulated very large volumes of data. This caused problems with storage capacity, particularly because SFWMD requires all recordings to be retained for at least 30 days. The new network cameras reduce data volumes considerably because they only record when triggered by an event, i.e. when the camera detects any movement in the image field. At unmanned pump stations, for example, when the cameras detect movement, they record the activities within their range and transmit an alarm as well as the images to the headquarters.

Heat And High Humidity

Another important criterion was the solid, integrated design of the cameras. Like all outdoor MOBOTIX camera models, the M10D-Secure dual-lens camera also fulfills the requirements of the IP65 equipment protection category. This makes it an ideal choice for the extreme environmental conditions that prevail in the Everglades and other areas in South Florida: heavy rain, hurricanes, heat and high humidity. "All MOBOTIX cameras kept on working through three hurricanes without a single loss," enthuses Shumate.

"The multiple lens configurations available on the MOBOTIX network camera, including single or dual lens, wide-angle or telephoto, day or low-light provide us with the flexibility to deploy the same basic camera type into a wide range of specific viewing requirements with varying lighting conditions," states Carl Shumate. Now, the South Florida Water Management District is considering the installation of more MOBOTIX network cameras in the field stations to allow them to quickly assess the situation there in the event of an alarm.

Best Protection For Exquisite Valuables

All That Glitters In The Ironworks

Magnificent crowns, expensive jewelry, precious tiaras – surrounded by huge, slightly oily, black machines made of iron: that is what an exhibition of glittering gold looks like in a closed-down ironworks. The six blast furnaces in the Völklinger Ironworks used to melt iron for decades until the center for pig-iron products was finally closed in 1986. In 1994, UNESCO classified the industrial monument as a World Cultural Heritage Site. Exhibition expert and General Director of the Völklinger Ironworks World Cultural Heritage Site, Dr. Meinrad Maria Grewenig, recently succeeded in bringing 120 masterpieces from the Larco Museum in Peru and 50 other exhibits from the Linden-Museum in Stuttgart into a unique atmosphere of a 6,000 sq m furnace hall in the ironworks to stage an exhibition entitled "IncaGold".

"God Forbid Anything Should Happen!"

"We were especially careful in our planning of the security measures for the IncaGold exhibition and went to a great extent right from the beginning." In view of the extraordinarily valuable exhibits, Arno Harth, chief administrator at the exhibition company, based his actions on these words: "God forbid anything should happen!"

However, looking for the ideal system of video surveillance proved to be challenging, to say the least, because the monument protection laws prohibited the exhibition organizers from laying any additional cables in the building. Instead, they were required to use the existing computer network, which consisted of fiberglass and copper cabling. This eliminated the option of using an analog solution that would have been considerably less efficient anyway.

The design of the exhibition also presented problems. While the setting is in deep blue and violet colors (carpeting, walls, display cases) and provides an excellent backdrop for the glittering gold, it also absorbs much of the red portion of the light and adds to the already difficult lighting conditions. How would it be possible to get clear, distinct images under these conditions?

The Obvious Solution

"The solution was closer to home than we thought," Arno Harth recalls. "At a product trade show staged in our furnace hall some time ago, a company called Encom Medical Consulting (http://encom-medical.de) had MOBOTIX IP cameras on display. Our engineer in charge of technical planning happened to take a closer look at these cameras, and we found that they were the answer to all our problems."

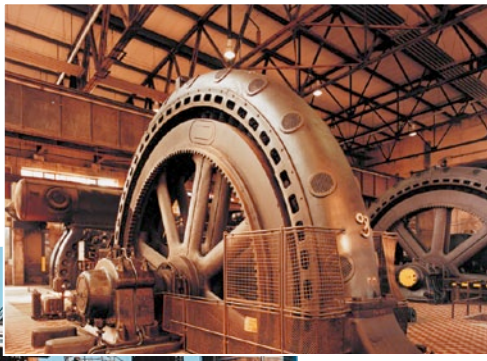
Photos: Weltkulturerbe Völklinger Hütte (publisher), Gerhard Kassner, Franz Morscher

HiRes Video Innovations

Sharp images even in the dark: original photos taken by the MOBOTIX cameras (see right).

Sharp Images Even In The Dark

It was not difficult to integrate the digital camera system into an existing network infrastructure. With the help of diffused 8-watt infrared spotlights and a highly sensitive low-light, infrared sensor, the MOBOTIX M10-DN was able to generate sharp, high-resolution black-and-white images. Of course, the colors of the exhibition environment absorb most of the red portion of the infrared light, but the MOBOTIX color correction mechanisms counteract that problem.



Maximum Resolution

And what's more: the MOBOTIX camera with 1280 x 960 pixels offers not only extremely high image resolution, but it is also equipped with convenient recording functions. Events can be stored as video clips for months at a time, found quickly by date and time and forwarded easily to the police via e-mail. Event-controlled recording saves storage space on the hard disk.

Images In The Browser

In addition, several authorized employees can view all the camera images at the same time on their PCs using just a standard Internet browser. Security surveillance doesn't get much easier than that. "The many advantages spoke clearly in favor of using the MOBOTIX system," head administrator Harth summed up. "Even more so because Encom Medical Consulting managed to install and put the four cameras ordered into operation at central locations in just 24 hours."

Other Applications

Ironworks World Cultural Heritage Site in which video surveillance would increase security and reduce the danger of vandalism. Approximately 30 cameras in total would be required. "Resulting from the positive experience we have made during the current exhibition," explained administrative head Arno Harth, "everything speaks in favor of using MOBOTIX technology for these applications as well."

Innovation From Tradition

In 1919, Ernst Stackmann opened his department store in Langen Street in the town of Buxtehude, Germany, where he sold textiles and ready-to-wear clothing. Immediately upon entering the store, the shoppers can sense the perfect match of the traditional business virtues and the feel for the spirit of the times. The departments are structured according to the product groups, employees are discreet and respectful and the store provides a child care facility so that parents can be sure that their children are in good hands while they go shopping. To round things off, the department store provides customers with an informative website complete with current offers and a virtual fashion journal.

Cost Factor: Store Theft

For a retail store to remain competitive in today's market, strict cost control measures must be observed in all areas. One of the largest cost factors for a store is theft. If a business is not able to handle this widespread phenomenon, it will be forced to include the cost of the stolen goods in its general price level, which will lead to higher prices for customers and cause the business to lose its competitive edge.

There are many different ways to prevent theft. In addition to making sure that goods are clearly presented and using electronic product labels, video recording has proven to be a particularly successful method.

Stackmann went to the loss prevention expert of the police for more information and was advised to invest in an intelligent camera system with the possibility of tracking the perpetrators. This is a particularly good weapon against gangs stealing.

In their search for the right system provider, the company's management and IT Director Harald Uhlendorf had a look around at CeBIT 2006. At the MOBOTIX stand, they quickly confirmed their initial impression that this company offered the solution to their problem. After the visit to the trade fair, Matthias Klindworth from the Hamburg branch of MOBOTIX partner ADS Networks contacted Stackmann and, after conducting a comprehensive analysis of their requirements on location, provided the company with a varied selection of solutions.

MOBOTIX HiRes IP Cameras For Protecting Goods

Qualified consulting played a major role in closing this contract and numerous technological considerations made a great case for the MOBOTIX solution: brilliant, high-resolution image quality, minimum data load thanks to numerous options for data pre-processing, event detection in the camera and compression of the data streams, integration of the cameras into the existing IP data network, use of standard PCs as video servers, license-free MxControlCenter control room software, expansions and modifications to be made easily, even by the customer and the low power consumption of the

system are just a small fraction of the different features offered by this system. The discreet housing of the MOBOTIX type D12 cameras (most of which are installed as half-dome ceiling cameras) also contains a passive infrared motion detector as well as an integrated microphone and speaker, making the MOBOTIX concept an even more attractive solution. ADS Networks assisted in the planning, initial installation, pre-configuration and initial operation of the camera system.

Prevention Instead Of Punishment

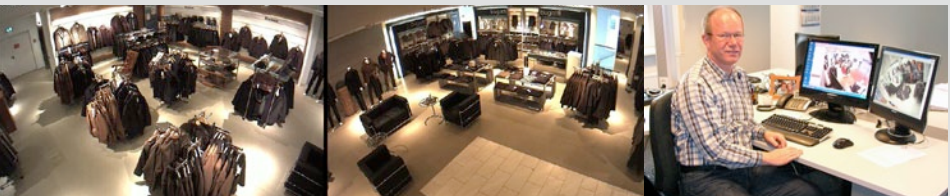
A total of 63 cameras monitor the sales areas. The company places particular emphasis on ensuring that they are installed as inconspicuously as possible. Far more important is to draw the customers' attention to the signs informing them about camera monitoring as they enter the store. Because at the end of the day, the primary goal is not to catch the thief, but to prevent the theft. If, in spite of these warnings, a crime is committed, the criminal doesn't stand much of a chance. Even if the criminal is not caught 'in flagranti,' by evaluating the recorded video material with a time delay, he or she can be identified. Police officials already identify most thieves after the fact by evaluating video recordings. The megapixel resolution of the cameras has proven to be particularly beneficial. This enables the entire image to be recorded at all times while allowing the operator to use the virtual pan, tilt and zoom functions in the high-resolution image material. This results in a higher recognition rate for thieves with fewer cameras in comparison with conventional camera surveillance systems.

D12 DualDome

Acquiring The Taste

The extremely positive experiences with MOBOTIX IP camera technology led to a number of additional ideas. For example, the Intersport department store, located near the main building, was connected to the central monitoring server at a very low cost using fiber-optic cables.

In the future, the illumination will be further improved and the in-house car park is to be included in the security concept. In addition, the play area of the store's child care facility will also be secured using MOBOTIX HiRes IP cameras – this way, parents can relax and enjoy their shopping experience in this convenient department store.



Wood-Fired Power Station In Lohbrügge

High-Tech Innovation Helps To Protect The Environment

Renewable raw materials are essential for environmentally- friendly production of energy. Unlike with fossil fuels, the formation and combustion of these renewable materials can be considered earth friendly. For this reason, the thermal use of these materials through combustion is CO2-neutral. The Hamburg-Lohbrügge wood-fired power station is built on this principle and thanks to its environmentally- friendly technology, it is the world's leading reference plant. Every year, the power station transforms 30,000 metric tons of natural wood into environmentally-friendly heat energy and electricity. This saves 23,000 metric tons of CO2 each year.

The process of cogeneration makes the most efficient use of the energy contained in the wood. The power station generates around 8,000 kW of heat energy, which can be used to heat a nearby community, and it supplies 1,700 kW of electrical power to the public power grid. Also the energy-saving camera technology from MOBOTIX contributes to the sustainability of the power station. MOBOTIX cameras are designed to operate in a wide range of temperatures (-30 to +60 °C, or -22 to 140 °F) without active heating or cooling. In addition, these cameras have a power consumption of only 3 W, ensuring their reliability and keeping the operating costs low. In addition, thanks to the high resolution of MOBOTIX cameras, one single camera can replace multiple conventional cameras, so it becomes clear that MOBOTIX shows no compromise when it comes to performance, economy and environmentally-friendly operation.

Sophisticated Technology From A Combined Effort

This technical masterpiece has multiple creators. As general contractor, KWA Contracting AG (KWA, www.kwa-ag.de) assigned planning and construction management duties to the engineering specialist Schuler (IBS, www.ing-buero-schuler.com). The finished plant is operated by the Gesellschaft für Energieeffizienz mbH (GENEFF, www.geneff.de).

From the very beginning, the progress of the construction work was documented using high-quality video technology. The Hamburg-based company Hansa-Projekt Elektro- und Informationstechnik GmbH (www.hansa-projekt.de) stepped in to complete this task. This company, founded in 1979, now employs 150 staff members in the areas of electrical engineering and information and automation technology. Hansa has been using MOBOTIX cameras for years to conduct surveillance tasks for many different types of applications. Using MOBOTIX technology, the catchphrase for Hansa

employee Hendrik Braasch is to operate "everything over IP." From mid-2007 onwards, two M22 cameras have been used to document the progress of the construction work at the Lohbrügge power station. Today, seven additional cameras placed at strategic locations in the building enable continuous documentation and optimization of the process chain. Hendrik Braasch individually configured each camera according to the requirements of each individual installation location: for monitoring the transportation of the combustion materials to the weighing station, the unloading of those materials at the dumping station, the transportation of the materials into the storage silo using a crane gripper and for monitoring the transverse conveyor, the combustion chamber, the ash container and even for a visual check of the smoke cloud. This way, the employees working in the power station control room can be continuously informed about the status of the plant.

