Megapixel
1280 x 960
software zoom

30 Frames/s
VGA (640 x 480)
10 F/s Mega

-22°F ... +140°F
Weatherproof
- 30° ... +60°C, IP65
no heating necessary

IEEE 802.3af
PoE
network power
even in winter

microphone & speaker
Audio
bi-directional via IP
variable framerates

SIP-Client with video
IP-Telephony
alarm notify,
cam remote control

Video motion
multiple windows
precision pixel-based

lip-syncronized audio
Recording
event-ringbuffer
30 cams each 30 F/s

Live viewing
30 cams at 30 F/s
all on one screen

Backlight
safe using CMOS
without mechanical iris

Wall bracket
with cable cover
for RJ45 wall outlet

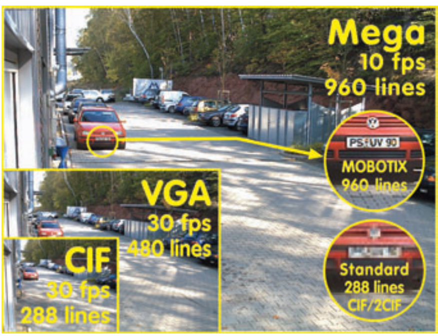
Robust
no moving parts
fiber glass housing

EN

References

HiRes IP Video Technology

records 12 x more detail
than 95% of current video systems



MOBOTIX ... the new face of IP video

Security-Vision-Systems
MOBOTIX

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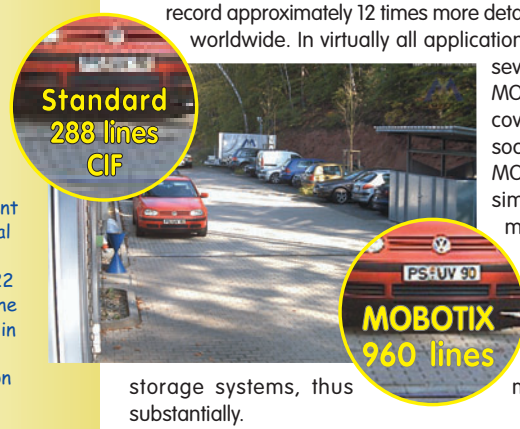
Dr. Ralf Hinkel, founder and CEO of MOBOTIX

An Idea That Is Revolutionizing CCTV Video Technology

When MOBOTIX developed the first weatherproof web cam with digital image sensors and an integrated PC back in 1999, no one could ever have imagined the impact this would have on the future of video surveillance. The transmission of video streams over computer networks finally enabled video technology to depart from the restrictions of a TV standard which had applied for 60 years, bringing it in line with the megapixel image quality of modern-day digital cameras. MOBOTIX is the only network camera manufacturer to date that is capable of storing smooth high-resolution video streams with 960 lines instead of the usual 288, including sound. The new technology isn't just more powerful in all areas, it also has two decisive advantages: it is more **cost-effective** than traditional CCTV video technology and more **multi-functional** thanks to its integrated computer and network connection.

High Resolution Shows More Detail And Reduces Costs

The primary benefit of using high-resolution cameras is that the stored images are more revealing and provide stronger evidence than other formats. MOBOTIX cameras record approximately 12 times more detail than 95% of all existing video systems worldwide. In virtually all applications, one MOBOTIX camera can replace several standard CCTV systems because MOBOTIX technology offers four times more coverage. For example, at the World Cup soccer stadium in Kaiserslautern, a single MOBOTIX camera monitors four turnstiles simultaneously. An entire room can be monitored with only one 90° wide-angle lens camera positioned in a corner of a room. The high-detail resolution not only means fewer cameras, but it also reduces the amount of cabling, backup-power requirement and storage systems, thus minimizing the overall costs of the system substantially.



Zoomed segment from an original image of a MOBOTIX M22 compared to the same segment in standard CIF video resolution

Used Reliably Worldwide

Unique operating temperature range and IP65 certification

The robust fiberglass-reinforced housing, broad operating temperature range of –30° to +60°C (-22° to +140°F) and absence of fans, heating or moving parts are key to the high reliability of MOBOTIX cameras. To date, more than 100,000 cameras have been installed worldwide in all environmental conditions, from the Antarctic to the deserts of Saudi Arabia to the tropical Everglades in Florida.

Used Everywhere From Holiday Homes To Airports

Download the detailed case studies from www.mobotix.com

Thanks to their unlimited scalability and high performance, MOBOTIX cameras are suitable both for large facilities like airports and, given their integrated event, storage, alarm and telephony functions, for smaller business and private premises. The following pages provide an overview of the different areas of application. At the end of this brochure there is a technology overview, explaining the cost benefits of the new MOBOTIX technology.

Contents

Network Video: Full Steam Ahead For 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.

One of the three announcement points at Magdeburg central station.

"Finally, I ordered one camera so I could 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."

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!"

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

Keeping An Eye On The Big Picture

Safe And Attractive

About 5,800 active train stations are located in Germany. Since Deutsche Bahn (DB, German Rail) was privatized in 1994, DB Station&Service AG has been in charge of operating the German train stations. In order to provide high-quality service, DB Station&Service AG has developed the SST program. This concept is based on the main aspects of Service, Safety and Tidiness and is dedicated to making the non-transportation part of your travel activities as pleasant as possible.

In the German federal state of Saarland, the Saarbrücken station management unit is responsible for 73 local train stations. In order to improve this service to its customers, the station management unit in the Saarbrücken central station has initiated an extraordinary pilot project.

Out Of Sight

In order to start the announcements properly, the announcers need direct visual contact with the train in the station. Until the end of March 2003, this was not a problem in Saarbrücken as the announcers' workplace was in the switch tower from where they could view the tracks. On April 1, 2003, however, the Saarbrücken switch tower was closed. Instead, tracks are managed remotely from Karlsruhe, some 100 miles (150 km) away. Worse yet, the new announcers' office does not allow seeing the tracks directly. As switch tower activities are centralized all over the country, more and more stations are facing a similar situation.

Precise Images

Hartmut Fries, head of the Saarbrücken station management unit explains, "we could have moved the announcement service to Karlsruhe as well. But the announcers there wouldn't know exactly when the train doors were opening. And on top of this, we would not have had any influence on the announcements any more." Nevertheless, the station manager's top priority is to provide customers with competent and accurate information. "As a result, we have created the position of a Regional Announcer and have installed nine cameras that provide precise images of the trains on our ten tracks," he says. With more than 420 trains arriving and departing at Saarbrücken central station every day, such a solution was desperately needed.

Centralized Announcements

"Additionally," Hartmut Fries continues, "this solution will soon enable us to provide on-time announcements for the stations in St. Ingbert and Homburg/Saar – from Saarbrücken."

A direct view of the station platform – thanks to MOBOTIX.

These two towns are located about 10 and 22 miles (15 and 35 km) away from Saarbrücken. Future plans have developed even beyond that. "By the year 2010, we want all announcements for all train stations in Saarland to be made from just one announcement center so that travelers will be informed not only competently but also efficiently", Hartmut Fries explains.
For the Saarbrücken pilot project, Deutsche Bahn uses network cameras made by MOBOTIX. Using a server, these cameras provide live images of the tracks to the announcers' office.

Individual IP Address

The nine cameras are password-protected and they are integrated into the internal network of Deutsche Bahn using individual IP addresses. Thus, only the Regional Announcer can access the camera images. Thanks to a customized menu, the Regional Announcer can switch between a tiled view of all tracks and the view of an individual track by a simple mouse click.

All Requirements Met

Uwe Lebeck of the station management unit explains why the company has decided in favor of the MOBOTIX system. "When drafting the new position, we worked out a list of requirements covering all major aspects. The MOBOTIX network camera fulfills all these requirements: it is small, it can be installed easily and it has an individual IP address. Also, the cameras' features and the low price compared to a CCTV system has made this decision an easy one," he adds.

Nine cameras deliver precision images.

Future-Oriented Concept

Since March 28, 2003, the system is operating. "So far, we have not experienced any problems," summarizes Hartmut Fries. "For our present situation, this solution is more than sufficient. And I am convinced that it will continue to be so for future installations as well," he adds. "As compared to the switch tower situation of the past," his colleague goes on, "our announcers now have a much improved overview and can react to a lot more details." Chances are – bearing the train travelers in mind – that this pilot project will be transformed into a future-oriented station management concept.

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 mega-pixel 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 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.

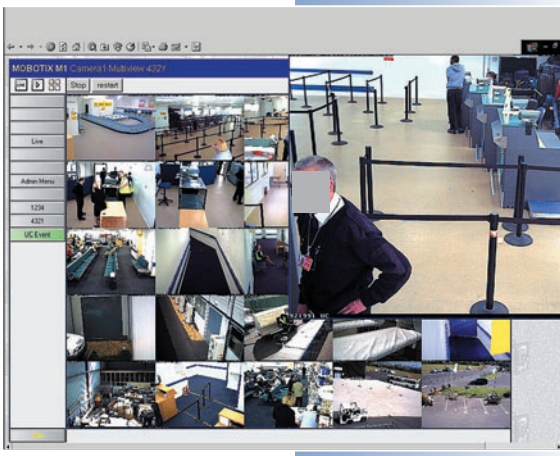
The recording function of the MOBOTIX cameras is equally important since the right images of the extraordinary events must be readily available. According to the law, these video sequences must be stored for 30 days. However, it would be a waste of expensive hard drive space to have all data from all 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.

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



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."

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.

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

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 for pedestrian and vehicle access control (middle and right) as well as in the scan portals (left). (Original camera images)

How To Get Straight From A To B

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.

The perfect overview: original images by MOBOTIX cameras.

