

Traffic Monitoring during
the World Cup
in Kaiserslautern



MOBOTIX ... the new face of IP video

MOBOTIX

CASE STUDY

Network Video: Optimal Combination For Traffic Monitoring

The Home Of Football

"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. Well, since the 1950s at



least. During the 1950s, 1. FC Kaiserslautern, the city's football club, won the German championship twice (1951 and 1953). At that time, Fritz and Ottmar Walter, along with three other club members, formed the backbone of the legendary German

national team that won the World Cup in Bern in 1954. In 1991 und 1998, the team won the German championship yet again and in 1990 and 1996, the DFB Cup. In 2006, Kaiserslautern was proud to be one of the 12 World Cup cities in Germany. Needless to say, football has become a celebrated tradition in the friendly Palatinate metropolis.

High-Tech

Kaiserslautern, with its population of 105,000, has also made quite a name for itself internationally as an IT location during the past few years. In the 1990s, for example, the so-called PRE-Park was built, in which businesses in the information and communications industry have settled and 75 companies with 2,350 jobs

have found an attractive location. A follow-up project, the "PRE-Uni-Park", which was launched in 2003, is a place where modern research companies have set up business.

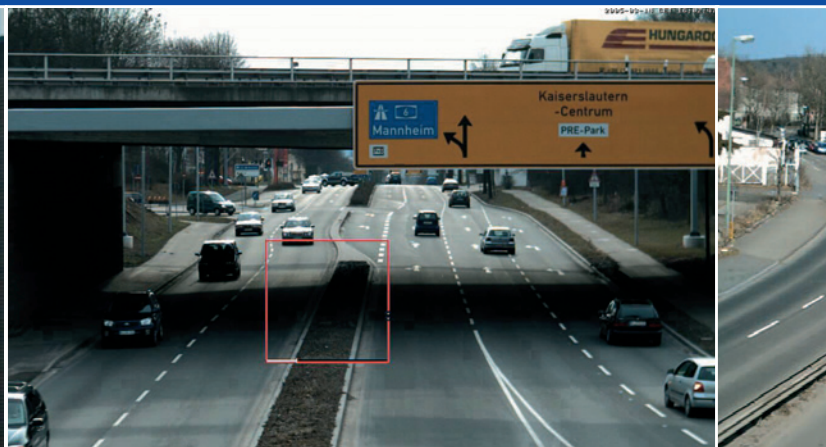
No wonder that state-of-the-art technology has been used in Kaiserslautern in many aspects of football stadium security. WVE GmbH, for example, has installed a complex traffic monitoring system throughout the entire city, at the autobahn exits and in large parking lots. After all, during the World Cup 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.

Security Vision Systems





MOBOTIX camera with the (during installation still open) Mobile Connect Box for the UMTS transmission of current traffic images. In the control center (right), this image information is evaluated and any measures required initiated. The traffic monitoring photos shown here are original images captured by the MOBOTIX camera.

Keeping Traffic Flowing

All Clear

Saturday, June 17, 2006, 9 pm: The whistle is blown to start the World Cup match between Italy and the USA. For the Americans, it is almost a home game. After all, there are more than 40,000 US soldiers and family



members stationed in Kaiserslautern. Over 100,000 visitors are in the city, 46,000 in the sold-out Fritz-Walter Stadium, the rest on the fan mile and at the public-viewing locations downtown. With this amount of traffic, it is a good thing that unrestricted mobility was one of the top priorities in the organization of the World Cup, and without a doubt, one of the biggest challenges a World Cup city had to face.

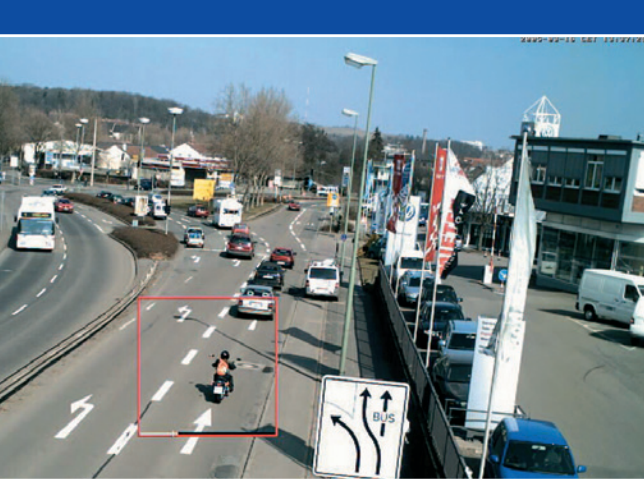
“That’s why we created 15,000 parking spaces on the outskirts of the city and considerably increased the frequency and range of public transit, measures we

initiated to try and keep vehicles out of the city center,” explained Chief-of-Police Siegfried Ranzinger, who was responsible for all the traffic flow management and control in Kaiserslautern during the World Cup. “In addition, we set up four different main routes that led to the Fritz-Walter Stadium – particularly for the shuttle busses. Traffic had to move along freely on these routes.”