The manager of the Lohbrügge wood-fired power station, Klaus Timmann, is convinced about the camera system: "A picture says more than a thousand numbers. Thanks to the high resolution and the true colors of the images, I am able to view every detail or have an overview of all important images." He is particularly fascinated by the unlimited mobile access to the cameras via UMTS (3G) Internet using his 3G iPhone. The high quality of the images considerably helps the on-call service team and enables them to evaluate the status of the plant from the comfort of their own homes. One time Klaus Timman was able to detect a discrepancy in the fuel composition from an image of the combustion chamber. Using a remote controlled crane, he was able to restack the panes of wood in the storage silo and watch a live image of the corrected combustion procedure in the combustion chamber, without ever having to leave his home.

Stress Resistance

Some of the cameras at the Lohbrügge power station are subject to particularly rough working conditions, especially the cameras in the combustion chamber. Using a MOBOTIX developer integration kit, the CCTV combustion chamber monitoring specialist Sobotta Sondermaschinenbau GmbH (www.sobotta.de) built a high-temperature-resistant camera with fan cooling for visual monitoring of the combustion process. Here, the CMOS image sensors that MOBOTIX exclusively uses, can prove their robust and backlight-proof design that sets them apart from half frame-based CCD sensors. After a full 18 months of continuous operation, the image quality remains excellent and with no need to exchange the cameras. The camera installed above the transverse conveyor to monitor the filling of the combustion chamber does not lead an easy life in this dusty enviroment. If the images were to become even the tiniest bit unclear, the lens is blown clean again with a compressed air nozzle. And this camera, protected by a dust-proof housing, plays the part perfectly. Another camera on top of the chimney monitors the color and the quanity of the smoke produced. On clear days, it stares directly into the sun for hours without generating burning effects or forming streaks. Cameras with CCD sensors don't have what it takes to stand up to these harsh conditions.

New Insight For The Automotive Industry

Thanks to a clear vision, intelligent ideas and superior dedication, the 200 employees at the German Skoda premises have succeeded in continually increasing the importer's market share. In 2004, a total of 96,465 Skodas were licensed for the first time in Germany (market share approx. 3 %) and sales of about Eur 1,087 million were made. The more than 1,200 partner companies, which are responsible for sales and service, can also be proud of this success rating.

Manufacturer-Support Repairs

To support the service partners and further increase customer satisfaction, Skoda Auto Deutschland has developed a new concept of manufacturer-supported repair service. The Skoda Auto Deutschland Technical Service Center (TSC) in Weiterstadt is the heart of this new repair service in Germany. The concept itself consists of several modules, which include the "hotline channel" and eleven so-called competence centers throughout Germany. These competence centers are selected Skoda partners, whose premises the import company has rented as the repair shops.

"TSC only comes into play when the service partner on location needs help in solving a problem," explained Dirk Weber, responsible for technical customer care concepts at Skoda. If the problem cannot be solved using the hotline channel, the vehicle is taken to the nearest competence center, where the experienced experts work.

Repair Shop Web Cams

"We find it important for the employees in the TSC to be able to get a visual impression of the problem," said Günter Ziegler, head of Technical Service at Skoda. "And since business trips are always quite costly, we wanted the competence centers to be equipped with Web cams." This enables the experts in Weiterstadt to "view" live the repairs done at the competence centers and to provide tips. It is also possible to provide a comparable vehicle and to demonstrate a sample repair – via a camera. The employees in the competence centers and in the TSC communicate with each other by image and sound and follow the moves via PC monitor or screen.

Tough Requirements

"We looked at a number of different camera solutions before we put this idea into actual practice," said Günter Ziegler. "And we had some pretty tough requirements to meet because we wanted the cameras to be easy to install and easy to use." At the same time, they had to accommodate

HiRes Video Innovations

Showing how it works (see right): Live communication between TSC and competence center via image and sound.

the rough, oily environment of an auto repair shop. Besides, for the diagnosis in particular, very sharp images were required with a high resolution.

Visual insight into repair services using MOBOTIX cameras.

All Expectations Exceeded

"ADS Networks GmbH, our network service provider, finally pointed us in the direction of MOBOTIX cameras," the head of Technical Services remembered. The MOBOTIX partner (www.ads.de) is located in Bad Homburg in Hessen and specializes in data networks, telecommunications and security. "We tested the cameras and found that they exceeded our expectations by far and came amazingly close to our 'think-big ideal'," continued Günter Ziegler.

"The camera is extremely robust and easy to use," explained Dirk Weber. "All we had to do was set it up in the repair shop, aim it and plug it into the ISDN outlet – done. Since the software is already integrated, no other installation was required. And we don't need an additional computer in the repair shop."

"With 1.3 million pixels, the camera gives us the high resolution we need," continued Stefan Junker from ADS Networks. "A wide-angle lens with a focal range starting from 0.3 m is useful for more detailed diagnoses. In addition, all such necessary functions as video management, speaker and microphone are integrated directly in the camera. The camera is easy to use with the standard Web browser of a PC, and the images can be viewed on any computer monitor."

Easy Decision

"Naturally, this was not a difficult decision to make," said Günter Ziegler. "Particularly because the price was also unbeatable. And ADS Networks was able to install the system quickly and very efficiently." The company is also very pleased with the after-sales service. "The customer care is excellent."

Skoda Auto Deutschland is currently using the MOBOTIX cameras in the TSC and in six competence centers. They plan to increase the number of cameras to 20 by the end of 2005.

Optimum Shipment Security

Europe's Largest Lime Works

7 million tons of lime are needed in Germany each year and approximately 25 % of this demand is met by Europe's largest lime plant in Wülfrath. This is where Rheinkalk GmbH, a member of the Belgian Lhoist Group, quarry some 8 million tons of limestone in their Flandersbach plant each year and use it to produce 1.8 million tons of burned and more than 3 million tons of unburned lime products. The plant's biggest customer is the German steel industry, which buys around 50 % of their production. The other half is produced for such fields as environmental protection and the building material and chemical industries.

16,000 Tons A Day

Every day, some 16,000 tons of lime products leave the Flandersbach plant – some of it by the truckload. This means that logistics play an important role, including the automated shipment process. Rheinkalk GmbH has placed its trust in the solutions delivered by Fritz & Macziol, a system supplier in Ulm, Germany and one of the leading suppliers of software, systems and services in Germany and Austria with approximately EUR 42 million in sales and 170 employees.

Pioneering And Diversified

Fritz & Macziol has made a name for itself as a general contractor in the field of pioneering automation solutions. From planning and development to the integration of complementary products and even to maintenance and software updates, the company has the complete spectrum of logistics automation covered. That is why, among other things, the VAS® shipment system software was developed, the same system used at Rheinkalk GmbH. This program links the technical software and hardware (scales, silo control, terminals) with the commercial components (order control, invoicing, controlling, etc.).

Unmanned And Independent

One of the advantages of VAS®: the entire loading and weighing processes as well as delivery processing, including the control of the gates, access controls and process controls, can be done by the truck drivers themselves. They simply log onto the system using special ID cards in credit card format. This so-called unmanned selfserve shipment completion saves on personnel costs and allows shipments to be picked up trouble-free at night or during the weekend.

The system makes work a lot easier for Karl-Otto Geruhn, head of shipment at the Flandersbach plant: "Our fully automated silos recognize the cards and the data stored on them and perform only the loading process that has been ordered. Any attempts to load other quantities or products are automatically rejected."

The Complete Range Of Data And Information

The shipment system software also offers an exemplary solution to solve this problem – an integrated visualization application. A network camera from MOBOTIX automatically registers all the vehicles on the scales with their license plate numbers, the date and the time and assigns the photo with all the information stored on the ID card to the corresponding delivery note and the calibration records. Thus, the shipment manager has not only the pictures, he has all the other data pertaining to the complete process. "So it's easy to find out quickly when a truck from any transport company brought a quantity of a product out of the plant. This means that any inconsistencies can be cleared up immediately."

The trucks on the scales are registered automatically ...

Innovative And Professional

For Claus Jordan, manager of Sales & Marketing Industrial Applications at Fritz & Macziol, the innovative potential and professionalism of the camera were the major reasons why his company decided to use MOBOTIX technology at Rheinkalk GmbH. In addition, the versatile application and attractive price-performance ratio of the solution had those responsible at Fritz & Macziol convinced. "And we shouldn't forget," continued the Sales and Marketing manager, " that the camera is very robust and weatherproof, making it particularly suitable for use in the harsh environment of a quarry company."

Trouble-Free And Reliable

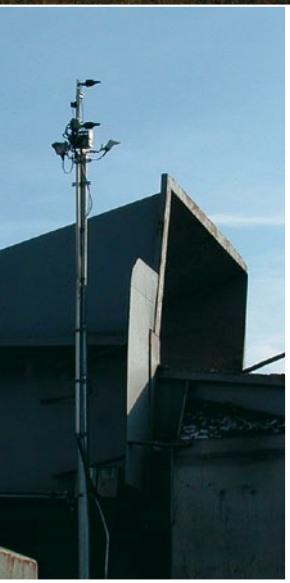
It is no wonder, then, that the system supplier uses the MOBOTIX solution for other customers in the raw material and bulk goods industries as well as in other applications, such as in building progress documentation. "We simply think that this technology is excellent," explained Claus Jordan. "And there has not been one malfunction yet. The cameras operate completely reliably." Shipment manager Karl-Otto Geruhn is also satisfied: "A system that I hardly notice because it fulfills all the requirements and works without a problem is always a good system."

... and linked to all the pertinent information in a screen form (licence plates blurred by author).

Ideal For Reliable Production Process Monitoring

Billion Euro Investment

There will always be paper. Despite the digital, or so-called "paperless" age, the paper industry is still booming in Germany. This means that bleached long-fiber cellulose, which is used to produce fine and printing paper as well as high-quality sanitary paper, also remains very much in demand. The high demand induced Mercer International Inc., an American-Canadian pulp and paper manufacturing company, to set up a new cellulose plant in the north of the German state of Saxony-Anhalt. On business premises close to 200 acres in size, Zellstoff Stendal GmbH processes about two million solid cubic meters of log wood and one million solid cubic meters of wood chips to obtain 570,000 tons of cellulose each year. To reliably monitor the cellulose production process, Zellstoff Stendal GmbH uses a total of 58 MOBOTIX cameras.



Too Dangerous

"Many areas in the production plant are too loud, too warm or too dangerous for our employees. But production in these areas still has to be carefully monitored," said Kay Heppner, system manager at Zellstoff Stendal GmbH, explaining the reason for the relatively large number of surveillance cameras in operation. That is why the Magdeburg branch of Siemens AG (www.siemens.de > Standorte > Magdeburg) was already commissioned to prepare a comprehensive communications concept for a data network during the project planning phase. The concept was to be designed not only to accommodate 'data' and 'voice/telephony' services, but also for the transmission of images, which would then be directly displayed in the production control rooms.

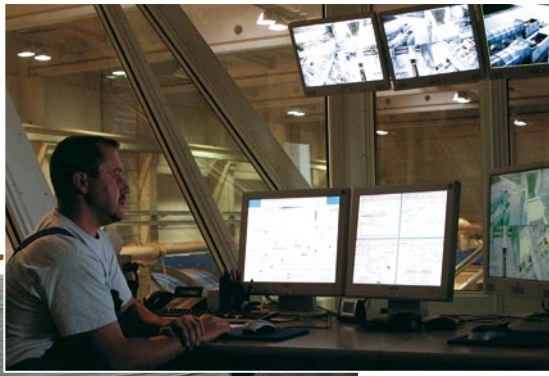
"We need these images live and in good quality to guarantee optimum monitoring," continued Heppner. "After all, without a properly functioning camera system, we would not be able to run the production lines. A camera malfunction would automatically mean production downtime at our plant."

"In the past, we had already had very good experience with the network cameras from MOBOTIX", said Axel Borchers. As the network expert at Siemens AG in Magdeburg, Borchers was in charge of preparing the communications concept and supervising the project. "The tests we then performed indicated that these cameras offered the image quality we needed, thus meeting all the necessary requirements. That's why we recommended this technology in our communications concept," commented Borchers.

"The Best System!"

"Of course, at the same time, we looked at a number of different systems and discovered that, in terms of quality and expansion options, MOBOTIX offered the best system overall," added Heppner.

"The camera does not have any mechanical parts and it is extremely robust. In addition, it has no problems with fluctuations in temperature and is able to deal easily with different degrees of brightness as well as backlight. In short: many of the details and features it is equipped with are also things that we urgently needed to monitor our production processes."



MOBOTIX cameras make it possible to monitor Zellstoff production without having to employ additional staff.