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 right), 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

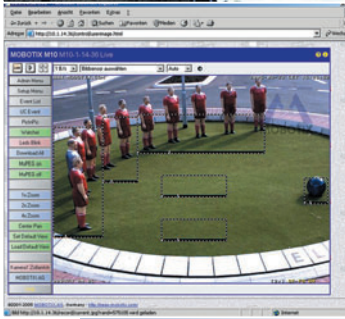
This system originally used analog cameras. "But, that technology was really not optimal," recalled the division manager. "The cameras often didn't work properly because of line problems. The data volume was too high, the frame rate too low, the quality less than satisfactory, and we had to deal with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

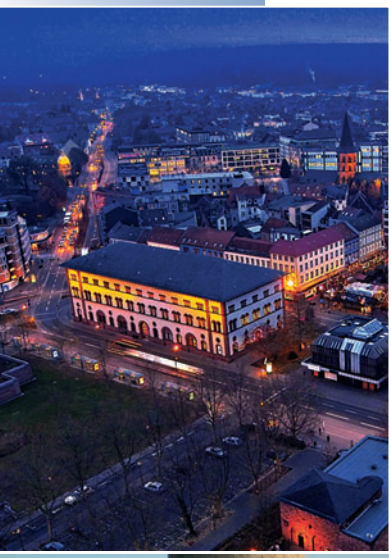
Two other cameras keep a watchful eye on the "11-Friends" monument at the Fritz-Walter Stadium as well as on another sculpture in front of the TWK office. They have been installed to prevent vandalism and, should it occur, to help identify the culprits. These cameras use event-control and the other recording 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."

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.

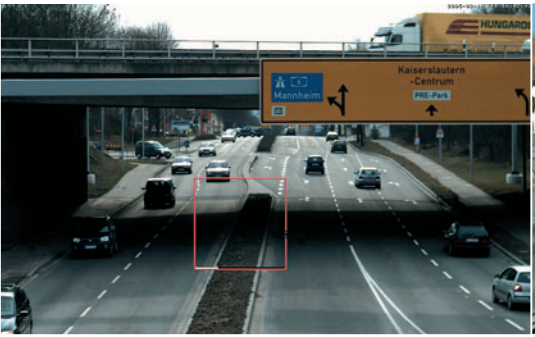
An Affordable Solution

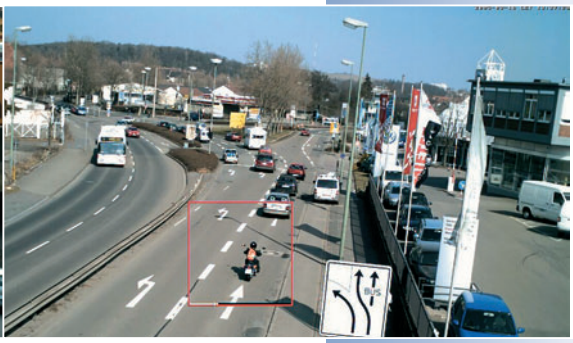
57 MOBOTIX network cameras make up the main part of the traffic surveillance system. The cost for all the equipment – including the cameras, the control center and installation: approximately EUR 200,000. This means that of all the 12 World Cup cities, Kaiserslautern has by far the most cost effective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





The information on the images is evaluated at the control center (below). The traffic monitoring photos shown are original images captured by MOBOTIX camera.

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 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 Celsius mark. 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."

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 quarter-final. 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 mega pixel (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.

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.

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

Original images from MOBOTIX cameras

...Simple Integration

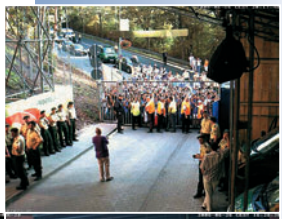
A 4-fold framegrabber card was used to digitize the analog camera images and integrate them into the MOBOTIX network. The control protocol of the Siemens dome cameras was also programmed into the MOBOTIX server software so that the control commands could be transmitted via the network. In addition, all 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 MxViewer program. Another advantage of the MxViewer: 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

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.

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

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, they consume a large amount of storage capacity, and you can end up spending

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 polytechnic 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.

Moving Plans

Since the RP was initially designed for 13,000 students, plans for a completely new campus were made early. The new Woodlands Campus, with a total area of 5000 hectares will be completed in 2006, and shortly thereafter, the RP will move into the new buildings. The network cameras will also make the move to the new location. Since the new systems proved their usefulness in a very short time, the polytechnic administration plans to install additional cameras on the new campus.

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."

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

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."

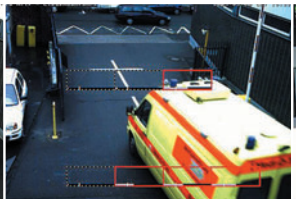
This is where, at the suggestion of the Kaiserslautern-based manufacturer, uniserve Internet & Multimedia GmbH (www.uniserve.de) came into play. Uniserve developed "WINSTON", a camera management software solution that can be operated ergonomically, extremely easily, quickly and intuitively. This software 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.

"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."

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

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).

The GARS in Antarctica

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/ohig-web.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

Schneefernerhaus environmental research station

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.

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.

DWD observation platform

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 (www.meteo.physik.uni-muenchen.de/mesomikro/stadt/camera.jpg). "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, email and nfs. No other camera system that I know of is better suited for our needs," he summarizes.

Photos out in the cold: camera images from Antarctica, Munich and the Zugspitze mountain.

Network Cameras For Secure Processes

The Waste Management Companies in Wiesbaden (ELW) purify approximately 60,000 m^3 of waste water each day. In dry summer weather, it takes about 48 hours to run through the entire purification process, from the grit channel to the raking station, the sand filter, the preliminary treatment tank, the activated sludge tank, and the final filtration tank into the micro-filter system and finally out into the Rhine River.

State-Of-The-Art Technology

"Today, we use state-of-the-art technology to get our rivers and lakes clean and to make sure that they stay that way. This is how we help to ensure that we have water, life's elixir, in the highest possible quality," explained Michaela Kessler, head of the sewage plant. State-of-the-art technology includes not only 250 pumps and countless kilometers of piping, pioneering electrical, measuring, controlling and regulation technology, exhaust fume detectors, gas measurement and person locating system, but also 55 MOBOTIX cameras, which are installed on the approx. 800 m long and 200 m wide sewage plant grounds.

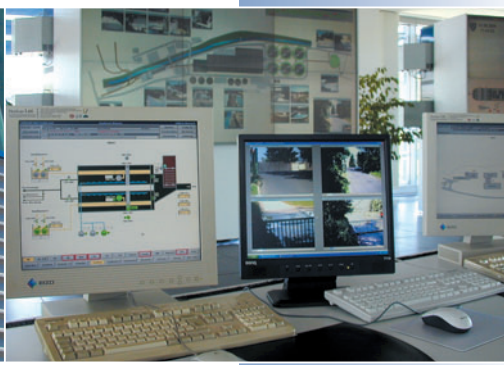
"We have made extensive changes in the main sewage plant over the past eight years. Many things that were added to the plant cannot be effectively checked by a regular patrol today," said Hans-Peter Schranz, head of electrical engineering at ELW. "That's why we have installed MOBOTIX cameras at specific points to provide us with a good overview of the entire plant at any particular time." These cameras are used for access control and grounds surveillance as well as for observing the sewage purification process.

Analog Planning

"Originally, we had planned to install about 25 analog cameras with pan-tilt heads," remembered Hans-Peter Schranz. "But then, it all happened differently." Passavant-Roediger Controls GmbH (PRC), a system integrator and solution provider in the field of water and waste water technology, was commissioned with the project planning and set up of the new automation, network and process control system and the organization of the energy supply. "In addition to the analog cameras, we also had a special suggestion," said Herbert Hützen, head of the project at PRC. "Shortly before, our managing director had "discovered" the MOBOTIX cameras and was so impressed by the technology that he suggested them as an alternative."

Pioneering Digital Technology

There were several good reasons for this: on the one hand, analog technology is now really quite outdated and has no future. "On the other hand, cameras with pan-tilt heads are expensive, quite susceptible to mechanical failure and have to be



The entire purification process is managed by the main control room, with assistance of MOBOTIX images (below: original images by MOBOTIX cameras).

serviced on a regular basis. And the installation process is considerably more expensive," Herbert Hützen explained. "The robust, maintenance-free MOBOTIX network cameras beat the analog cameras by miles. Thanks to the integrated combination of telephoto and wide-angle lens, they not only perform the same function, but they are also very easy to install and integrate into the existing fiberglass network. And they also offer convenient recording features and event-controlled recording based on predefined motion fields."

"Much Less Expensive"

"And of course we should not forget that this special suggestion was considerably less expensive," commented Hans-Peter Schranz. So, it is no wonder that the ELW decided in favor of the digital solution.

However, how can you manage more than 50 cameras so that they can be easily operated by the sewage plant workers in the main office? The MOBOTIX system made it possible to manage several cameras using a standard Web browser, but with more than 50 cameras, a special solution was needed.

Effective Management System

"Three different suppliers took up the challenge and installed elaborate test systems, but they didn't get the job done," remembered Herbert Hützen. "Then MOBOTIX recommended uniserve Internet & Multimedia." This company (www.uniserve.de) offers the "WINSTON" camera management software that can be easily, quickly and intuitively operated. This software can also be easily adapted to the individual needs of the sewage plant and includes such useful features as a site plan or alarm pop-up windows. "They actually delivered a management solution that fits the cameras, and it really works," summarized Hans-Peter Schranz. "We are very happy with this complete solution."

Safe Operations From A Distance

Low Cost, Long Term

The WVE (Westpfälzische Ver- und Entsorgungs-GmbH) was founded in the Kaiserslautern area in 1994 as a public services company. The WVE provides fresh water, sewage treatment and zoning/development services for the communities in the area. The communities, in turn, are able to efficiently outsource expensive tasks.

The central sewage plant in Kaiserslautern.

Example: Sewage Plant

The WVE is able to provide all required services regarding the sewage plant operation in short notice. For tasks like these, the WVE uses its own employees, its special equipment and equipment of other communities. In the process, the WVE cooperates closely with the Kaiserslautern city waterworks and the TWK (Technische Werke Kaiserslautern AG). These WVE services are particularly attractive for the small surrounding towns and communities that have strong interest in reducing their costs. One of these small towns is Hochspeyer – about 7 miles east of Kaiserslautern – with approximately 7,000 inhabitants.