Reliably Clear Images

Jürgen Dressing, who heads the Department of Law and Order in Kaiserslautern, commissioned the community services provider, WVE, with the technical project to develop, plan and implement the required traffic monitoring system. Together with Dieter Burkey, master electrician, and Ralf Kattler, technician, project leader Michael Theis was responsible for the selection of the features and functionality as well as installation of the cameras.

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,” Michael Theis confirmed. “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 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.

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 VGA format resolution, 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, 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," Chief-of-Police Siegfried Ranzinger added. "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."

Project leader Michael Theis is happy that the system not only stood the test in advance during the German Football League trial games, but also proved itself during the World Cup. By the way, USA was able to manage a 1:1 tie against Italy, despite the fact that they were a player short. As expected, there were no signs of traffic chaos, neither before nor after the game.



Integrated Telephone Features

All MOBOTIX IT and Secure models feature bidirectional audio support. The built-in microphone and loudspeaker are used for live audio transmissions and storage purposes. Voice messages with PIN confirmation and call forwarding via IP or ISDN telephony have been integrated as well. Using the switch outputs, you can switch lights or open doors from the phone or from the computer.

Robust and Well-Protected

The fiberglass-reinforced housing is shockproof and the SecureFlex mount protects the network cabling as it completely conceals the cables (M12/D12 models). Weatherproof (IP65) from -30° to +60°C (-22° to +140°F).

High Return on Investment

Since the number of cameras and storage capacity are freely scalable and any kind of data connection can be used (ISDN, DSL, Ethernet, Wireless, GSM, copper, optical), MOBOTIX means high ROI, even years after installing.

State-Of-The-Art Technology

Developed and manufactured in Kaiserslautern, Germany, MOBOTIX produces image-storing weatherproof high-resolution cameras, including lens and wall/ceiling mount for as little as 598 EUR excl. VAT. To date, more than 100,000 cameras have been sold worldwide.

MOBOTIX Technology – Cost Savings in Every Aspect

High Resolution For Sharp Images

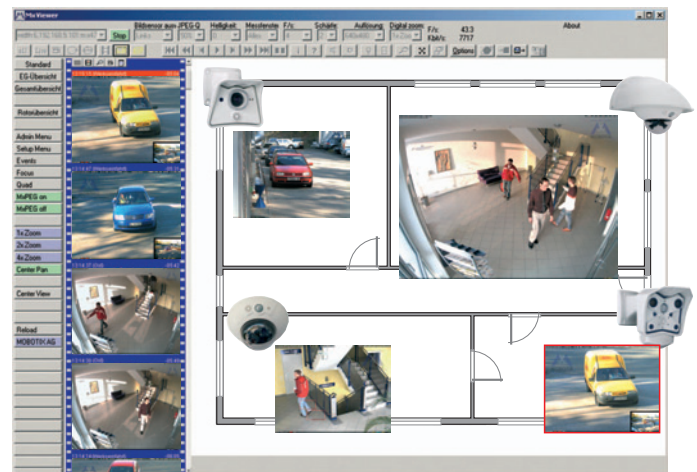
All MOBOTIX cameras are high-resolution cameras with integrated image storage and 960 lines (1280x960 pixels) resolution. The **stored image** thus contains 12 time more detail for creating zoomed sections of the image than regular cameras with 240 or 288 lines (CIF, 2CIF). This is why one single MOBOTIX camera with a 90° wide-angle lens is sufficient to monitor an entire room and yet provides more detailed images than traditional technology. The MOBOTIX Day/Night cameras feature zero maintenance with one color and one B/W image sensor.

Intelligent Storage Technology Uses Fewer DVRs

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, each managing its own ring buffer and database. Intelligent search features provide swift access to the stored events. There is no software required for storing and managing video, eliminating license fees and the need for expensive software. Event-controlled recording and automatic increase of frame rates upon detecting movements drastically reduce the storage requirements.

Low Power Consumption Means Enormous Savings

Since MOBOTIX cameras are anti-fogging, do not require heating and only use 3 Watts each, power can be injected into the network cabling using standard PoE products, year round. This drastically reduces the amount of cables and the power requirements for backup power.



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