At Every Location

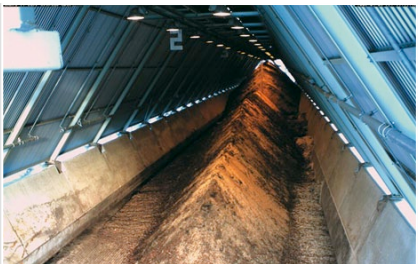
The system manager is also enthusiastic about the camera's flexibility: "I can connect the camera to any point in the network and make the image it records available to any other point with a normal PC or notebook. In the control room, the camera images can be easily switched to another monitor. Servicing and maintenance are also hardly needed. Besides, I can even log on at home to alter the configuration of a camera or change other settings."

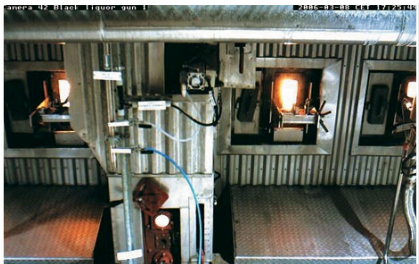
Although a total of three services at Zellstoff Stendal GmbH are now routed via a data line, there have been no adverse effects on system performance. Measurements have shown that the network load of the communications network is exceptionally low even when video images are being transmitted, something which can surely be attributed to the amply dimensioned 100 MB (copper) or 1 GB (fiberglass) lines as well as to the fact, that despite its high performance, MOBOTIX technology requires only an extremely low data rate.

MOBOTIX, Of Course

It is no wonder that system manager Kay Heppner is very satisfied with this camera solution. It also looks as though Siemens would like to continue working with this system. An Italian company is currently in the process of building a new paper factory directly in the vicinity of Zellstoff Stendal GmbH, and its communications network is being designed by the Siemens branch in Magdeburg As far as Axel Borchers is concerned, MOBOTIX cameras will be used for monitoring production processes in this new project as well.

Original images by MOBOTIX cameras.





Production Control In Real Time

Solid structural timber, boards, planks, wedge boards, floorboards, plywood, dimensional lumber, rough boards – each day, approximately 300 cubic meters of cut lumber leave the some 45,000 sq m factory premises of Dickel-Holz in Schmalenberg-Bad Fredeburg in eastern North Rhine-Westphalia, Germany. All the production processes are fully automated and computer-controlled. As a result, Dickel-Holz is one of the most modern sawmills in Europe. Because in a sawmill, you really have to keep a close eye on everything, a camera monitoring system was installed to monitor the production process in real time.

From Analog ...

State-of-the-art technical equipment: For many years, this term was also used to describe an analog camera monitoring system that delivered images in real time. "Only three employees work in the large production plant. And there are areas that they are not able to look directly into. That's why we needed a system that keeps a close eye on what is happening at any given time," commented Christian Dickel, Managing Director at Dickel-Holz GmbH & Co KG. For many years, there was no alternative to analog video technology, so it was necessary to put up with the disadvantages it involved. For example, the camera images are not available everywhere, they can only be viewed on special monitors in the control centers. By today's standards, the image quality is not acceptable, the viewing angle is limited and the entire system is rigid and inflexible.

"We shopped around for alternatives on the market, but were unable to find a solution to satisfy our requirements," said Christian Dickel. "Most of the time, we found cameras that offered only a few features for a lot of money, so we didn't think we were getting our money's worth." The Managing Director talked about his problem to Theodor Schmidt, the owner of Elektro Schmidt OHG in Schmallenberg. His business had taken care of all the electrical installations when the sawmill was built. Theodor Schmidt then consulted one of his former employees, Stefan Junker, about the problem, and he had the answer. The master electrician now works for ADS Networks GmbH, a MOBOTIX partner company (www.ads.de) specializing in data networks, telecommunications and security with head offices in Bad Homburg.

... To Digital

Stefan Junker knew that MOBOTIX was planning to launch the M22M, a new network camera model at CeBIT 2006. This camera is able to transmit up to 30 live images per second, with a resolution of up to 640 x 480 pixels. In comparison, a movie at the cinema shows just 24 images per second. Thus, the M22M combines the advantage of a higher frame rate, which only analog systems were able to achieve so far, with the wide range of features of a digital network camera, and provides real-time images in high resolution for reliable production monitoring.

Everything Important At A Glance

"The concept had me convinced," said Christian Dickel, summing up the situation. "Now we can access the cameras almost anywhere. To be more concrete, this means that I don't have to be in the control center in the production plant. I can keep an eye on production from my workplace in the office, via a VPN connection on my laptop at home or using an MDA when I'm on the road, in real time of course. Because several cameras can be switched on screen at the same time, the employees can see everything that's important at a glance and do not have to constantly monitor five or six screens simultaneously."

Remote Maintenance Included

Christian Dickel sees another significant advantage in the new system: the Austrian manufacturer of the saw line is allowed access to the network for maintenance work. "While the manufacturer was able to track the program flow of his machine from Austria via the Internet, he was unable to get a really concrete impression of the situation directly on location. We always had to explain what was actually happening at any given time over the phone. Now he can see for himself exactly what is going on."

Eight Mobotix cameras are currently in operation to monitor the entire plant. They include two dome cameras with day/night function and the super wide angle lens to monitor the outside area. Six M22M cameras keep a close eye on all the production stages: debarking the logs, over the conveyor, the circular head saw, the edger and the out-feed belts. All the cameras are connected with one another on their own network via Fast Ethernet. Because it is necessary to cover large distances on the spacious factory premises, the network includes fiber optics in the backbone.

Great Benefits

"I think that using this new camera system is of great benefit to our company," continued Christian Dickel emphatically. "It not only significantly improves working conditions for the employees, but it is also extremely important for us to be able to access the images from outside the control center and to look at them in real time."

HiRes Video Innovations

From analog to digital: The control center (above left) still works with both systems side-by-side. However, the superior quality of MOBOTIX cameras is obvious (photos above right and below are original images captured by the MOBOTIX cameras).

Fronius International GmbH, Austria

Future-Proof Perimeter Protection With MOBOTIX Cameras

Fronius, an Austrian company founded in 1945 that specializes in battery charging systems, welding technology, and solar electronics, uses MOBOTIX to protect all high-security zones and the entire outer perimeter of its building. Complete system with high-resolution MOBOTIX cameras delivers reliable monitoring services while also serving as an electronic gatekeeper. In 2005 the Fronius Group began to build its new main production and logistics center just a few kilometers from its main building in the Austrian town of Wels. As early as the planning phase for the Sattledt site, the company was looking for a partner to help design and implement more efficient security strategies and have a tailored concept in place in the blueprint stage of the structure. Fronius chose VALEO IT GmbH (www.valeo-it.de) based in the Bavarian town of Schwandorf. Founded in 2004, VALEO IT has already established a reputation as a professional, customer-oriented problem solver.

Tailored Solution

For VALEO IT Security Consultant Norbert von Breidbach-Bürresheim, it was easy to convince Jürgen Strasser, a member of the Fronius staff, on the advantages of a MOBOTIX-based security concept. Fronius has been using MOBOTIX equipment to monitor IT server rooms and other high-security areas for some time and is extremely satisfied with the results. The jointly developed concept called for an extremely reliable 24-hour perimeter security using the MOBOTIX M12D, D12, and M22M IP cameras. Because of the greater detail available in the images delivered by 3-megapixel cameras, fewer cameras were needed than with conventional analog solutions. The intelligent software in the cameras analyzes alarm criteria, as well as the buffering and compression of image and sound sequences. This means it is not necessary to constantly stream images for analysis to a central computer, which reduces demand for network bandwidth and storage space.

Webcam Function As A Welcome Additional Service

Before the excavators had even begun their work, two MOBOTIX high-resolution cameras at opposite ends of the property were installed diagonally to each other to monitor the building site. One was connected to the terminal box of a fiber-optic cable linked to the headquartes in Wels, while the other was powered by solar cells with battery backup and transmitted its images wireless to the first camera. The images proved highly valuable in efforts to improve the construction

process and were also placed on the Internet, where anyone interested could follow the rapid progress of the building work.

Automatic Gatekeeper

MOBOTIX cameras check all vehicles as they enter and leave the factory grounds. For instance, the barriers open automatically if the car's licence plate number is stored on a control computer. All this is made possible by four cameras set up to read license plates that are integrated into the barrier posts, coupled with the pattern recognition software sold by VALEO IT. With the automatic gatekeeper, suppliers, staff, and security personnel can enter and leave as they wish, while unknown visitors are required to identify themselves over the loudspeaker to staff at the front desk.

License Plate Recognition: Convenience And Security

Access control based on license plate recognition is used in many locations and applications, including at entrances to factories, in high-security zones, at gas stations or parking garages, as well as in fleet management. In addition to its primary security function, convenience for drivers also plays an increasingly more significant role. With this system, license plate numbers are recorded by a MOBOTIX camera and automatically scanned into the system quickly and reliably. The vehicle is identified and the driver does not need a ticket to gain entry to the garage or other facility.

Value-Added Service

MOBOTIX provides its professional MxControlCenter software free of charge and without license fees for an unlimited number of cameras and users. As part of this service, the owner is entitled to software updates for the entire life of the product. And thanks to the intelligent software in the camera, a central computer is no longer required, which reduces the need for additional network bandwidth and storage space.

Brilliant Images – Great Access Control

Up to 60 tractors a day roll off Fendt's production line in Marktoberdorf. Because components manufactured by external suppliers are delivered just in time, between 120 and 160 trucks drive in and out of the facility every day. In order to divert the heavy traffic away from the local town, at the end of 2003, the truck access was moved to a different location on the company campus, close to a bypass road. This meant adding a second gate, though the intent was to avoid hiring additional gate keepers.

The gate keepers' duties previously included letting trucks in and out of the campus and keeping a record of all trucks on site. "What we needed instead, was an automatic solution that would record license plates and permit vehicles that we had already registered to drive onto the campus, whereas unfamiliar vehicles would go through a brief registration procedure before being granted access," explains Klaus Kirschke, head of Fendt/AGCO maintenance services.

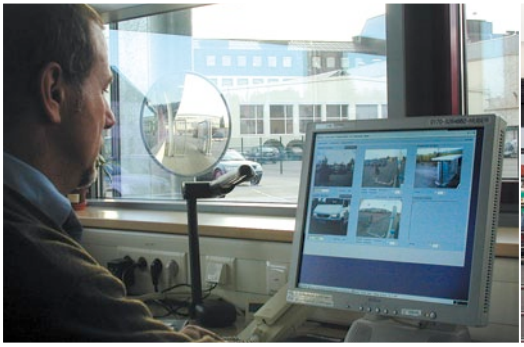
Optimum Image Quality

Scaltel AG (www.scaltel.de), a company specializing in network services, including network infrastructure, LAN and WAN technology, radio relay, centralized management and security solutions, was contracted to install the entire automation solution. Says Anton Huber, Scaltel's project supervisor, "We needed a subsystem based on an IP camera and special software to deliver images and to handle license plate recognition. For me it was important to use a MOBOTIX camera in the system because their technology delivers optimum image quality."

However, the system supplier, who was initially picked by Scaltel, was able to provide the requisite technology, but not reliable software. "So I began hunting the Web for alternative suppliers offering systems based on MOBOTIX cameras," explains Huber. The outcome was that Axxteq (www.axxteq.com), specialists in vehicle access control systems, were awarded the contract, but had just two weeks to implement a fully functioning solution on site.

Reliable Software

Axxteq's XPARQ access control system, which even recognizes foreign license plates accurately, integrates easily with existing IT and network environments without the need for software customization. This was also the case at Fendt, where the project was successfully completed on schedule.



Gate keepers use cameras to monitor automated access control operations 450 meters away.

High Resolution

But even the best recognition software is only as good as the image input, and image quality plays a critical role in successful license plate recognition. "That's why we prefer to use MOBOTIX cameras. They deliver good images and with their IPbased technology, are exceptionally easy to incorporate into existing network infrastructures," explains Dr. Andreas Scholz, CEO of Axxteq. "Even in difficult lighting – with backlight, vehicle headlight glare and reflections – MOBOTIX cameras produce images with sufficient contrast to read license plates in almost any condition." The excellent sharpness of the telephoto lenses and the high resolution of the new megapixel cameras are two more points that score heavily in their favor. "All this," says Scholz, "adds up to brilliant images and good recognition results."

Three MOBOTIX cameras are currently in operation at Fendt – one for each campus entry and exit point, and another covering a turnstile used by the employees. The cameras are set up so that the gate keepers at the main entrance 450 meters away can see the entire front of a truck and its driver, and yet still be able to read the truck's license plate. The images are saved, providing important documentation in the event of any irregularities.

Smooth Operation

So what typically happens when a truck drives up? "The truck drives onto an induction loop, the camera takes a picture and the software checks the license plate to see whether the truck has already been registered with us. If it has, the gate opens automatically," explains Klaus Kirschke. "If it is an unfamiliar vehicle, a gate keeper contacts the driver over an intercom, quickly records the truck's data in our system and then grants access. All vehicles registered in this way are automatically able to leave the campus again, and the software records their departure."