Always Ready

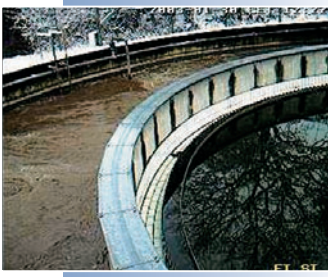
The three sewage plants of the Hochspeyer community are located in Hochspeyer, Frankenstein and Waldleiningen. Three WVE employees operate and maintain all three plants locally. Since an on-site 24/7 presence would be too costly, an electronic monitoring system reports possible malfunctions occurring after work hours to the permanently manned control center at the Kaiserslautern central sewage plant. Here, the necessary measures are taken. Because the government requires the installation to be checked once a day, the WVE employees have to perform these on-site checks even during the weekends.

Weekend Problems

WVE wastewater manager Michael Theis describes the situation as follows, "these weekend shifts cause our work plans to be quite complicated and are also creating extra costs to the community as an on-site check at all three locations amounts to around 250 EUR. Additionally, driving to the individual locations on ice and snow in the winter time can be quite dangerous – just to check the sewage plant for 15 to 30 minutes. This prompted us to look for an alternative", Michael Theis adds.

A Network Cameras Is The Key

Dieter Burkey, electrics manager with the Kaiserslautern city waterworks states, "at about the same time, we were testing a MOBOTIX network camera for monitoring the security of our central sewage plant." Michael Theis adds, "next, we started wondering if this camera could solve our weekend problem as well."



In the control center at the Kaiserslautern central sewage plant, the live images are compared to stored images of the target situation.

Indeed, it could. Not only is this reliable and weatherproof camera equipped with a large number of required features, but it is also easily operated using a standard Internet browser. In close cooperation, MOBOTIX and the WVE have developed some additional features that were necessary for operating at the sewage plant. "The result is a customized solution that completely meets our requirements," concludes Michael Theis.

24/7 Surveillance

With minimum effort, the camera has been installed at the Hochspeyer final clarifier for a pilot project. From there, it sends a tele and a wide-angle image twice a day via ISDN to a server. In the control center at the Kaiserslautern central sewage plant 7 miles away, the operator on duty compares the current live images to the stored images of the target situation. If the images show signs of abnormal operation, the operator on duty immediately informs the emergency crew.

Secure Operations

If desired, the live images can be viewed from the control center at any time to check the plant's current status. Also, a process control system provides for regular measurements of the PH value. Thus, regular checks are now implemented remotely, resulting in even more secure sewage plant operation.

An Investment Worthwhile

Thanks to the introduction of camera remote monitoring at the Hochspeyer facility, the expensive weekend shifts are history and the use of on-site manpower has been optimized. "The MOBOTIX camera comes with all required features," Dieter Burkey summarizes. "A very reliable, high-quality support and a reasonable price for what you get – we are very satisfied with the entire package," he adds.

The final clarifier to be monitored at the Hochspeyer sewage plant.

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 still 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.

Original images by MOBOTIX cameras.

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.

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

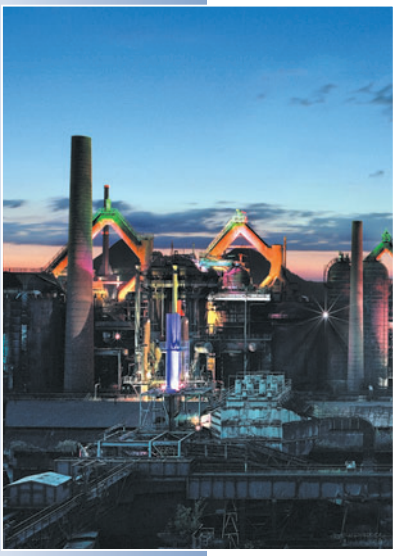
Another important criterion was the solid, integrated design of the cameras. Like all outdoor MOBOTIX camera models, the M10D-Secure dual-lens camera also fulfills the requirements of the IP65 equipment protection category. This makes it an ideal choice for the extreme environmental conditions that prevail 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-m^2 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!"

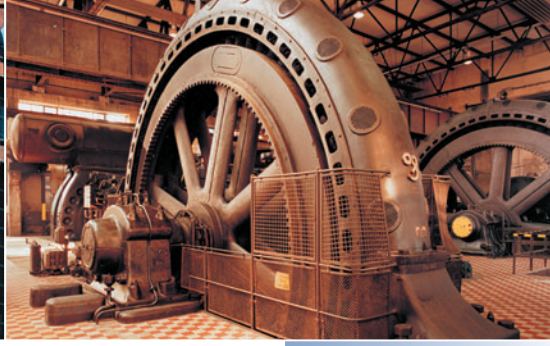
However, looking for the ideal system of video surveillance proved to be challenging, to say the least, because the monument protection laws prohibited the exhibition organizers from laying any additional cables in the building. Instead, they were required to use the existing computer network, which 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: World Cultural Heritage Site: Völklinger Ironworks/Gerhard Kassner (pg.12); World Cultural Heritage Site: Völklinger Ironworks /Franz Morscher (pg. 13); World Cultural Heritage Site: Völklinger Ironworks /Larco Museum Peru (pg. 13)



The 6000-m^2 furnace hall (top) and the precious Inca gold (bottom) make for an interesting combination.

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

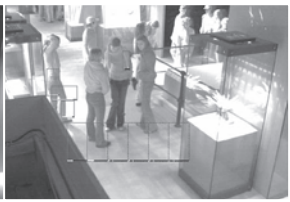
And what's more: the MOBOTIX camera with 1280 x 960 pixels offers not only extremely high image resolution, but it is also equipped with convenient recording functions. Events can be stored as video clips for months at a time, found quickly by date and time and forwarded easily to the police via e-mail.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

There are many other areas on the spacious grounds of the Völklinger 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."



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

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

Demonstrating how it is done: Live communication with image and sound between TSC and the competence center.

to meet because we wanted the cameras to be easy to install and easy to use." At the same time, they had to accommodate the rough, oily environment of an auto repair shop. Besides, for the diagnosis in particular, very sharp images were required with a high resolution.

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.

Visual insight into repair services using MOBOTIX cameras

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 self-serve 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 trucks on the scales are registered automatically ...

So, it's a foolproof system? "Not completely," admitted the shipment manager. "If the ID card is misused or used incorrectly, I have to know exactly which truck was actually in the plant at the time. As proof, I need reliable images that can be used even in a court of law."

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."

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

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."

Ideal For Reliable Production Process Monitoring

Billion Euro Investment

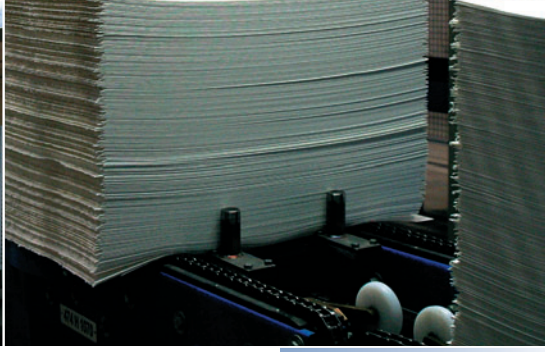
There will always be paper. Despite the digital, or so-called "paperless" age, the paper industry is still booming in Germany. This means that bleached long-fiber cellulose, which is used to produce fine and printing paper as well as high-quality sanitary paper, also remains very much in demand. The 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."

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."

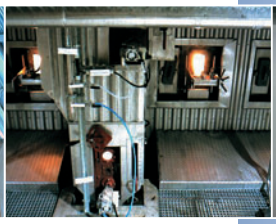
Although a total of three services at Zellstoff Stendal GmbH are now routed via a data line, there have been no adverse effects on system performance. Measurements have shown that the network load of the communications network is exceptionally low even when video images are being transmitted, something 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.

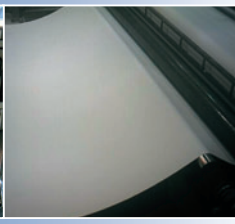
MOBOTIX, Of Course

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.

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

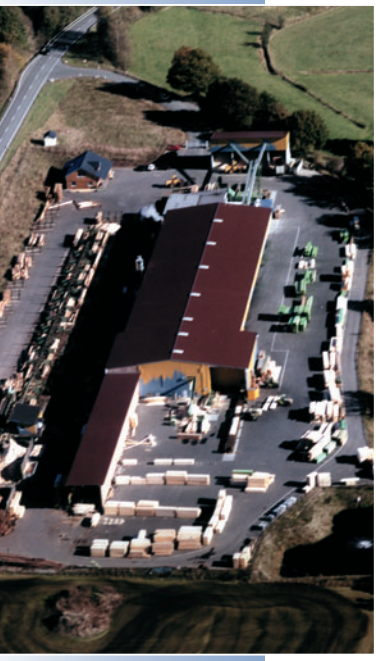
Photos below: Original images from MOBOTIX cameras.





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 m^2 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.

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).

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."

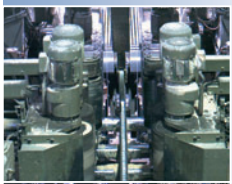
Remote Maintenance Included

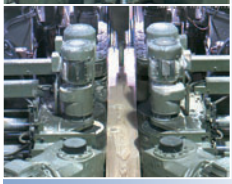
Christian Dickel sees another significant advantage in the new system: the Austrian manufacturer of the saw line is allowed access to the network for maintenance work. "While the manufacturer was able to track the program flow of his machine from Austria via the Internet, he was unable to get a really 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 M22Ms 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."





Brilliant Images – Great Access Control

Just In Time

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 IP-based 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."

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

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.

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.

Secure Transactions

24/7 Availability

Self-service terminals such as bank statement printers and ATMs have since long become part of our every day lives. Banks have found them to be the ideal solution for taking the burden of routine tasks from their customer service staff. The customers, in turn, benefit as cash is available 24/7 – everywhere.

As the use of ATMs increased, security became more and more important. Vault security and vandalism-proofness are as important as the secure transfer of customer data or the evaluation of biometric data for secure identification. Thus, for example, a portrait image is recorded of the customers at the moment they retrieve the money. But can one image alone provide for sufficient security?

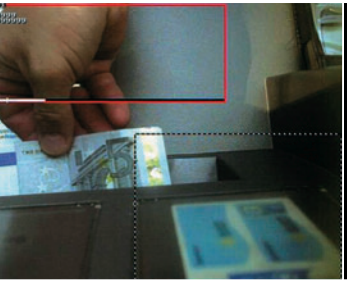
A Complex Task

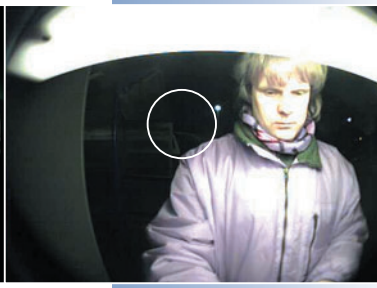
Direct sunlight in the back of the customer, for example, can become a problem as it will render the images from the portrait camera useless. Such was the case for a savings bank in northern Germany that has an ATM installed at the southern wall of a shopping center. The bank officials presented this problem to the communications specialist Conect Kommunikationssysteme, whose services range from classical network technology to creative concepts for customized video systems. "We wanted not only the backlight problem to be solved," remembers Conect CEO Karl Heinrich Spiering, "but we also intended to increase security and were looking for a way to document the 'hand-to-money' event, i.e. the moment of the actual money retrieval. However, neither the construction of the ATM was to be modified, nor was it allowed to show the numeric keypad in the images," he adds.

Photos: Wincor Nixdorf, Conect

Customized Solution

"It was clear from the onset that a regular camera would not be able to solve this problem," explains Hendrik Braasch, TV and radio technician by trade who works as Conect project manager. "Luckily, about 18 months ago, I came across a magazine article describing the MOBOTIX camera system," he continues.





"MOBOTIX offers a very flexible so-called 'developer kit' consisting of a mother board and camera lenses on separate mini boards," Hendrik Braasch continues. "And this was the solution we decided for," he concludes. The direct sunlight issue was not at all a problem for the MOBOTIX solution. The separate lenses provide for a dual image showing the customer portrait in one image and the 'hand-to-money' event in the other.

In order for the images to be recognized as evidence at a court of law, the transaction data needed to be part of the image. For this purpose, the Conect specialists have developed a proprietary hard- and software solution that is integrated into the ATM.

The system records three items of information: the customer's portrait, the withdrawal of cash and the transaction data.
MOBOTIX camera delivers impressive images even at night (right).

Low Operating Costs – High Security

For the savings bank, the transfer of these three important pieces of information – the customer portrait, the photo of the 'hand-to-money' event and the respective transaction data – was an enormous step forward. Moreover, since nobody needs to visit the external ATMs in person any more to collect videotapes, the camera also reduces operating costs and increases security. The camera data can be accessed by an authorized administrator directly from the control center via the existing LAN/WAN connections. Also, extremely expensive video printers are not needed any longer since the images can be printed with standard workstation printers. In order to access the cameras, the existing IT infrastructure can be used. Another plus: as standard browsers and the Linux operating system are used for the camera, there are no license fees to pay.

Built-In Success

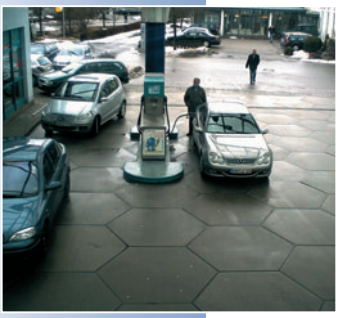
No wonder that the savings bank employee in charge is all happy with the camera. "The system is simple and good. I've never seen anything better than this. Compared to this, all other systems were unusable – especially when we compared image quality and user-friendliness," he states. This prototype's success has encouraged Conect, together with other MOBOTIX secure partners, to develop customized applications for the different ATM systems on the market.

This solution has successfully passed its first real challenge recently: a vandalism attack at 2:45 am was easily solved thanks to the high image quality and to the fact that image sequences were immediately available.

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."

Perfect view of all operations (original images by MOBOTIX cameras).

Willi Fischer, electrician and owner of Netzwerkservice-Fischer (www.netzwerkservice-fischer.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.

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 (photo above left). 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 (photo above right).

"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.

Beautiful and inconspicuous: the MOBOTIX FixDome camera.

"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.

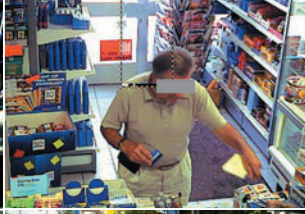
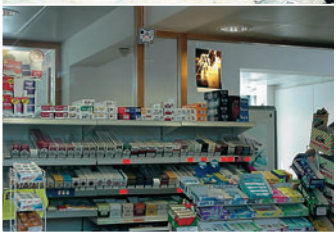
Running a gas station, however, does involve certain security risks. After all, now that gas prices keep on climbing, gas theft has also been on the increase over the past few years. To stop these so-called 'gas-up-and-run' customers, two small analog surveillance cameras, each with a miniature screen, 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."

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.

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

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 and five million m^3 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

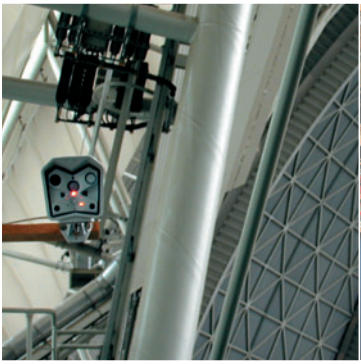
MOBOTIX' presence in the hall, which is 360 m long, 210 m wide and 107 m high, began long before the tropical paradise was built. At that time, the facility was being used by Cargolifter AG. In this most adventurous project in aviation history, a gigantic airship was built to fly loads of up to 160 tons 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.

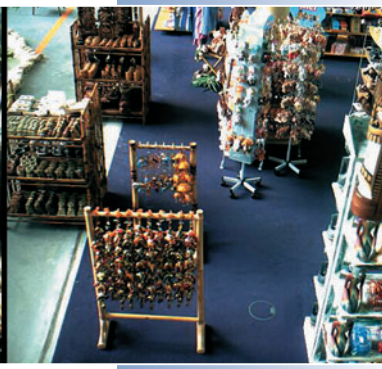
Unfortunately, the ambitious Cargolifter project was destined to fail; the Tropical Islands Resort moved in in 2004 and the MOBOTIX cameras stayed, along with Christian Heinrich, who switched employers, but basically kept the same job. "When we first became interested in web cams, we checked a competitor's 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."

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

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.

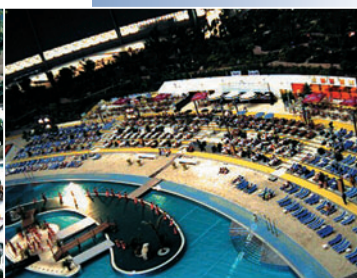
The wide range of recording opportunities provided by MOBOTIX is also a great advantage. "We need these features in order to be able to clear up any irregularities after the fact," Christian Heinrich says. "We use the memory already integrated in the cameras as well as two redundant file servers, each 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.





A Smile Opens The Gate

Smile for the MOBOTIX camera.

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.

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

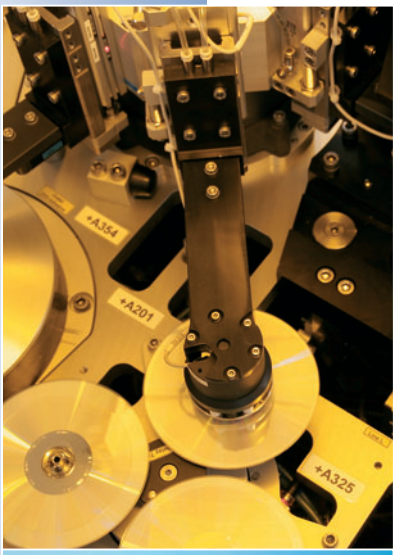
The highly visible cameras not only serve as a deterrent to thieves and vandals, they also have positive added benefits that can be used in marketing Box-It Central services. "Our customers can store any of their documents, including their sensitive material with us in complete confidence. We are now 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

Security For Licenses



Leaders In Europe

A total of more than one billion CDs and DVDs are being produced annually in the village of Dassow, Germany, population 4,000, making ODS Optical Disc Service GmbH, located in Dassow, one of the leading manufacturers of optical storage media in Europe. ODS is also a leader when it comes to creating jobs in an economically underdeveloped region: with 1,300 employees, ODS is the largest employer in the district of north-west Mecklenburg. With a second factory in France and distribution centers in Great Britain, France, Italy, the Netherlands, Denmark, Sweden, Poland, Hungary and Greece, the company is represented in the most important markets in Europe.

In addition to copying disks, the pressing plant also offers content management, packaging solutions and – under the "Gigatain" brand – so-called R-media, i.e. rewritable CDs and DVDs.

"Highest Camera Density"

264 MOBOTIX cameras, more than anywhere else in Germany, are used in the three factories in Dassow to make sure that the licensing rights to music, films and other contents are reliably protected.

Why so many cameras? "We place a great deal of importance on reliability and transparency," answered Andreas Lingk, Head of IT Management at ODS. "That means, the customer can be absolutely sure that production is in good hands and that not a single CD goes astray." Not an easy job when you consider that the factories run 4 shifts seven days a week. That's why ODS sticks to a hard-and-fast rule: Anywhere where disks are produced, printed, packaged or stored, there are cameras watching over all the work processes. "And that means virtually everywhere, except in the bathrooms, the lunch/break rooms and in the administration area," Andreas Lingk confirms.

Key Argument

This high security standard is easy to understand when you consider that some films are copied onto DVDs before they are even shown at the movie theaters here in Germany. "The licensing authorities are very demanding when it comes to security issues, and rightly so. If only one DVD became public before the film was launched at the movies, it could have devastating effects on our customers," explained the IT manager. "Besides, the extremely high security standards we are able to provide with the MOBOTIX cameras is another important argument in negotiations with new customers."

"High camera density" for safe production.