Klaus Kirschke is thoroughly satisfied with the system: "We know exactly which vehicles are currently on site, we can monitor and control access easily and we haven't had to hire any additional personnel."

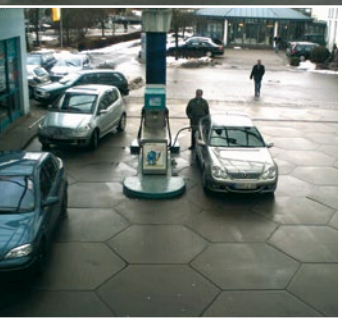
HiRes Video Innovations

The original camera images demonstrate how reliably MOBOTIX technology works, even in poor light (see left).

Greater Security For Staff

Exceeded All Expectations

"I am a businessman at heart – and that's why I like to get down to business!" Just one look at Franz Schreyer will have you convinced. After all, with all his hard work, his innovative nature and his entrepreneurial spirit, this businessman has managed to build up a very respectable corporate group in just about 30 years. In 1977, he first founded Schreyer Haustechnik GmbH Markt Indersdorf, just 30 km south-east of Munich, population 10,000. Ten years later, Franz Schreyer went with his "gut feeling" and started up a car wash, in 1993 an elegant gas station with the most modern shop using latest technology, and in 1996 a truck wash. The Schreyer Corporate Group also includes a bathroom studio with an attached store and a real estate division. The Group currently has more than 50 employees in total. To protect the gas station and the shops as well as to improve staff security, the company has installed 12 MOBOTIX cameras. Further installations are in the planning.



Everything under surveillance at the gas station (original images by the MOBOTIX cameras).

Safety First

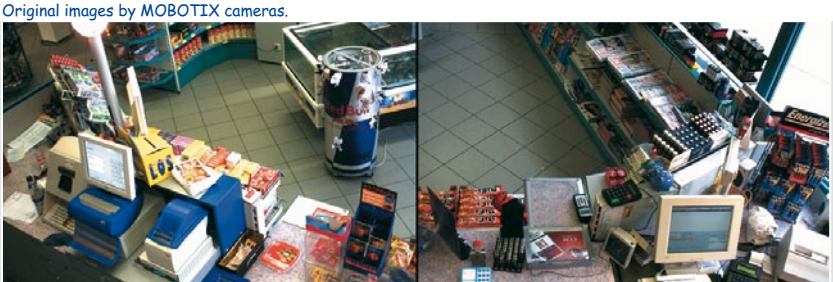
"With the few tank-and-run incidents that occur in the countryside in Bavaria, we don't really need camera surveillance," said Franz Schreyer. "But it does increase the security for our staff considerably. And that's the main reason for me".

During his search, Franz Schreyer talked to a number of well-known suppliers of video technology and found out some surprising things. "All of the manufacturers offered me analog technology. The first sales rep promised me the moon. Later their technician showed up and listed me all the problems involved. I also found out that analog technology is much too complicated. For one thing, you have to search a long time until you find the pictures you want to have." Franz Schreyer also had a hard time understanding why he was told that he needed a total of eight cameras for four gas pumps.

Nothing You Can't Pay For

"All of the large suppliers advised me against network cameras; they said they were much too expensive. But this was exactly the technology that I was interested in," remembered Schreyer. After that, he paid a visit to the MOBOTIX booth at Systems in Munich in the fall of 2005, where the staff explained exactly how the network cameras work. "The MOBOTIX staff took away my fear of getting into costs that were over my limit. And they were also able to directly refer me to a Secure Partner."

Original images by MOBOTIX cameras.



Willi Fischer, electrician and owner of Netzwerkservice-Fischer (www.netzwerkservicefischer. de), was put in contact with Schreyer. "The man is a solution-oriented tradesman and technician first – and a salesman second," commented Franz Schreyer. As a technician, Willi Fischer soon realized that a total of four MOBOTIX cameras would do more than an adequate job of surveying the gas pumps. Another camera was added to monitor the entrance of Schreyer Haustechnik GmbH.

Beautiful and inconspicuous: The MOBOTIX FixDome camera.

The Total Overview

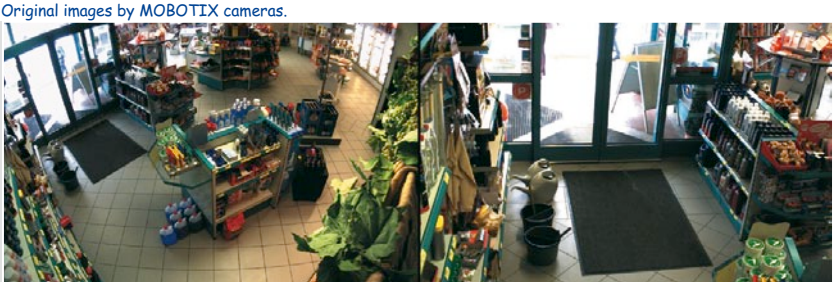
Of course, the relatively large shop at the gas station also had to be monitored by the cameras – first, to provide greater security for the staff, but also to curb shoplifting. For the shop and the storeroom, Willi Fischer recommended five MOBOTIX D10-FixDome cameras, which can be configured in a variety of ways. Each camera can be equipped with any two lenses. The advantage: The five FixDomes installed generate 10 informative images. One camera with two standard lenses, for example, watches over the two checkout areas. Another camera is equipped with one fisheye lens and can have a great view of the entire shop while using the other standard lens to monitor the entrance area.

"Outstanding Image Quality"

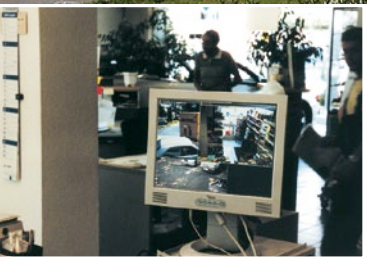
With a resolution of up to 2560 x 960 pixels, the FixDome camera delivers incredibly sharp images that include a lot of detail. "The image quality is absolutely excellent, and another important reason why I decided to go with MOBOTIX," commented Franz Schreyer.

The combination of a network camera system with an attractive price and outstanding image quality has convinced Franz Schreyer to equip the truck wash and the do-it-yourself washing stalls with MOBOTIX cameras in the near future as well. Another advantage is, as he commented: "I'm on the road a lot, so it's great to be able to take a look at the company now and then when I'm not there." No problem for MOBOTIX technology. All the owner needs on the road is a laptop, Internet access, a standard web browser and the right passwords.

Original images by MOBOTIX cameras.



"Gas-Up-And-Run" – Not A Chance



Once quite common, the combination of a gas station with a car dealership is something you don't see very often anymore. For Heinrich Krawietz, co-owner and managing director of Auto-Schöttle in Stuttgart-Botnang, however, the gas station presents an opportunity to win customers for the dealership repair shop. And that is why he continues to uphold a tradition that has already endured some 50 years.

Running a gas station, however, does involve certain security risks. After all, now that gas prices keep on climbing, gas theft has also been on the increase over the past few years. To stop these so-called 'gas-up-and-run' customers, two small analog surveillance cameras, each with a miniature screen, were already installed in 1993. "But these cameras did not have a recording function, which means we would have had to watch them all the time," reported Heinrich Krawietz.

Senseless Break-Ins

Apparently, this type of surveillance just didn't do the job. "Another problem we had was that old tires or used oil canisters were 'disposed of' on the gas station property in the middle of the night," said the manager. "And we wanted to know just who was using the premises as a dump site." Then, when the cashbox at the vacuum station was broken open for a mere EUR 35 in the summer of 2003, it was time to take action. The decision was made to purchase a new, more powerful camera system.

Ideal Conditions

After receiving an advertising letter, Heinrich Krawietz contacted MOBOTIX. The company, based in Kaiserslautern, Germany, then asked its partner, IBC (www.housewebcam.de), to present potential solutions on site. It soon became evident that the network cameras offered ideal conditions for the daily operations at the gas station: "I had a very definite idea on the functions I wanted a camera system to perform in my business," commented Heinrich Krawietz. "And the MOBOTIX solution fulfilled all my expectations." The company manager was particularly impressed by the extensive recording functions, the precise event control and the convenient display of the camera images on the computer screen. The advantage of using event control is that sequences are not recorded unless there is movement in the previously defined areas, i.e. when something is actually happening. This saves storage capacity and reduces search time. These exemplary features finally prompted the company to order three cameras and to have them all installed at once.

No Tapes To Change

In addition to the recording function already integrated into the MOBOTIX cameras, IBC designed a closed network that uses a standard PC as the file server. The reason: "If a camera is stolen, the owner still has access to the images," explained IBC owner Norbert Raif. "And it is now also possible to record events over a longer period of time." Currently the camera images are stored for five days at a time. After that, the system automatically overwrites the older sequences. "That is one reason why we didn't opt for an analogue camera that records onto tape," emphasized Heinrich Krawietz. "Because in that case, we would have had to change the tapes frequently."

All it takes is three cameras to monitor the entire gas station area.

Digital Is Optimal

Other advantages compared to analog technology: since only actual events are recorded, there are no "empty spaces", thus saving storage capacity. And when needed, the images can quickly be found using date and time and forwarded directly to the police by e-mail in high quality.

Complete Surveillance

All it takes is three cameras to monitor the entire gas station area: one camera records the gas pumps, a second one is aimed at the vacuum station and a third camera keeps an eye on what is going on inside the shop. "This arrangement is an advantage for us because it means that the shop does not have to be staffed all the time," explained Heinrich Krawietz. "One of the office workers can take care of the cash register because she always has a direct view into the shop on the monitor at her workplace."

Highly Recommended

There have not been any unpleasant events since the cameras were installed, a clear indication that the solution also has a preventive effect. By the way, the German Southwest Broadcasting Company has recommended the exemplary MOBOTIX solution as ideal for other companies as well: in a regional TV program in Baden-Württemberg, an extensive report on the surveillance concept at Auto-Schöttle was aired in December 2003.

A Smile Opens The Gate

In 1996 the founder of Box-It Central, Les Evans hit upon the ingenious idea of converting redundant farm buildings owned by their family agricultural business into modern storage units. The company operates a fleet of vehicles to service the clients' requirements by collecting their files and documents and depositing them in modern storage units. An intelligent management system that combines document management software, barcodes and scanners ensures that the documents requested for return by the customer can be found quickly and easily at any time.

An important aspect of the Box-It Central business model is being able to guarantee the security and physical safety of the records and documents it stores. The storage units had already been equipped with security systems and are humidity controlled. MOBOTIX network cameras were recently added to these systems to make it easy to keep a watchful eye on everything going on at the entire premises.

Smile for the MOBOTIX camera.

Security For Customers And Files

With the growing success of the business, the amount of traffic on the premises also began to increase. As a result, Box-It Central began to look for a solution to monitor the outside facilities and control access to the grounds in order to increase security for the customers and documents alike. "Our archives were already protected against intruders and fire hazards by alarm systems and smoke detectors. By installing a video surveillance system we are now able to track which vehicles have entered our site and their movements around our premises", states Les Evans. Box-It Central was looking for a system that was as maintenance-free as possible and would require no or minimum staff resources, which ruled out a solution using analog cameras that record onto tapes and require regular tape changing. In cooperation with system supplier Active Communications (www.activecomms.com), the company evaluated a number of different systems before they decided to opt for MOBOTIX network cameras in April 2005.

A Diverse Range Of Software Functions

Les Evans commented: "The MOBOTIX network cameras were the perfect choice to provide what we needed on our premises. The cameras are maintenance-free, no additional, expensive software is required and further cameras can be easily integrated into the system at a later date." The people in charge at the company were also impressed by the extensive range of recording functions available, the highly precise event-controlled recording and the convenient display of the camera images in the web browser of the computer. Event-controlled recording is a big advantage, since the camera only records when the motion sensor indicates that something is actually happening. That saves storage capacity and reduces search time. In the end, it was these exceptional features that convinced Box-It to order and install ten MOBOTIX cameras at once. The project, which also included the installation of a backbone network for the cameras, was completed in June 2005.

Friendly Greeting

Visitors to the Box-It Central company are greeted by two cameras at the entrance. "Please press the button to open the gate and smile for the camera" can be read on a sign directly at the entrance to the yard. These images do not only keep track of who and what vehicles enter the grounds. The cameras also register the vehicle license plates. The FixDome cameras with two individually adjustable lenses are ideal for monitoring the spacious business premises. Since the camera systems provide images in megapixel resolution, it was possible to install them at a height of approx. 4 meters, enabling them to cover a large area, while still delivering detailed images of the events on the grounds. The images from all the cameras can be conveniently viewed in the Box-it Central office on a separate PC equipped with a dual graphics card and two 19-inch TFT monitors.

Security As A Good Marketing Argument

The highly visible cameras not only serve as a deterrent to thieves and vandals, they also have positive added benefits that can be used in marketing Box-It Central services. "Our customers can store any of their documents, including their sensitive material with us in complete confidence. We are now planning to expand our services to include the storage of electronic media. This added security will make it easier for us to take this step," concluded Les Evans.

Cameras That Talk Back

Box-It Central plans to make even more storage room available to its customers and to install additional cameras there as well. In addition to remote monitoring via the Internet, the company also intends to take advantage of the MOBOTIX cameras' integrated functions for voice transmission in the future. And then, customers might hear a friendly "Welcome" from the camera at the gate when they press the button.

Original images by the MOBOTIX cameras

Protecting International Ports And Cargo

Panama Ports Company (PPC) is a member of the Hutchison Port Holdings, which operates 255 berths in 44 ports across the world. PPC operates two ports in Panama 24 hours a day, all year round. Port of Balboa Container is located at the end of the Panama Canal over the Pacific Ocean. Port of Cristobal Container is located at the other end of the Panama Canal over the Atlantic Ocean.

Working together with local integrator Multitek, specialized in system level-integration, PPC was able to find the right system to upgrade its video surveillance cameras. The new system would have to be virtually maintenance free, provide high-resolution image quality, and be able to withstand the weather conditions of an ocean environment. Moreover, each individual camera should be capable of monitoring larger areas with greater detail.

Container loading at the Panama Port.

After intensive discussions with Multitek and MOBOTIX, PPC became convinced that MOBOTIX could provide the system to meet their high-performance requirements: high resolution, integrated intelligence, cost-efficient recording, analytical software and extremely robust design – to better protect their ports, employees, and cargo. There were three main areas of concern: theft and injury prevention as well as protection from acts of terrorism.

Installation

During the initial phase, 54 MOBOTIX M12 IP video cameras were installed at PPC, typically at 300 feet (90 m), with 2 cameras on each crane. The multiple configuration possibilities with the MOBOTIX network cameras, including single or dual lens, wide-angle or telephoto, day or low-light, provide the flexibility to deploy the same basic camera type into a wide range of specific viewing requirements with varying lighting conditions.

Image Quality

One of the things that impressed PPC most about MOBOTIX was the exceptional image quality of the video surveillance cameras. "We were used to the grainy, blurry images of the original surveillance system," said Michael Hernandez, CIO of PPC. "When we first saw MOBOTIX camera images, they were so clear it was like watching a DVD. That sort of quality has become an absolute necessity in our industry."

Weather Conditions

PPC had particular concerns related to the weather conditions of a tropical coastal environment: salty air, frequent winddriven rain, intense heat and humidity. MOBOTIX cameras are built to withstand extreme environmental conditions: from -30 to +60 °C (-22 to +140 °F). There is no worry about deterioration due to salt air, camera lenses fogging up or the system getting rain or heat damage.

Audio Features

The fact that MOBOTIX cameras have both audio and video features is a big advantage for PPC. "We don't just need to see what's going on, we need to hear it as well," said Michael Hernandez. "Our overall security and safety is dependent on having both these features." MOBOTIX cameras can also trigger audio alarms that warn individuals to stay away from dangerous areas.

The audio feature also allows PPC to communicate directly with an employee, if they are spotted in danger. The dual lens feature of MOBOTIX cameras serves PPC's need to cover very large areas. It is essentially like having two HiRes megapixel cameras for the price of one with the added advantage of being able to see a much wider area.

Saving Costs

For PPC, using MOBOTIX technology means not only a much higher level of safety and security, but the reduction in the number of cameras required combined with reduced storage requirements and the fact that MOBOTIX systems need no additional software and are license free also add up to a substantial overall cost savings to PPC.

Thanks to the high level of satisfaction with the MOBOTIX cameras, Hutchison Port Holdings intend to install an additional 400 over the next few months.

Operation locations of MOBOTIX cameras.

Optimal Combination For Traffic Monitoring

MOBOTIX camera with the Mobile Connect Box for the UMTS transmission of current traffic images (during installation still open).

"De Fußball kummt hääm" – "Football is coming home" – this phrase uttered in Palatinate dialect is a clear indication of where the people here believe that the home of football is: in Kaiserslautern. Being one of the host towns to the 2006 World Cup Championships, Kaiserslautern used state-of-the-art technology in many aspects of football stadium security. WVE GmbH (www.wve-kl.de), the community services provider, for example, installed a complex traffic monitoring system throughout the entire city, at the autobahn exits and in large parking lots. After all, during the World Cup it was high priority to channel the traffic flow so that the fans were never in danger of being offside.

An Affordable Solution

57 MOBOTIX network cameras make up the main part of the traffic surveillance system. The cost for all the equipment – including the cameras, the control center and installation: approximately EUR 200,000. This means that of all the 12 World Cup cities, Kaiserslautern has by far the most cost effective traffic monitoring system.

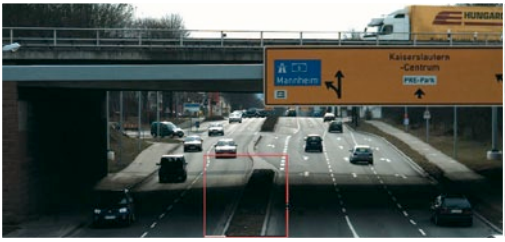
An event with the whole world watching, it was absolutely vital that everything worked right down to the last detail. Is that why the project group decided to go with MOBOTIX cameras? "Their reliability was certainly one of the most important reasons," confirmed Michael Theis, the project leader, who was responsible for the selection of the features and functionality as well as for installation of the cameras together with Dieter Burkey, master electrician, and Ralf Kattler, a technician. "But the cameras also deliver excellent images, are network compatible and good value for the money. Besides that, we are also using these products in other projects and are very satisfied with the results."

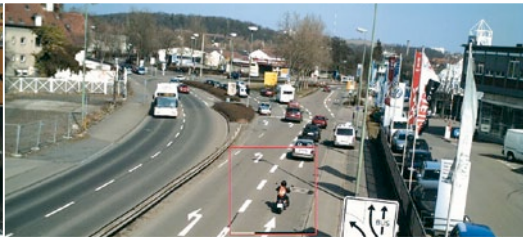
UMTS Transmission

To avoid the costs of excavation and laying of a complicated cable network, the project group opted for a mobile solution for the transmission of the image signals: all MOBOTIX cameras were networked with the control center using Mobile Connect Cards from Vodafone and Mobile Connect Boxes – a development of system supplier konzeptpark GmbH. In other words, the image data was transmitted via UMTS. Each camera sent a 640 x 480-pixel image every 30 seconds, which the UMTS bandwidth was easily able to accommodate. The low frame rate was chosen to save on transmission costs, while still allowing a reliable evaluation of the prevailing traffic conditions. If desired, it would be possible to have the images sent every ten seconds.

HiRes Video Innovations – Made In Germany

The image information is evaluated at the control center (below right). The traffic images (photos above right) are original images captured by the MOBOTIX cameras.





Another advantage of this solution was that the camera positions could be changed quickly and at short notice meaning that the complete concept was not only affordable and flexible, but also quick and easy to install.

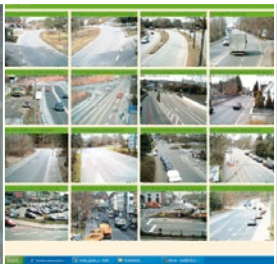
On Location Via Remote Control

The camera images transmitted via a receiving station and a VPN tunnel were to be stored on an FTP server. "In contrast to the monitoring systems used in other World Cup cities, the images were 4 times higher in resolution in VGA format, i.e. transmitted with 640 x 480 pixels," Michael Theis continued. "That's why we were able to obtain a much higher degree of detail at almost the same image size and 30 % JPEG quality compared to the otherwise usual small CIF format with 352 x 288 pixels. This made it possible to get an exact impression of the situation on location directly in the traffic control center." A corresponding server-client application and the easy-to-use user interface, which was individually customized to meet the special needs of the police, also ensured that everything was running smoothly.

On the days when games were played, there was no room to spare in the control center. Approximately 25 employees from the police, the city, technical services and emergency medical services evaluated the incoming information from the traffic monitoring system and were ready to take action immediately, if necessary. In addition, some of the (shuttle) bus lines were monitored, the traffic radio station was kept up to date and the traffic signals were controlled as required.

"Invaluable Assistance"

"The camera monitoring system was an incredible help in getting our job done," commented Chief-of-Police Siegfried Ranzinger, who was responsible for all the traffic flow management and control in Kaiserslautern during the World Cup. "It allowed us to monitor all relevant traffic intersections at the same time, to assess how complicated a possible problem might become and to react as quickly as possible."



Network Video: Train Station Security

Modern Methods In Magdeburg

A 650,000-Euro high-tech announcement center has been operating in Magdeburg since the end of May 2004. In addition to the city's own central station, the center also serves 20 other stations between Schönebeck/Elbe to the south and Genthin to the north east. Advanced and proven technology enables the 15 Magdeburg DB Station&Service employees to quickly assess the situation at three announcement points and to pass on the accurate information to travelers and visitors.

High Expectations

"The central station in Magdeburg serves the regional capital, so the expectations on technology here are high," says Sabine Rothenberger, director of Magdeburg station management.

When the new announcement center was built, a camera technology was needed that would meet the station director's high expectations. Since the employees at the announcement points have no direct eye contact to the in- and outgoing trains, they need reliable images of the tracks at the central station, and at the nearby Magdeburg-Neustadt and Schönebeck/Elbe stations.

"Try MOBOTIX!"

The new center was planned and managed by DB Services Technische Dienste GmbH, a subsidiary of the German railway company. As the team leader of communication systems team in Magdeburg, Ronald Seidel was instrumental in finding the ideal camera technology. "It was extremely helpful," Seidel says, "to be working for a company with nationwide activities. All 32 team leaders around the country regularly pool their information about new technologies that are really well suited for our needs." Seidel says his colleagues gave him the lead he was looking for: "Try MOBOTIX cameras", they told me. "The technology is excellent and they provide good service. And the people are competent and always willing to help."

Systematic Testing

Ronald Seidel asked for the IP addresses of the MOBOTIX cameras at Saarbrücken station where a similar application had been in operation since 2003. He wanted to see for himself that this solution was really working. "I was also impressed that the technology had already been approved by Corporate Purchasing," he recalls. "Finally, I ordered one camera so I could

HiRes Video Innovations

MOBOTIX technology permits direct eye contact to the in- and outgoing trains. (Original camera images).

test it thoroughly." The team leader gets excited when he talks about his findings: "The MOBOTIX camera is extremely versatile, delivers superb quality and offers excellent resolution."

One of the three announcement points at Magdeburg central station.

Images Around The Clock

Today, 17 MOBOTIX cameras are installed at Magdeburg central station, three at Magdeburg-Neustadt and another two at Schönebeck/Elbe. All cameras record images of the tracks and platforms around the clock, and employees can view them simultaneously or individually per mouse click. Additional stations are to be equipped with the same technology in 2005.

"We don't just use the cameras to monitor how long the trains are stationary, though," Sabine Rothenberger stresses. "Station security is another important issue for me. Railway stations in large cities are busy places. Using cameras is one valuable way to guarantee the security of our customers, for whom we are responsible." Accordingly, the station director is already thinking of deploying the MOBOTIX technology to some key points this year.

Security Partnerships

Rothenberger can well imagine collaborating with the local government, the police and the Federal Border Control to install MOBOTIX cameras in the front-office area, in front of the station, at the central bus stop and at other critical points in the vicinity. "Security strategies always need security partnerships to work properly," she explains. "The primary purpose of camera surveillance is preventative, i.e. to stop potential threats before they occur. At the same time, the MOBOTIX cameras have such versatile and convenient recording functions that they are also perfectly suited even to investigating and prosecuting crime."

And the cost issue? "We are always looking for solutions that give us excellent return on investment. That goes without saying," Rothenberger adds. "This was one of the main reasons why we chose MOBOTIX. Besides, we don't want to be cheap when it comes to security!"



Aviation Security

One of 26 MOBOTIX IP cameras installed at Coventry Airport.

Since 31st March 2004, the TUI subsidiary Thomson-fly.com is utilizing the Coventry Airport located in the heart of the English Midlands as the ideal center for low-cost flights to 17 European cities. In November 2004, the Coventry Airport will also become a destination for the German low-cost airline Hapag-Lloyd Express. In only less than six months since opening for business, more than 380,000 travelers have started their vacations from Coventry Airport. Within the first 12 months, altogether 500,000 passengers are expected.

Conditions And Regulations

Additional security measures have been put in place by the British Department of Transport, relating to airport security: "At Coventry Airport we have further improved our security measures with the installation of CCTV," explains the Director of Customer Service, Mike Morton. "To be sure, we keep an eye on our passengers from the check-in to boarding and also upon arrival – the entire time they are on the airport premises."