Fascinating Potential

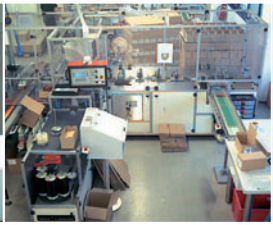
Why use MOBOTIX cameras? "Right from the beginning, I was completely fascinated by the potential that the MOBOTIX cameras display: the images are much more brilliant than other solutions can offer. The system is very easy to operate. The network compatibility and configuration are significantly better. The option of managing all the cameras from a central computer in the network had me just as convinced as the fact that the system runs on the standard Linux operating system. This saves us a lot of money in terms of licensing fees. Finally, you get a lot more value for your money compared with other manufacturers," lists Andreas Lingk.

In the beginning, ODS purchased approximately 80 M1 cameras in different models and then began to expand the camera network step-by-step. Of course, the company has profited from the fact that MOBOTIX has also continued to advance its technology.

"During that phase, the company Loft-Net also came on board," reported Lingk. "One of our security technicians looked around at their in-house exhibition and discovered that this company is incredibly skilled at designing camera networks." As a result, Loft-Net (www.loft-net.de) was not only able to install twice the number of cameras in a single network, the company was also able to reduce the network load by 68 %. "This by simply using a very intelligent, proactive configuration," commended Lingk.

"Mission Accomplished!"

It is no wonder why the IT-manager, Andreas Lingk, is so happy with the camera system: "Our security standards more than meet the needs of our customers and the cameras accomplish everything we expect them to do!"



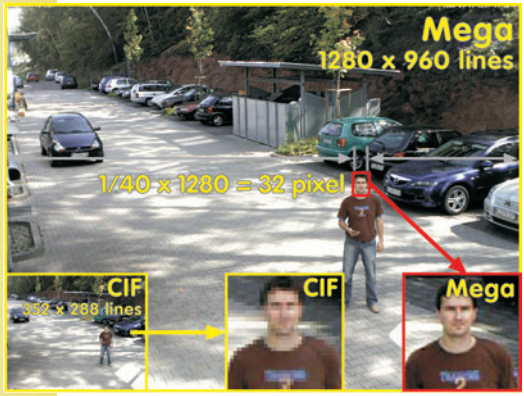
A perfect view of every area where disks are produced, printed, packaged and stored (photos on the right are original MOBOTIX camera images).

High Resolution Means Additional Security

High Resolution Doesn't Just Produce Reliable Evidence, It Also Saves Money

All MOBOTIX cameras are high-resolution storage systems with 960 image lines and 1280 pixels horizontal resolution. This means that 12 times more detail is available for a zoomed segment in stored images than when using the standard 288-line technology (CIF, 2CIF). For this reason, one single MOBOTIX camera with a 90° wide-angle lens mounted in the corner of a room can monitor the entire room with much more detailed resolution than other systems. The D12-Fixdome camera even records a **180° panorama** image with 2.5 mega-pixels, i.e. 26 times the resolution of a standard CIF image. The high-detail resolution not only means fewer cameras, but it also reduces the amount of cabling, backup-power requirement and storage systems, thus minimizing the overall costs of the system substantially.

Comparison between a MOBOTIX M22 megapixel image and a standard CIF image. Even 1/40 of the megapixel image is sufficient to create a zoomed image segment.



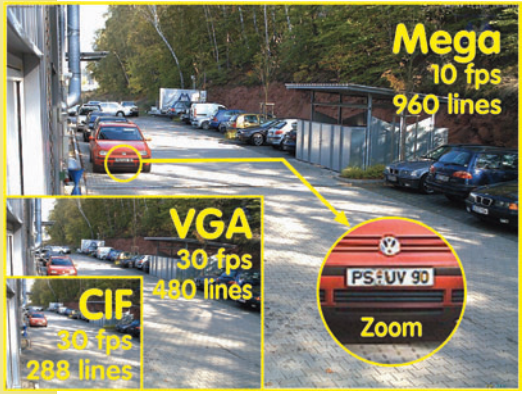
180° panorama surveillance is possible with only one camera

No interlace blurring as in 4CIF format thanks to progressive-scan image sensor

MOBOTIX VGA Recording Is Also Superior To 4CIF Image Format

Megapixel recording by MOBOTIX cameras with 960 image lines offers much sharper detail than CIF format, which only has 0.1 megapixels. But even with reduced VGA recording at 480 lines, MOBOTIX cameras still deliver better and more detailed images than other VGA cameras. This is a direct result of the precise MOBOTIX software scaling, which uses the full 960 lines of the image sensor, and not by simply leaving out lines, which is how common CIF hardware works. Thanks to this "**progressive-scan**" image sensor, MOBOTIX cameras do not have interlace jitter common in 4CIF recordings which results in blurry display of moving objects. Therefore, although requiring less storage capacity, MOBOTIX VGA recordings provide much more detailed images than recordings in 4CIF format. It is not a big surprise, then, that the blurry 4CIF image format is rarely used in practice and only serves as an excuse for the traditional CCTV industry.

Original image from a MOBOTIX M22 megapixel camera compared to a standard CIF image. The specified frame rates are achieved live and when storing; even simultaneously and with sound.

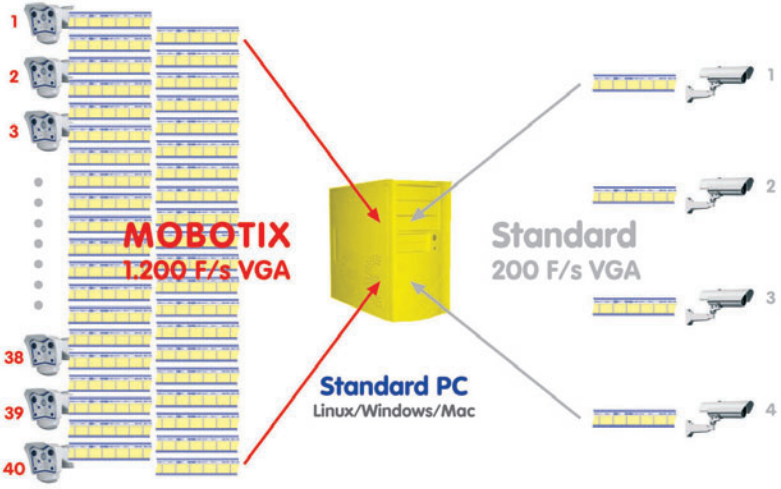


Innovation Reduces Investment Costs

Intelligent Storage Technology Reduces Number Of DVRs And Costs

The new, decentralized storage technology pioneered by MOBOTIX reduces the number of recorders that store the smooth high-resolution video by up to 90%. 40 cameras store smooth video streams including audio on a single PC, with every camera managing its own ring buffer and image database. These 40 video streams are equivalent to 1200 frames per second in VGA resolution or 4800 CIF images per second, which cannot be achieved using old DVR technology. Additional software for storing and managing the images is usually not necessary, thus eliminating license fees and costly management software.

40 smooth video streams (30 F/s each) with audio on one single PC

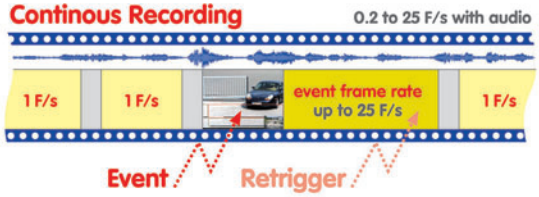


Recording included free of charge: every MOBOTIX camera can manage its own ring buffer with terabyte capacity

Note: some PC recorders also record up to 32 cameras; without video, however, only 2-3 F/s per camera and at only 288 lines

Event-Driven Frame Rate Minimizes Storage Requirements

Every MOBOTIX camera has integrated event and alarm management, which respond to video motion sensors, microphone, signal input and other attached devices. As a result of these events, alarms are signalled and video recording can be triggered. In continuous recording mode, the camera can automatically adjust the recording frame rate as required. As long as no events are detected, the camera records with a lower frame rate, reducing storage requirements and costs for storage media.



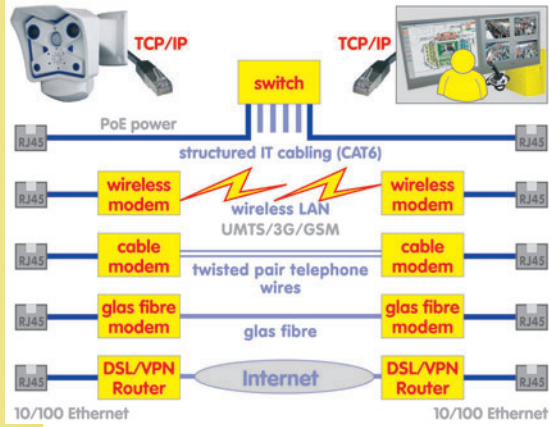
Especially when using internal storage media, such as CF or SD cards, the event-driven frame rate reduces the storage requirement

Reduced Installation Costs

Data and power via an IT network cable with RJ45 connector

Worldwide Connections – Using Cost-Effective IT Components

MOBOTIX cameras operate using the Ethernet TCP/IP protocol, which is a worldwide IT standard. This allows connecting cameras without distance limitations and uses cost-effective standard IT components, such as copper, fiber or wireless WLAN and UMTS, thus eliminating the need for unreliable 2-wire video converters. Also, video transmission from any location worldwide is possible simply via the Internet, which, of course, should be secured by a VPN connection and a firewall, using cost-effective standard IT components.