Ideal Solution

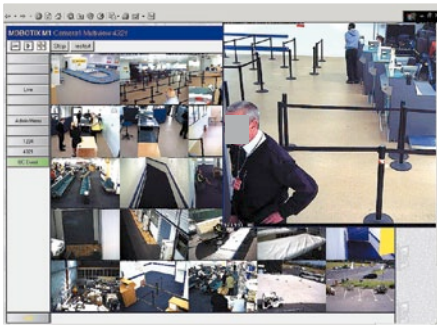
But how to implement such tight surveillance? The original video system (six analog cameras with six recorders) proved to be unsuitable to fulfill the task. "The analog video technology is too expensive and awkward – and the image quality is not sufficient. This was enough reason for us to look for a better alternative," explains Mike Morton. All research lead to MOBOTIX, and soon it was clear that the digital network cameras from the German manufacturer were the ideal solution for Coventry Airport. "The cameras include internal memory and can temporarily store the video sequences in the case of server failure," comments Security Administrator Dilip Mistry. "When there is disturbance on the network, it is no problem to access the camera storage. When the server is again available, it is automatically updated." The cabling was also simpler to implement with MOBOTIX cameras that need no extra power lines, but can use the power from the data cables. "In addition, the MOBOTIX cameras are stable and robust as well as easy to install and upgrade," describes the administrator.

Expressive Images

With so many advantages, it is no surprise that the relatively small Coventry Airport has at least 26 MOBOTIX IP-cameras with focus on all areas possible. Seven of these cameras are megapixel cameras with zoom function, and they deliver expressive images also from far distances such as the parking area, the check-in and the departure hall.

Everything At A Glance

MOBOTIX Multiview makes it all possible: all camera images are observed in a control room through a simple Internet browser – 24 hours a day, seven days a week.



All images from the cameras are constantly monitored using an ordinary web browser.

The recording function of the MOBOTIX cameras is equally important since the right images of the extraordinary events must be readily available. According to the law, these video sequences must be stored for 30 days. However, it would be a waste of expensive hard drive space to have all data from all 26 cameras saved 30 days around the clock. For this reason, the MOBOTIX cameras record only when something in the clearly-definable image zones moves. This so-called event control is even managed to save storage space: the camera at the check-in counter for example, records an image only every 90 seconds. This is more than sufficient, since a passenger spends two minutes on the average at this counter.

With this arrangement and control in mind, a surveillance system that doesn't miss anything was put to work at the Coventry Airport. Each passenger, in the interest of flight security, will be registered at all important locations during the length of their stay at the airport.

A Model Of Security

"Even the British Ministry of Transport is impressed by this solution," explains Mike Morton. The natural result: the camera surveillance system serves as a model for other security projects to come. "London-Heathrow airport is planning on a new terminal. Short while ago, a colleague from there came to visit us to see our IP camera solution," Mike Morton describes proudly. "The railway company Central Trains and the British Telecom are also interested in our surveillance system." The last question, whether they are satisfied with the MOBOTIX solution, remains for Mike Morton and his colleagues to answer. "More than satisfied," stresses the Customer Service Director.



Lübeck – A Safe Harbor

With a market share of 40 percent, Lübeck is Germany's biggest Baltic port. Last year, 25.4 million metric tons of goods were handled here. The port's heavy traffic, with around 150 departures a week to 24 partner ports, contributes to Lübeck's success, along with the exceptional ability to handle roll-on/roll-off traffic and the excellent hinterland access.

The public port facilities, operated by LHG (Lübecker Hafen-Gesellschaft mbH), include four zones with a total area of 120 hectares and 15 ship berths. Some 730,000 trailers and trucks and around 1,800 block trains move in and out of the facility each year. Almost 90,000 container units (TEU) are also transshipped here.

Trailer Check

Security plays an absolutely crucial role in vehicle handling operations. With the trailer check system, one of the modules of the integrated harbor and logistics system (HIS) operated by LHG (www.portit.de), trucks reporting in and out at the gate are scanned using advanced new systems and photographed from all sides by digital cameras as they pass through a portal. This enables the port operators to determine, for example, whether damage to a vehicle occurred inside the harbor or if damage was on vehicle already before entering the harbor area. Also, theft of trailers is almost impossible.

"We did run into difficulties, though, when we commissioned the original system at the Scandinavian quay," admits Thomas Kapscha, an external employee who worked on the LHG scanner portal project for Lübecker Hafen-Gesellschaft's IT department. "In the winter, the sun was so low that the existing cameras didn't do their job properly; you couldn't see anything on the images. We tried changing the cameras' positions, but then they couldn't focus on the license plates. That meant we needed additional cameras to help us solve the problem."

No Problem With Backlight

The decisive tip came from an IT service company, Conect Kommunikationssysteme GmbH (www.conect-online.de) that introduced the LHG supervisors to MOBOTIX camera technology. The system was then thoroughly tested and compared with rival solutions. "We discovered," says Thomas Kapscha, "that the IP camera from MOBOTIX was best-suited to our needs. The system was

exceptionally easy to integrate with our existing network as well as with the scan portal software. The camera also offers excellent value for money and has no problems with backlight."

Digital cameras take pictures of trucks from all sides in these scan portals.

Less Effort

Once the cameras had been deployed successfully in the scan portals, it was clear that the MOBOTIX technology would also offer the ideal solution for implementing a more extensive video surveillance coverage required in order to obtain ISPS certification. The International Ship and Port Facility Security (ISPS) Code prescribes a large number of internationally required measures to improve harbor security. In addition, the port operators are planning to gradually phase out current analog systems and to replace them with IP cameras.

The solution will be used initially for pedestrian and vehicle access control. At Schlutop Terminal, which is not equipped with a scan portal, a total of six cameras – three each way – have been installed to photograph the front, rear and drivers of inbound and outbound trucks and trailers. This is necessary because the tractors and trailers generally have different license plates, and it is important to know exactly who is on site. "It's really useful in this case that the cameras can be controlled using a range of different signals rather than solely via the in-built video sensor," explains Thomas Kapscha. "The front camera is triggered by the access control system. It begins taking pictures when the barrier goes up. The rear camera goes on when the truck leaves the induction loop. And pictures of the driver are triggered by a network signal from the front camera. In comparison with other IP systems, these cameras require far less effort in terms of cabling and installation."

Plans For 40 More Cameras

At present, LHG has 25 MOBOTIX cameras in operation. The benefits are not limited to the documentation of damage to trucks and trailers only, but the cameras have also enabled LHG to bring a number of crimes to prosecution, including fuel theft, trespass and vandalism. LHG is evidently very satisfied with the system since the company now has plans to deploy another 40 or so cameras.

MOBOTIX technology is used in the scan portals (see left) as well as pedestrian and vehicle access control (see middle and right).

How To Get Straight From A To B

The perfect overview: original images by MOBOTIX cameras.

The city of Kaiserslautern is committed to serving its citizens well. This is reflected for example, in the wide network of public transportation the city operates. 13 day and six night bus lines as well as approximately 450 bus stops throughout the city make sure that the 105,000 inhabitants of the German metropolis can get conveniently from A to B. It is no wonder, therefore, that around 13 million passengers use the services of the TWK Verkehrs-AG each year. This traffic company is a division of the "Technische Werke Kaiserslautern GmbH" (TWK), a modern utilities company that provides the city with power, district heating, water and public transportation.

Good Connections

Kaiserslautern has a star-shaped public transportation network. All the bus lines begin and end in the city center at the "Rathaus" and "Schillerplatz" bus stops (photos above and middle left), which are only a few meters apart. As a result, these central bus stops are the main transfer point for the passengers. In the TWK Verkehrs-AG control center, which is only about two kilometers away, the traffic managers are not only responsible for making sure that all the buses are up and running on schedule, but they also have to ensure that each and every passenger makes the connection to the next bus.

"Of course, that is not possible unless the traffic managers on duty have a direct view of the current situation," commented Boris Flesch, division manager at TWK Verkehrs-AG and managing director of the WNS. All Kaiserslautern buses now have numbers on their roofs, so that they can be identified and recorded by the cameras mounted on the lampposts. Thanks to the transmission of the images, the traffic managers have all the information they need about the current situation at any given time. If one bus is late, for example, the bus driver of the connecting line can be radioed and asked to wait for the passengers wanting to connect.

New System

This system originally used analog cameras. "But, that technology was really not optimal," recalled the division manager. "The cameras often didn't work properly because of line problems. The data volume was too high, the frame rate too low, the quality less than satisfactory, and we had to deal with these problems because they hindered the work of the traffic managers."

No wonder, then, that the company began to think about upgrading their camera system. So finally, five MOBOTIX cameras were installed at the central bus stops. A factory tour at MOBOTIX revealed that due to their technical qualities, versatility and convenient features, these cameras would be the ideal solution to the problems that the traffic company had.

Problem-Free Conversion

"Converting the system went off without any problems," reported Thorsten Moßmann, who, as an employee of K-net Telekommunikation GmbH, was responsible for the realization of the project. K-net is a 70%-owned subsidiary of the Technische Werke Kaiserslautern and also serves the community as a network operator.

"We were able to use the copper wiring that was already installed for digital transmission," explained Moßmann. "All we had to do was to remove the old cameras and the analog-digital converters and connect the new cameras. The image signals now all come to a central switch and are then forwarded via the fiberglass cable using municipal ethernet to the traffic management center. That's where the file server is that stores the image data."

Security For 11 Friends

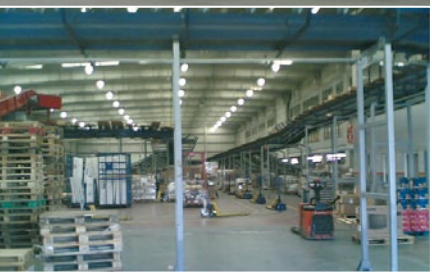
Two other cameras keep a watchful eye on the "11-Friends" monument at the Fritz-Walter Stadium as well as on another sculpture in front of the TWK office. They have been installed to prevent vandalism and, should it occur, to help identify the culprits. These cameras use event-control and the other recording functions provided by MOBOTIX technology. "We don't want to use these cameras to monitor people in general; all we want to do is to protect our property," explained Boris Flesch.

Now that the system has been in operation for more than 12 months, it is natural to ask if the investment was worth it. "Thanks to the MOBOTIX cameras, our employees in the control center have a very good, and, a very reliable overview of the current situation at both main bus stops," answered the managing director. "As a result, we are much better able to effectively control bus traffic and make sure that everything runs smoothly. These cameras have helped us to accomplish exactly what we wanted to accomplish."

Other Applications

Thanks to the success of the installation and the concept of easy operation for the solution, the top managers at the TWK Verkehrs-AG have already begun to think about other applications. "At Schillerplatz, we need an extra camera," said Boris Flesch. "And I can also well imagine using this technology for the surveillance of the entire area and the main work yard."

High Tech For Smooth Logistics



Integra2 is a transport company engaged in industrial and commercial package handling with subsidiaries in Spain, Andorra and Portugal. The company is part of Grupo Logista, the largest provider of complete logistical services in Spain and Portugal, and also one of the largest in Europe. Integra2 has substantial storage capacity of about three million square metres, and in 2003 alone handled more than 4.5 million dispatches.

Total Customer Satisfaction

Integra2 has focused its service toward achieving total customer satisfaction. The customer should always be able to find out where their packages are at that very moment. In maintaining this philosophy, the company has installed high-tech systems and developed its own solutions to control the entire process from receiving to sending goods. At the beginning of 2007, Scati Labs, a partner of MOBOTIX AG, installed a video surveillance system based on the MOBOTIX IP cameras. The system was designed to improve the tracking of products and to offer customers higher value added.

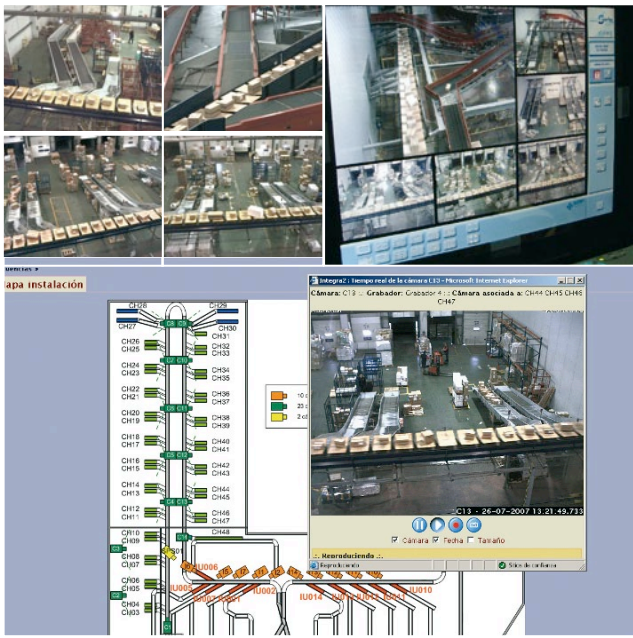
"Even if the company has sufficient number of readers to ensure complete traceability of all deliveries, visual recording provides an additional safety factor. That is an enormous help whenever it is necessary to investigate how, where and why an incident occurred," explains Juan Carlos Sánchez, Managing Director of Integra2 in Barcelona.

Advanced Technology

As part of the 4-month project 35 M22M Secure cameras from MOBOTIX were installed at the Integra2 facility in Santa Andreu de la Barca (in Barcelona). With approximately 18,000 square metres, the plant is one of the logistics company's largest in Spain.

The conclusion at Scati Labs was that the M22M Secure camera from MOBOTIX was the best suited for this task because of the camera's image quality, which was the most important aspect for the customer. The megapixel resolution, the PoE support and the robust design are ideal for use in industrial environments and were also the main arguments for choosing this camera.

Staff at Integra2 can also make use of a digital zoom with which the type of packaging, labelling and strapping can be distinguished. In the event of a malfunction, the origin and recipient of a package can be visually recorded using an application developed by Scati Labs.



All in one view with MOBOTIX cameras.

Easy Integration Into Other Systems

In the course of the project, the excellent integration capability of the MOBOTIX systems with other platforms and software types was clearly demonstrated. Scati Labs developed a web application to produce a customised software solution that performs package searches using different filter parameters and that enables a MOBOTIX camera to record high-resolution, digital video of the sought package. The integration of the package sorting machine was also part of the project, allowing all elements of the dispatch process to be controlled.

Surveillance Software

Scati Labs deployed a team of logistical experts, all of whom were previously aware of the various problems encountered in the distribution and logistics sector. According to Alfonso Mata, commercial head of the logistics unit, the key focus of the companies in this field is on theft at the factories themselves, particularly theft of small, high-valued delivery items and packages (such as digital cameras, laptops, etc.). Mata adds that further requirements are made on goods tracking at the plants, surveillance of the sorting process and visual support of the incident management function. In certain cases video surveillance is already used during order processing to make picking service recordings of the preparation process available to customers, thereby adding value to the web tracking options offered by the companies to their customers.

For Alfonso Mata, the MOBOTIX cameras along with the video recording devices and the package search management software from Scati Labs are the perfect combination to produce high-performance video surveillance solutions, particularly in the logistics sector.

Ensuring Mobility

Most people driving on German highways today are not aware that they are protected, monitored and guided by comprehensive information and communication technology. Individual telecommunications groups manage the technology under the direction of the Landesbetrieb Mobilität, LBM (State Office for Mobility) in Rhineland-Palatinate. For example, the telecommunications group at Wattenheim, a representative of the Koblenz vehicle telematics department, is responsible for data networking between five highway maintenance offices and the electronic systems along about 500 kilometres (300 miles) of highway in the southern region of Rhineland-Palatinate.

The term ‚telecommunications group' is not quite precise in this context since conventional telephone calling makes up only a minor share of the work of the group at Wattenheim today. Instead, the group focuses on the maintenance, servicing and extension of systems and equipment for emergency calls, digital trunked radio, traffic metering, road status and weather information, icy condition reports, clocks, gate intercoms and avalanche/landslide reports with GPS localisation. Effective co-operation in the field of traffic management has also recently been added to the group's duties. The network of telecommunications cables (more than 1000 km in total length) and fibre optic (about 320 km) also available to the highway is used wherever possible in order to minimise operating costs.

Monitoring Of Key Sections

New to the service portfolio of the telecommunications group at Wattenheim is the monitoring of key sections along the A6 motorway using high-resolution MOBOTIX digital cameras. The idea originally stemmed from the motorway maintenance offices, who require accurate information at all times to offer the best possible winter road services.

When a project group began its initial rough planning at the end of 2006, a lack of resources threatened to cripple the project. The goal was to install cameras at eight locations along the A6 and to connect them to the control center in Wattenheim through a 2 Mpbs LAN that was still to be set up. The task was concluded by using of a free wire pair in the link networks, inexpensive modems, available building materials along with a lot of creativity and the motivation of everyone involved and getting support from the highway maintenance offices using their construction teams.

IP Network With Telecommunications Cable

But, how do you use an existing wire pair in a telecommunications cable together with inexpensive LAN components to construct an extended virtual LAN providing at least 2 Mbps? The fundamental concept was to use powerful DSL modems with an integrated Ethernet switch. Two modems are needed at each location along the link. These are connected on the Ethernet side together with one or more cameras to form a small LAN. The data traffic flows in both directions of the link through a DSL port and a wire pair to the next camera position. The cameras must, however, be located within the 90 m range of the Ethernet twisted-pair cable link stations that have power connections and access to the link network. This was always the case on the previously monitored highway sections. This meant that the relevant technology could be installed, powered and taken into operation on these sections.

Original images from MOBOTIX cameras in the MxControlCenter layout.

Camera Images In Brilliant Quality

Camera Images In Brilliant Quality The head of the highway maintenance office at Wattenheim and his team now have eight cameras that at all times deliver sharp image quality **MxControlCenter** (in color during the day and in monochrome at night) for display on a monitor using the MOBOTIX video and alarm management software. A section of interest can be shown in full format with a mouse click.

However, using MOBOTIX cameras in winter means service in extreme conditions. The aggressive salt mist around the highway lanes after salt has been strewn in combination with low temperatures and frequent heavy storm winds present tough challenges. MOBOTIX cameras have no serious problems with these conditions thanks to their robust construction design.

Monitoring key highway sections: Optimum traffic security.

A pilot solution that sets new standards was achieved in this way. So, it is no wonder that the technicians and users all agree that MOBOTIX cameras deliver images in such top quality that cannot be achieved for less effort or for lower costs. The camera images can also be viewed in three-minute intervals on the Internet after they have been added to the LBM website (www.lbm.rlp.de).

More Security Within The Branches Of The Future

With around 820 branches, a consolidated balance sheet total of more than 600 billion Euro and almost 36,000 employees, Commerzbank (www.commerzbank.de) is the second biggest financial institution of its kind in Germany and one of the largest in Europe and in the world. The bank's large number of branches ensures a closely meshed network and customer proximity. The concept of the Commerzbank "Branches of the Future" continues the bank's trend toward "more service for the customer" and this of course includes being able to withdraw and deposit cash "around the clock." This, in combination with a sophisticated centralized security system, reduces the threat of criminal attacks. The technical implications of this approach are considerable. Every branch has its own quasi-standardised comprehensive security package installed, in which camera surveillance plays an important role.

Remarkable Installation

Commerzbank required a remarkable pilot system installation in their branch in Erfurt. This branch is situated in a shopping arcade that was frequently used after closing time by numerous skateboarders to pursue their hobby. This deterred many bank customers from accessing the foyer of the building which houses the account statement printer and the ATM for cash withdrawals, thus also damaging the image of Commerzbank. In order to solve this problem, the company ADS Networks GmbH, specialized in complex network solution, telecommunication and security, recommended the surveillance of this shopping arcade by two MOBOTIX dome cameras.

Flexible Configuration

The elegantly designed dome cameras are each equipped with two flexible, adjustable camera modules that can be individually positioned in all directions independently of each other. The high-resolution color images of the cameras enable now around-the-clock visual surveillance of the arcade by staff at the Commerzbank security center in Frankfurt.

Direct Communication

The additional data traffic on the dedicated line also proved to be absolutely unproblematic since MOBOTIX IP cameras have very low bandwidth requirements. The cameras are additionally equipped with a microphone and speakers, which allowed the security staff to directly address the skaters in real-time and order them to refrain from their activities. The impact was enormous. After a short period of transition, the arcade is now free of skaters and can be accessed by anyone without any concerns for security – even during evening hours.

G8 Summit In Heiligendamm

A further security challenge for the banks was the G8 summit of the eight largest industrial countries that was held in Heiligendamm in mid-2007. The security experts at Commerzbank had to prepare themselves and take precautions against a potential threat to their branches in the Heiligendamm area by militant globalisation activists.

MOBOTIX D12 dome camera with two individually positionable lenses.

Due to the exceptionally positive experience in Erfurt, Commerzbank again chose MOBOTIX IP camera technology. Within just a few days, the branches in Kröpelin, Roggentin and Warnemünde were visually and acoustically linked to the group's security center. After the G8 summit, the decision was made to keep the highly effective and affordable security solution in place. It had remarkably proven to be valuable both in terms of preventing threats to the branches and in improving customer service. In the event of technical problems, a member of staff at the security center can directly communicate with the customer in the branch foyer via the microphone and speakers in the cameras.

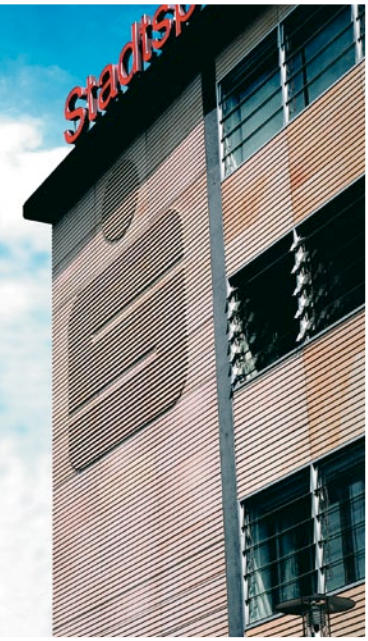
IP Cameras In The "Branches Of The Future"

The highly detailed camera images of the MOBOTIX solution enable all required information to be extracted from the image provided by one single camera. This makes it unnecessary to install several conventional cameras cutting investment, installation and operational costs, reducing administration, simplifying data storage and alarm analysis, reducing network traffic and increasing the general reliability of the system. Additionally, the MOBOTIX solution is more readily accepted by customers because it is visually more discreet.

There is no doubt that the "Branches of the Future" needs the intelligent, highresolution IP camera technology from MOBOTIX as a high-quality alternative to the increased use of security personnel or other conventional security measures. So it'sa good thing that MOBOTIX communication and security technology is already available today for the branch concepts of tomorrow.

Exemplary installation of MOBOTIX cameras: Critical areas such as ATMs are perfectiy monitored.

Photos Of Suspects Immediately Available



Partnership And Obligation

Mutual trust, a customer-friendly approach and close ties to the public administration are the columns on which the success of the Kaiserslautern municipal savings bank (Stadtsparkasse) is based. Customer-friendliness in this context not only means competent and face-to-face consulting services, but also omnipresence: 20 branch offices and six self-service terminals all over town guarantee fast service virtually around the corner for every one of the more than 100,000 Kaiserslautern inhabitants.

Customer-Oriented In All Aspects

Customer-friendliness has many forms for the Kaiserslautern municipal savings bank: customized solutions for the requirements of individual companies, attractive products for private customers, and a range of competent consulting and service activities are offered in a modern environment. For example, the bank's principal office has been modernized and redesigned from top to bottom in order to create an attractive and even more secure environment for clients to manage their financial affairs. As part of this modernization, an innovative camera surveillance concept has been introduced.

Convincing Concept

Werner Stumpf, CEO of the Kaiserslautern municipal savings bank says, "when we first started planning the remodeling of our principal office in 2001, we also thought about integrating a better surveillance solution." The insurance company only requested that the cash desks are monitored by cameras. "We did not consider this to be sufficient," Werner Stumpf says. "In case of a raid, we wanted the best possible documentation of the surrounding and the entrance areas. Also, we wanted additional cameras to improve building protection and to provide surveillance of our IT and technical engineering centers as well as the client vaults," Mr. Stumpf adds.

The surveillance cameras previously used were not capable of meeting these objectives. They were solely designed to monitor the cashier area during a raid and were rather complicated in handling and maintenance. "And then, our mayor and chairman of the board of directors, Bernhard Deubig, brought a new product by a Kaiserslautern company to our attention," Werner Stumpf remembers.

"More and better pictures that are available a whole lot faster."

"We got in touch with MOBOTIX and enjoyed the presentation of their network camera. I myself was immediately convinced by this solution's potential. Our director of operations felt the same way. And the low cost definitely was a big plus for MOBOTIX."

Officially Certified

However, until then, the device had not been officially certified for banking environments. Thus, MOBOTIX developed a new version for the cashier area – the banking camera. This camera version is equipped with two alarm storages and one suspicion storage. This setup enables the cashier to trigger a special alert when a raid or a suspicious situation occurs. Due to an integrated ring buffer, temporary images are stored non-stop. When an alarm is triggered, the images of 15 minutes before and after the alarm are stored permanently so that the official requirements are met. These sequences can then be evaluated directly.