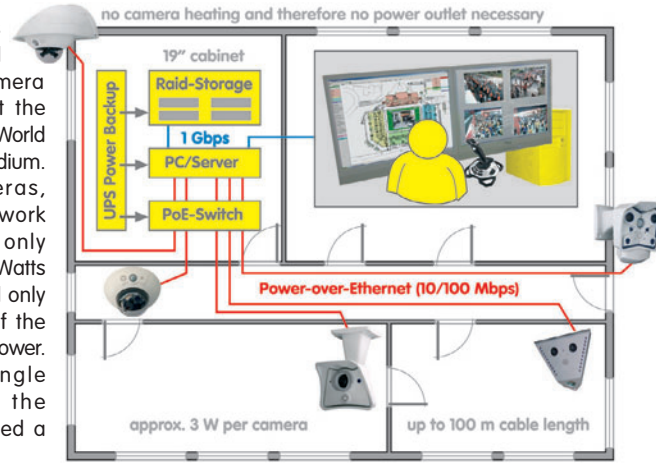


Live and recorded image retrieval and search are all possible **simultaneously** by remote access over fiberglass, copper and WLAN using conventional IT modems via TCP/IP

Enormous Cost Savings In Cabling And Power Supply

MOBOTIX cameras do not need power supply at the installation point as they are powered over network cable by a standard PoE switch. Only one cable is required, just like networking several PCs. At only 3 Watts, powering the camera for distances over 100 m (110 yd.) is not a problem. Since MOBOTIX cameras are anti-fogging without heating, they can be powered year round over the network cable. Cost savings are enormous, as demonstrated by the 77-camera installation at the Kaiserslautern World Cup Soccer Stadium. These cameras, including network peripherals, only consume 500 Watts and thus need only about 1/8th of the usual backup power. Not one single camera at the stadium needed a 230V outlet.

Anti-fogging without heating; therefore, no need for on-site power supply



A central UPS in the 19" rack supplies power directly to the PC, storage media, switch and to the cameras via the network cable

Control Center Software And Remote Access Included

MxControlCenter With Event Search

The professional control center with search functions was tried and tested at the Kaiserslautern World Cup soccer stadium and includes an integrated Layout Editor to help you compile building floor plans fast. Event-based searches with time tracking for multiple cameras, image editing and lens distortion correction are also available, along with the integration of analog and digital PTZ cameras.

No software costs.
No license fees.
No limitation on number of users.
Free download!!

Supports dual monitors and joysticks for analog and digital PTZ dome cameras, even in hybrid operation

Zoom, post-processing and lens distortion correction for live and recorded images included

Remote Control And Remote Image Retrieval Is Standard

Anytime, from anywhere in the world, you can adjust the MOBOTIX camera settings, view live and recorded images, simultaneously via the network. In case of an event, the control center staff can retrieve the recorded images immediately, without interrupting recording or having to send someone to the location.

Live viewing, recorded image retrieval and event search **simultaneously** via remote access

The **web browser** can also be used to adjust any of the camera settings as well as to retrieve live video or recorded images. New or improved software functions are easily uploaded into the camera via the network.

Free software updates!

Unbeatable In Cost Comparisons

48h of continuous recording at 16 images/s per camera

Approximately 2 weeks of recording using event-controlled, variable frame rate

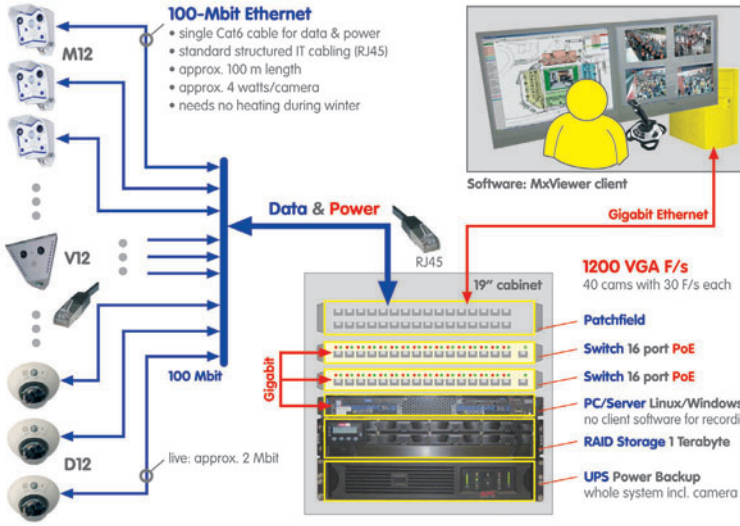
Image format, frame rate and video sensor can be selected individually for every camera

Data and power over one single Ethernet cable (no separate power supply required)

Given the many features and advantages of the MOBOTIX camera system, direct cost comparison to other systems may be misleading

Professional System With 30 Cameras And Terabyte Recording

Plans have been made to equip a train station with 30 day/night cameras and a control center. The fail-safe RAID storage system comprises 1 Terabyte for approximately 48 hours of uninterrupted recording at 16 VGA images per second **per** camera (480 images/s). When using event-controlled recording or continuous recording with automatic frame-rate adjustment, storage space is enough for about two weeks. Image format, image quality, frame rate and event control can be set individually for each camera, thus using only the minimum storage space for this application. The system including the cameras is fully protected against power failures; the cameras are powered via the network cable.



Additional Advantages Of MOBOTIX Systems Compared To Other Systems:

(1) Higher image resolution (960 lines)
(2) Higher frame rate while recording (30 cameras x 30 images/s = 900 images/s)
(3) Unrestricted transmission thanks to TCP/IP standard
(4) Video sensor system for event-controlled recording already integrated
(5) Temporary video buffering during network interruptions
(6) Progressive-scan recording without combing effects for moving objects
(7) Simultaneous live view, recording and event search
(8) Remote access possible for live images and searches at any time from anywhere
(9) Virtually maintenance-free as the system has no moving parts
(10) Unlimited number of users and cameras – unrestricted system scalability
(11) No license fees, no software costs
(12) No limit to the number of cameras and storage capacity that can be added

pos	description	parts	cost €	analog		cost €	MOBOTIX
1	day/night cameras (High-End)	30	750	22.500	***	998	29.940
2	outdoor housing/cable protection/heating	30	95	2.850	n/a		
3	lens	30	80	2.400	included		
4	2-wire interface with power supply (analog)	60	100	6.000	n/a		
5	camera data wiring (100 m per camera)	3.000	2	6.000		2	6.000
6	power wiring (camera/heating) to UPS (100 m)	3.000	1	3.000	n/a		
	Subtotal cameras, wiring, power supply			42.750			35.940
7	switches with PoE power supply (100M/1G)	2				500	1.000
8	cross bar with analog/digital digitizing to PC	1	5.000	5.000			
9	recording server (19")	1	1.500	1.500		1.500	1.500
10	recording software 30 cams (1200 VGA frames/s)	1	3.000	3.000	included		
11	1 Terabyte raid storage system (19")	1	5.500	5.500		5.500	5.500
12	UPS backup for camera and server (19")	1	10.000	10.000		2.000	2.000
	Subtotal 19" recording & power rack			25.000			10.000
13	control center (PC), graphic card, joystick	1	1.300	1.300		1.300	1.300
14	21" TFT display	2	1.200	2.400		1.200	2.400
15	control center & research software (30 cams/5 user)	1	5.000	5.000	included		
	Subtotal control center			8.700			3.700
	Total analog system			**76.450**			
	Total MOBOTIX system						**49.640**

***normally less than 30 MOBOTIX cameras will be needed because of their 12-times higher recording resolution

MOBOTIX-based systems need fewer cameras than analog systems; e.g. one MOBOTIX camera can monitor an entire room

The investment costs for the MOBOTIX system are already significantly less than for an analog system. The maintenance costs are also lower because MOBOTIX cameras have no moving parts that suffer from wear and tear. All the professional software (control center, recording, video sensor) is available **free of charge** via download. Updates with new functions are published on a regular basis without additional costs and there are **no license fees** for the software.

No software costs. No license fees. No limitation on number of users. Maintenance-free!!

An Example Of A Small System At A Car Dealership

In smaller systems using event-controlled cameras, a less expensive NAS storage solution can be used on the network. MOBOTIX cameras even make it possible to use an existing company server for image recording and since all the recording logic and the temporary video buffer are already integrated into the camera, the network load and required storage capacity are reduced to a minimum.

No event means no network load and no load on the central company server

Without installing any additional software, existing company computers can be used to retrieve live video and recorded images via the web browser, all with password protection. Remote access is standard and if connected and activated, you can view live and recorded images via the Internet. The only costs for such a video system are the costs for the cameras and an affordable PoE switch.

Remote access from home included

The Camera For Your "Home Away From Home"

With just one camera installed at your holiday home and connected to ISDN or DSL, for example, you can access the camera via Internet from anywhere in the world. The camera is able to store approximately 1,000 images triggered by a door sensor or motion in the image, for example. The camera then alerts the home owner using either ISDN or integrated VoIP telephony. It is **not** necessary to have a computer at the holiday home itself, keeping power consumption to an absolute minimum of only about 5 watts/h.

One weatherproof camera is all you need for image storage, recording and alarms

High Return On Investment

No need for an iris

Day/Night automatic switching, no moving parts

No Mechanical Moving Parts Minimizes Maintenance

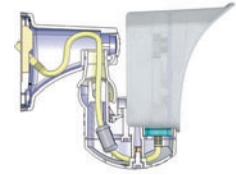
The CMOS image sensors used in MOBOTIX cameras do not need a mechanical iris, but use electronic shutter speeds of up to 1/8000 of a second. This has the advantage that the camera is resistant to backlight and has no mechanically moving components, reducing maintenance to a minimum. Similarly, MOBOTIX Day/Night cameras are the **only** cameras in the world without moving parts. MOBOTIX Day/Night cameras use two independent CMOS sensors and two lenses with purely electronic switching, one B/W sensor for the highest possible light sensitivity in the dark and one color sensor for brilliant true color images during the day.

The absence of mechanically moving parts minimizes maintenance, expands the usable temperature range, improves overall reliability of the total system and operating costs. That's what MOBOTIX is famous for - "Made in Germany".