BG-PRÜFZERT UVV 083512

Extraordinary Recordings

"For us, the advantages of the new system are obvious," says CEO Werner Stumpf. "In case of a raid, the camera not only records the event itself but also everything else happening in the surrounding areas. Compared to the former solution, the MOBOTIX cameras deliver more images at higher quality, and the images can be evaluated much faster. We are also very satisfied with the camera's performance in monitoring the building, the IT and technical engineering centers as well as the vaults."

Recently, the new solution proved very helpful in an ATM incident. In this case of credit card fraud, the cameras recorded images of the perpetrator that were immediately available. IT specialist Thomas Koop recalls the police's positive reaction. "The officers were astonished by the high quality of the photos that could immediately be used for the search," he says.

Feeling Safe And Relaxed

Tranquility within the Frankfurt banking district: Le Méridien Parkhotel.

In the middle of the hectic Frankfurt banking district, tranquility can be found at the traditional Le Méridien Parkhotel Frankfurt (www.lemeridien.com). Located in the idyllic Wiesenhüttenplatz, a street surrounded by trees, the hotel, which was built in 1905, offers its guests a superior standard of comfort as well as a discreet and courteous service with all the flair of a grand old establishment.

A reliable security system, which remains discreetly in the background, is indispensable for making guests feel at ease in the three-hundred room building. Highperformance camera surveillance in sensitive areas creates safety and trust, forming an essential basis for comfortable relaxation.

Technical Superiority

The existing, original surveillance system composed of 21 analog cameras was not adequate: The high degree of maintenance, low resolution, large memory requirements and complex evaluation of recordings, to name but a few, sealed the fate of this antiquated solution. The time was right for an IP-based alternative, capable of fulfilling future requirements. Not only did this system impress with its technical superiority, but it also demonstrated many cost benefits in terms of procurement and operation. Therefore, it was no wonder that after investigating the market in detail, Chief Engineer Zlatko Hizman, who is responsible for building services at Le Méridien Parkhotel Frankfurt, was able to convince the hotel management of buying an IP camera system from MOBOTIX.

The Bad Homburg based company (www.ads.de), which specialises in complex network solution set up the control room and installed the recording software in a rapid and professional way.

Detailed Images

After the complete installation with 29 indoor cameras and 6 external cameras was put into operation, all users stated the same opinion: "We have never seen such clear images on the surveillance monitors here at Le Méridien Parkhotel Frankfurt!" The reason for this of course are the various remarkable image features of the MOBOTIX cameras: megapixel resolution, extreme backlight resistance and a fast frame rate.

For the hotel sector, it is particularly important that with their elegant design, the dome cameras would be inconspicuous with regard to installation and that they work discreetly without any flashing LEDs. Furthermore, a MOBOTIX dome camera with a 180° lens was very often capable of replacing two

conventional cameras. The clear, 24-hour view of the hotel's key areas already produced desired outcome, which particularly with regard to the administration, documentation and security sector has become exemplary. For the management team of Le Méridien Parkhotel Frankfurt, the MOBOTIX system solution has become an important tool to increase transparency.

Discreet, yet highly efficient: The MOBOTIX dome camera.

Significant Cost Savings

A special feature of MOBOTIX cameras is their low power consumption of just 3 watts. Given that up to 12 conventional cameras are required to record the same variety of detail as one MOBOTIX IP camera, the potential for making savings becomes even more obvious. Last but not least, the power feed via the Ethernet cable (PoE: Power over Ethernet) for up to 20 cameras from one network power rack provides significantly more performance than using individual power supplies. Compared with conventional solutions offering a comparable resolution, a system such as the one used at Le Méridien Parkhotel Frankfurt delivers savings of several thousand euro in electricity alone over its lifetime. It also makes an important contribution towards the environment!

Software Included

MOBOTIX provides its camera users with a free sophisticated software package for professional video and alarm management – the **MxControlCenter**. Up to 30 camera images in CIF format can be displayed simultaneously on a 1920x1200 pixel screen at an image rate of 30 Hz, almost without any delay. An integrated layout editor allows the user to adjust the settings to their individual display preferences. Camera symbols, for example, can be inserted into a building plan, and thus, significantly increase ease of orientation.

Reliable And Future Compatible

"The network-based video surveillance and recording solution from MOBOTIX is much more user friendly and offers significantly better live and stored image quality than conventional analogue alternatives",explained Chief Engineer Zlatko Hizman, summarizing his thoughts. "We also expect a significantly higher degree of reliability and therefore lower maintenance costs. The fact that the software in the cameras and the **MxControlCenter** can be updated free of charge at any time also ensures the value of our investment in the future. These are convincing reasons for installing the concept used in Le Méridien Parkhotel Frankfurt in other buildings of our hotel group as well".

Relax Safe And Sound

Tropical Paradise in Germany

Approximately 5,800 km north of the equator and about one hour's drive away from Berlin is the Tropical Islands Resort Berlin-Brandenburg in Niederlausitz, an authentic man-made tropical landscape, with the world's largest freestanding hall: 66,000 m^2 of interior space. The whole idea of building this paradise originated with businessman Colin Au, who comes from Malaysia. He envisioned bringing the tropics with its beautiful, warm weather to cold, gray Germany, a vision that has also created jobs. The Tropical Islands Resort employs more than 500 people to take care of their guests while 13 MOBOTIX cameras ensure that the visitors can just relax and put their feet up, with no worries about security.

Long Story

MOBOTIX' presence in the hall, which is 360 m long, 210 m wide and 107 m high, began long before the tropical paradise was built. At that time, the facility was being used by Cargolifter AG. In this most adventurous project in aviation history, a gigantic airship was built to fly loads of up to 160 tons from one continent to another. First generation MOBOTIX cameras were already used in the very generously dimensioned hangar in 2001. "At that time, we wanted to record everything that was happening around the Cargolifter in the hangar," remembers Christian Heinrich, who worked as a system administrator for Cargolifter AG at that time.

Fun in the tropical paradise: Colorful entertainment is offered each night.

Unfortunately, the ambitious Cargolifter project was destined to fail; the Tropical Islands Resort moved in in 2004 and the MOBOTIX cameras stayed, along with Christian Heinrich, who switched employers, but basically kept the same job. "When we first became interested in web cams, we checked a competitor's product and found that it wasn't nearly as flexible, but much more expensive. At that point, we realized that MOBOTIX is exactly what we needed to meet our needs. And we've remained loyal customers ever since."

Better Delivery

The cameras are still mounted on different arches throughout the hall and provide a fantastic view of the South Seas or the tropical village (images on right). Meanwhile, the camera system has to do much more than just watch what happens in the hall. A number of different public authorities and the company guidelines require that the facility is monitored at critical points. In the area where guests spend the night in small, rented igloo tents, for example. The security staff also uses the MOBOTIX cameras to keep a close eye on all the places where money transactions take place: at the check-out and in merchandising, at the cash counters and in the safes.

MOBOTIX cameras keep an eye on the most important areas.

Needless to say, access control also plays an important role: the staff entrance, the delivery gate and the server rooms are also monitored by MOBOTIX technology as are all the other access routes to the facility. In every location, each camera has to perform two tasks at once: to monitor what vehicles enter the facility and to record statistical data with the help of license-plate recognition. This makes it possible to identify which regions the guests come from.

The wide range of recording opportunities provided by MOBOTIX is also a great advantage. "We need these features in order to be able to clear up any irregularities after the fact," Christian Heinrich says. "We use the memory already integrated in the cameras as well as two redundant file servers, each of which has a capacity of 500 GB." With the help of a ring buffer, the camera images are stored on the servers for 28 days. Some of the cameras are event-controlled so that only the images triggered by an event are recorded. That saves a lot of valuable hard-disk capacity.

Amazing Opportunities

"The MOBOTIX cameras offer us amazing opportunities and a great deal of flexibility," the system administrator continues. "The great value for money was another point that had us convinced and that's why we decided to stick with this technology." Apparently so since plans have now been made to monitor the outside offices and another access route – of course, again using MOBOTIX cameras.

Images above and below: Original images from MOBOTIX cameras.

Notes

Checklist Video Surveillance

Compare us!

Use this helpful decision guide: answer the individual questions to compare MOBOTIX directly with another vendor of your choice.

	MOBOTIX	Other Vendor
Excellent image quality? MOBOTIX cameras deliver resolution of up to 3.1 megapixels (2048 x 1536 pixels) in color, and thus sharp images in HDTV quality.	☑	☐
Great detail? License plates can be clearly identified with up to 8x digital zoom and actions can be completely documented.	☑	☐
Large image acquisition area? A combination of megapixel technology and a wide-angle lens provides a large field of vision. One single MOBOTIX camera can monitor four gas station lanes at the same time.	☑	☐
Perfect overview? With a special lens and image post-processing method, one single MOBOTIX 360° camera (Q24M) can record an entire room (such as a store) without any blind spots.	☑	☐
Weatherproof housing included? MOBOTIX security cameras feature up to IP66 weatherproofing and do not require a heater or a fan. They can be used in temperatures ranging from -30° to +60° Celsius.	☑	☐
Very simple installation? MOBOTIX reduces cabling effort. The same cable is used to supply power to the camera (PoE) and transfer video data from the camera.	☑	☐
Free software updates? Whenever the software is updated, MOBOTIX makes it available free of charge. This keeps older systems up to date.	☑	☐
No mechanical moving parts? No mechanical parts, such as motorized zoom, aperture, fans and pan / tilt / zoom elements, mean extremely low maintenance and operating costs.	☑	☐
Free support included? The MOBOTIX support hotline will always help you with technical experts at normal landline phone rates.	☑	☐
Direct storage in the camera? Smart image processing and storage management in the camera save on system resources and ensure easy scalability.	☑	☐

HiRes Video Innovations

The German company MOBOTIX AG is known as the leading pioneer in network camera technology and its decentralized concept has made high-resolution video systems cost efficient.

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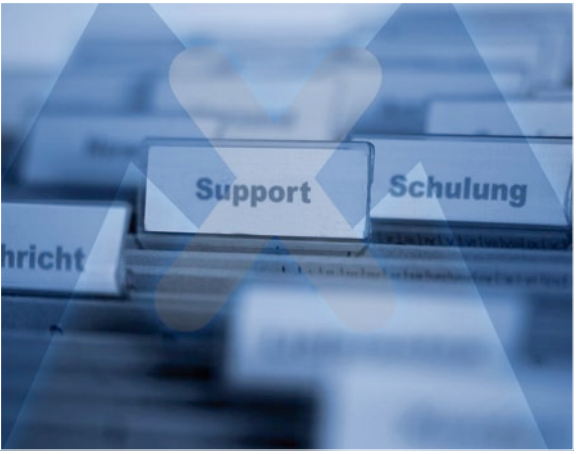

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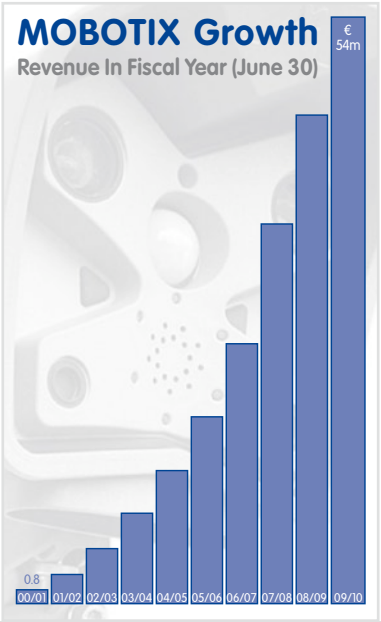
HiRes Video Innovations

The German company MOBOTIX AG is known as the leading pioneer in network camera technology since its founding in 1999, and its **decentralized concept has made high resolution video systems** cost efficient. Whether in embassies, airports, train stations, ports, gas stations, hotels or on highways – over hundred thousand MOBOTIX video systems have been in operation on every continent for years.

Pioneer In Network Camera Technology

In just a short time, MOBOTIX has climbed to second place in Europe and fourth place worldwide in terms of market share. MOBOTIX has been exclusively manufacturing mega-pixel cameras for many years now and is regarded as **the global market leader in high-resolution video systems**. In the **decentralized MOBOTIX concept**, every camera has an integrated high-speed processor and, if needed, a digital memory device (MicroSD card) for long-term recording.

MOBOTIX cameras can make event-driven recordings even without a central PC or DVR and can digitally store videos long term with sound. This is why MOBOTIX solutions represent an unbeatably good value with their excellent image quality, even for smallscale installations.



2009/10 Sales
54 Million Euro

Sales Growth
+ 20.0 %

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The HiRes Video Company

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Complete HiRes Video Solutions

high-resolution, digital & cost-effective recording

With an excerpt from the product portfolio and information about the innovative MOBOTIX technology

11/2010

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