The cable runs through the wall mount joints; wall outlet is protected by wall mount

Long-term tests at over 3000m (10000 ft) altitude have not resulted in any yellowing of the camera housing

Robust And Reliable



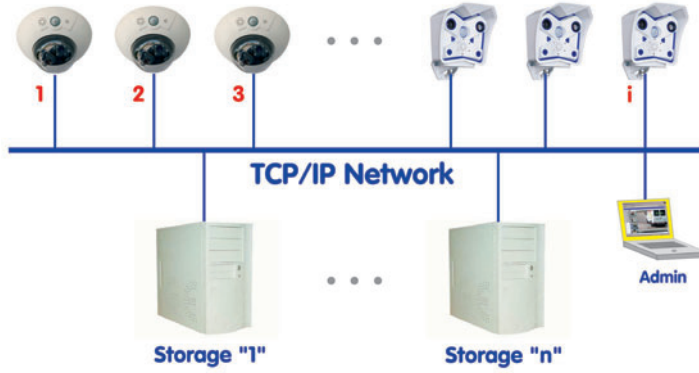
The shockproof fiberglass-reinforced synthetic housing together with the integrated SecureFlex mount not only protect the camera itself from damage and vandalism, but also the cabling. With IP65 certification, MOBOTIX cameras work under almost all conditions from -30° to +60°C (-22° to +140°F). The high-quality, synthetic material used in MOBOTIX camera housings originates from the automobile industry and is extremely resistant against yellowing caused by UV rays. Special vandalism-proof dome camera models are available featuring a 3mm dome and a stainless steel cover.

Structured like an IT network and can also be extended at any time

Flexible And Expandable Without Limits, Any Time

MOBOTIX system architecture allows users to add cameras or storage devices at **any time** even while in use. Changing resolution or the size of ring buffer storage can be done separately for every camera while the system is running. This ensures long-term high return on investment.

The number of cameras and storage capacity can be upgraded in line with requirements even years later



Defining Requirements And System Selection

Don't Get Stuck Buying Outdated Technology

If the MOBOTIX cost benefits are important to you, you should already define all the most important system requirements in the tender specifications:

CIF and 2CIF quality is just not enough (and in France no longer allowed since Oct. 2006!)

(1) Image sensor with a hardware resolution of at least 960 lines
Delivers highest detail and true colors even for scaled-down live/recorded images

(2) Temporary video buffer in the camera in case of network interruption
Bridges Wi-Fi bandwidth fluctuations and network down times

(3) Year-round power supply via the network cable (max. 5 watts)
No heating, minimum installation costs and UPS requirements reduced by 8 times

(4) Camera without moving parts is virtually maintenance-free
Improved backlight performance without auto iris; no heating in winter necessary

(5) Progressive-scan recording with at least 480 lines (VGA)
Sharper moving images without half-frame jitter (combing distortion)

(6) Simultaneous live view, recording and event search
Event search possible during image recording even remotely via the network

(7) Unlimited number of users & cameras – system scalable at any time
No limit on the number and no license fees for cameras or users

(8) No software costs, no maintenance costs, no license fees
Control center, event list, long-term recording and search for every camera included

The following points will help you select the right system:

(1) Have a camera installed for testing purposes and compare the stored and printed images since stored images in particular often display significant differences. Check to make sure that the image quality remains the same for the number of cameras you plan to install.

(2) Test the backlight performance of the camera against a window or vehicle headlights – this will work only if the system has variable exposure windows.

(3) IP cameras are digital network products and IT equipment. Hence, the installer should have solid experience in working with networks and IT in particular.

(4) Crosspoint switches, analog or digital (!) video recorders, 2-wire transducers, camera heaters and 115V/230V power supplies are **no longer** required.

(5) Additional software is generally **not** required, even when using digital or analog PTZ cameras made by other manufacturers in hybrid systems. The free MOBOTIX control center software is used in some 10,000 systems, including very professional systems installed at airports, train stations, football stadiums and embassies.

(6) Avoid pan, tilt and zoom cameras (PTZs) or reduce these to the minimum. PTZs are sensitive, require monitoring by personnel and are usually "parked" in places where nothing happens anyway.

The Most Important Cost Benefits

1. **Increased resolution reduces amount of cameras needed**
   960-line, high-resolution sensors give a better overview and allow monitoring an entire room with just one camera from the corner

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 recording technology reduces required storage**
   Decentralized recording technology in the camera software puts less strain on PCs and reduces the amount of storage PCs (DVRs) by 10 times

4. **Event-controlled image rate minimizes storage cost**
   Event-driven, automatically adjusted recording frame rate based on event or sensor action reduces amount of data and storage costs

5. **No additional power and no heating required**
   Anti-fogging without heating allows usage of standard PoE technology to power the system via network and saves costs of power cabling

6. **Backup power requirement reduced by 8 times**
   Low power consumption, 3 Watt, enables year-round (no heating required) PoE with one centralized UPS from installation room via network

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. **No software and no licence costs**
   Control and recording software is integrated in the camera and is free of charge; new functions are available via free software downloads

9. **Unlimited scalability and high return on investment**
   While in use, more cameras and storage can be added at any time; image format, frame rate & recording parameters can be camera specific

10. **Additional functions and other extras included**
    Audio support, lens, wall mount and weatherproof housing (-30° to +60°C, -22° to +140°F) included; microphone & speaker available in certain models

The Most Important Technical Advantages

Progressive-scan instead of half-frame blur 1
Megapixel sensor and image processing inside the camera with digital white balance generates sharp and true color images at every scale

Sun and backlight compensation 2
CMOS sensor without auto iris, digital contrast enhancement and configurable exposure measurement zones guarantee optimal exposure control

Dual camera technology: 2-in-1 3
Two possible camera views with picture-in-picture technology or 180° panoramic view; one Dual-Fixdome camera with 2.5 megapixel is enough

Long-term, high-performance Terabyte recording included 4
Event detection and ring buffer recording by the camera itself allow recording of 40 smooth video streams on a single PC (1200 VGA images/s)

Simultaneous recording, event search and live viewing 5
Live video for multiple users, recording and event search simultaneously possible in seconds from anywhere in the world via network

Very low network load 6
Efficient MxPEG video codec, motion detection based recording and video buffering inside camera guarantee a very low network load

Bridging of recording during network failures 7
Internal camera ring buffer bridges network failures and bandwidth fluctuations of wireless links (WLAN/UMTS) for several minutes

Day & night maintenance free 8
Unique Day/Night camera technology without moving parts guarantees extreme light sensitivity and ensures long-term reliability

Audio and SIP telephony 9
Lip-synchronized audio (live & recording); each camera is a video IP telephone based on SIP standard with automatic alarm call and remote control

MxControlCenter software included 10
Dual screen technology with building plans, free camera positioning, event search, image processing, lens distortion correction and PTZ support

Product Overview

D12 with outdoor cover for wall, pole or corner mounting

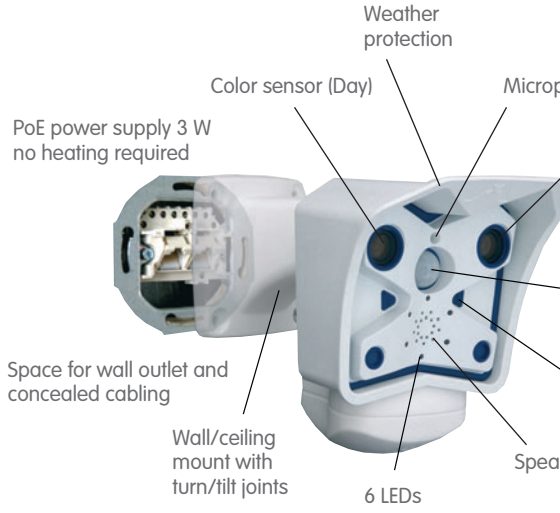
D12
Dual-FixDome
weatherproof IP65

Unique:
-30° to +60°C (-22° to +140°F) without additional protective housing, heating or fans

M22
Allround
weatherproof IP65

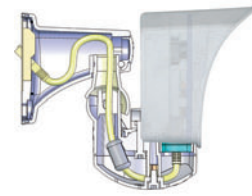
V12
Stainless steel corner cam
vandalism proof

PoE even in winter without additional heating



Tamper-proof, cabling concealed by wall mout and RJ45 outlet

M12
Dual-Day/Night
weatherproof IP65



With professional accessories: powder-coated, stainless steel, pole mount

No Problems With Backlight

Exposure Zones Instead Of Backlight

Most cameras with mechanical auto iris more or less shut down when they are confronted with backlight. Unfortunately, as a result, the darker areas become even darker and faces unrecognizable. Frequent attempts are made to brighten the image electronically using a backlight function, but the results are unsatisfactory since the auto-iris lens is closed.

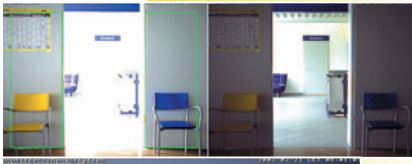
MOBOTIX cameras do not require an auto iris (mechanical shutter)

MOBOTIX has taken a completely different approach to solving the problem. The CMOS sensors used in MOBOTIX cameras need no mechanical auto iris. Instead, they expose electronically from 1/8000th of a second to 1 second. This means that MOBOTIX cameras have no moving shutter parts that fail or freeze during winter. Without the auto iris, the camera can electronically choose what to see. To do so, exposure windows are easily configured and they inform the automatic exposure control which areas of the image to lighten up.

MOBOTIX cameras do not require heating and are virtually maintenance free

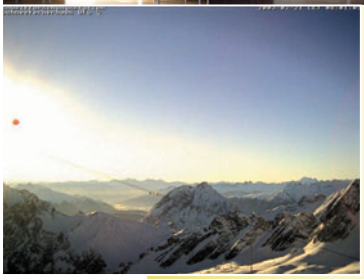
Individually Professional

The exposure windows in the MOBOTIX camera can be freely configured in terms of number and position in the image; this can also be done remotely via the network. The example shows the differences between a shot without exposure windows (right) and a shot using two exposure windows on both sides of the door.

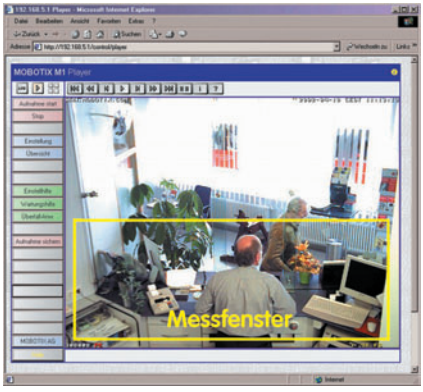


When It Really Matters ...

The original scene at the bank shows just how important this feature is. In conventional cameras, the auto-iris lens would darken the faces in the foreground because of the brightness of the window. In the event of a hold-up, it would be very difficult to identify the criminal. By configuring the MOBOTIX camera with an exposure window in the lower half of the image, the light coming in through the window has no effect on exposure control. As a result, key areas of the image in front of the counter are illuminated to optimum effect.



Disk of the sun as it appears on the camera at the Zugspitze, Germany's highest mountain



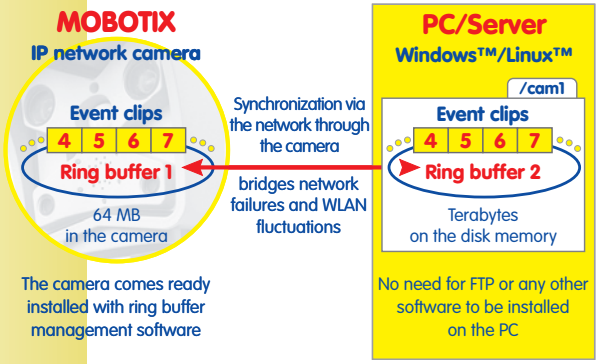
The image area in the exposure window is always correctly exposed

Long-Term Recording Included

Up to 40 cameras store a high-resolution, smooth video stream on one standard PC

Unique Storage Concept

The MOBOTIX storage concept is so simple, yet so unique that it never ceases to amaze. Most users can grasp the fact that the camera stores the images or video internally in a 64 MB ring buffer; however, what they often fail to realize is that the camera exports this ring buffer to the hard drive on a PC via the network and enlarges it to a terabyte in size.



The entire ring buffer data is managed by the software inside the actual MOBOTIX camera, not by the PC. The PC requires neither an FTP nor any other software for that matter; all it takes is a standard Windows or Linux server operating system. Combined with large server systems and RAID disks, this renders the storage capacity and reliability to virtually limitless, and all is achieved using inexpensive, standard IT components.

MOBOTIX camera allows network maintenance while in use

Minimum Network Load

Compared to a centralized PC solution with video management software, the MOBOTIX storage concept offers the advantage of placing less burden on the network. After all, there's no need to transmit a continuous stream of camera frames to the centralized PC for analysis.

Ideally suited for wireless thanks to buffering in the camera

Instead, image processing and event control only occur in the cameras themselves, and they decide what to store. Therefore, the network is only occupied when events occur and during storage. What's more, storing the video images briefly in the camera enables it to bridge short network failures or fluctuations in bandwidth, which are a common occurrence in wireless connections, for instance.

Remote searches while new events are being recorded

Live Images, Recording And Search Functions All At Once

Since everything happens inside the camera, a MOBOTIX camera can also do everything simultaneously: transmitting live images to multiple users, recording high-resolution images at 30 F/s and searching through events - any time, any place around the world with a network connection.

The only camera to record audio at any frame rate

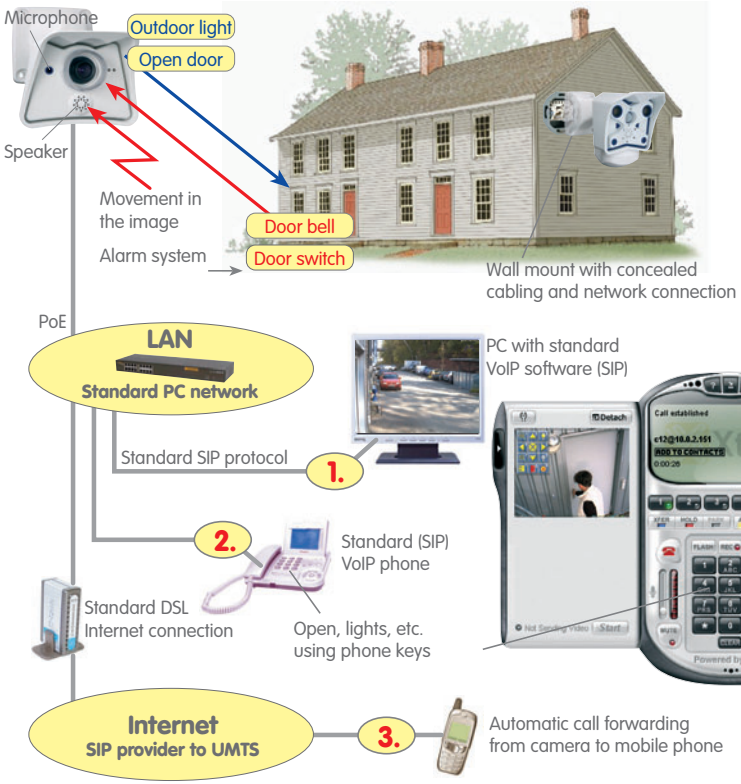
Lip-synchronous sound is standard both in live video and in search functions, even when using a web browser. Users can select their own frame rate and also set it freely for recording, with audio of course.

Built-In Comfort

Signaling Alarms Worldwide Via VoIP Telephony

MOBOTIX cameras don't just store events as video and audio clips, they can also trigger alarms around the world by e-mail, text message or telephone. They can even do this via a VoIP telephone connection conforming to the global **SIP** standard. If an alarm occurs, the camera makes a phone call without any extra equipment, to a compatible IP telephone or PC softphone. If the line is busy, there is no answer or if the PIN code entered is incorrect, the camera automatically dials the next number on the call list. Once the connection is established, the person standing in front of the camera appears on the VoIP phone and can be spoken to.

Alarm calls with image and audio are supported to any softphone (Messenger, Xten, etc.)



Remote Access By Telephone

In addition to the video and audio connection, camera functions can also be triggered worldwide by tone-dialing using the number keys on the telephone. They can be used, for example, to open doors, switch on a light or conduct an event search.

Cameras in the M12 and D12 series are also equipped with an ISDN telephone connection

Day & Night - Always Ready

In Darkness And Light

Whether in broad daylight or at night, security cameras need to be capable of working around the clock and delivering high-resolution images. This is the only way to catch criminals. However, this is not a problem for the MOBOTIX M12-Day/Night. It is equipped with two image sensors and two lenses, automatically selecting the ideal sensor depending on illumination - either the color sensor with daylight lens or the black/white sensor with infrared lens. This dual sensor technology enables the camera to achieve high-quality, true-color images in daylight and high-contrast images in dark surroundings.

Maintenance free - the only camera in the world with electronic, instead of mechanical switching

MOBOTIX is the only camera that switches between sensors purely electronically, without any moving parts. This increases the life span of the product and minimizes maintenance.

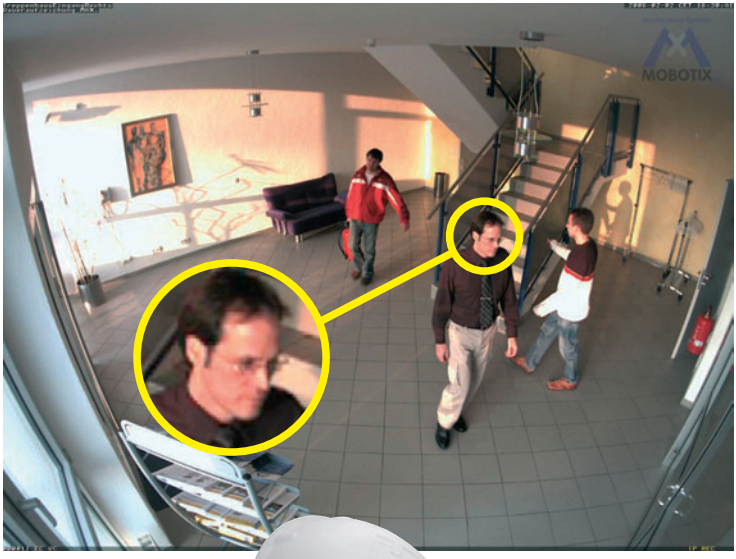
In Moonlight As Well ...

Thanks to the very sensitive, noise-free CMOS megapixel sensors (1280 x 960 pixels), the M12 Day/Night delivers high-quality color images and possesses ten times the light sensitivity of earlier models of the camera. The MOBOTIX sensors support exposure times of up to four seconds, enabling true-color images to be captured, even in moonlight. Naturally enough, images of moving objects are blurred, but are unbeatable when it comes to identifying static objects, such as graffiti.

... Or In IR Light

When darkness falls, the black/white sensors, which are ten times more sensitive and are suitable for IR light, switch on. This enables razor-sharp images to be captured even in the black of night.

Complete Coverage



90° Super Wide Angle: one camera for one room; sharp detail thanks to 960-line technology

One Dual D12-FixDome with two 90° camera modules provides 180° panorama

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Megapixel
1280 x 960
software zoom

30 Frames/s
VGA (640 x 480)
10 F/s Mega

-22°F ... +140°F
Weatherproof
- 30° ... +60°C, IP65
no heating necessary

IEEE 802.3af
PoE
network power
even in winter

microphone & speaker
Audio
bi-directional via IP
variable framerates

SIP-Client with video
IP-Telephony
alarm notify,
cam remote control

Video motion
multiple windows
precision pixel-based

lip-syncronized audio
Recording
event-ringbuffer
30 cams each 30 F/s

Live viewing
30 cams at 30 F/s
all on one screen

Backlight
safe using CMOS
without mechanical iris

Wall bracket
with cable cover
for RJ45 wall outlet

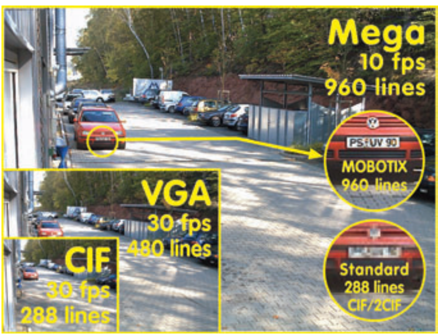
Robust
no moving parts
fiber glass housing

EN

References

HiRes IP Video Technology

records 12 x more detail
than 95% of current video systems



MOBOTIX ... the new face of IP video

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