The Birmingham Zoo, Alabama, USA

High-resolution cameras enhance zoo security while collecting critical information on animal behavior

Customer

The Birmingham Zoo in Birmingham, Ala., was designed to inspire passion for the natural world through emphasizing conservation, education, scientific study and recreation in all aspects of the zoo's exhibits, programs, facilities and activities. The Birmingham Zoo is a leading zoological conservation, education and scientific study resource within the United States, and the family attraction of choice in the Southeast region.

The Birmingham Zoo is uniquely poised to blaze new trails in the evolution of elephant conservation with its new exhibit, Trails of Africa. This exhibit designates the Birmingham Zoo as a national leader in the care and conservation of African Bull elephants, and is intended to set new benchmarks for their care and breeding. Visitors can experience, explore, and become educated on the new and existing animals and their expanded exhibit areas.

Trails of Africa is designed to be a mixed-species exhibit featuring a bachelor African Bull elephant herd, red river hogs, rhinos and more. Trails of Africa also includes ground and aerial ob- servation opportunities providing education and entertainment to the zoo's hundreds of thousands of annual visitors.

With its botanical and cultural emersion-themed motif, Trails of Africa is creating an immediate impact as a prestigious, world-class community asset. It is an economic engine for growth and tourism, and a science and ecology hub for primary schools. Trails of Africa is a place where visitors can observe African wildlife and be enlightened about the plight of endangered animals and inspired to support global wildlife conservation efforts.

Challenge

The Birmingham Zoo is dedicated to not only providing its animals with a comforting and secure environment, but to preserving data collected from its various exhibits and animals. "Animal behavior happens 24 hours per day, seven days a week, and 365 days per year," said Dan Trausch, Director of Zoo Operations, Birmingham Zoo. "But we do not have the staff resources available to devote to animal behavior 24/7." Therefore, Trausch was interested in leverag- ing video surveillance technology to monitor animals at specific exhibits. A new African Bull Elephant exhibit in Trails of Africa was deemed the ideal place to launch such a program as zoo officials wanted to gather information on the elephant's habits in their new environment. The new exhibit, which opened in March 2011, marks the first time that African Bull Elephants have lived in a controlled environment.

"We want to have a record of the elephants' introductions to each other, their overall behavior, and want to use video footage for scientific research," Trausch said. "Using video as a way to preserve the activity of the animals allows our team to have the data needed to be most effective and have more situational awareness."

Birmingham Zoo contacted Jason Maddox, Owner, Advanced Integration Systems, to discuss how traditional surveillance technologies could be used to enhance the zoo's scientific research and data collection projects. Advanced Integration offers a comprehensive selection of high-tech security equipment, surveillance installations and alarm monitoring services to protect its

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Birmingham Zoo utilizes surveillance solutions to reduce crime, investigate theft and locate lost children; system doubles as tool to gather scientific animal data.

widespread client base in Alabama, and had previously assisted Birmingham Zoo on other projects. Maddox assessed the zoo's desire for camera coverage in the elephant exhibit as well as its need to maintain a secure facility. Trausch had already conducted research on the types of surveillance cameras available and knew he wanted to leverage IP-based technology to have access to higher quality images than traditional CCTV systems. With that in mind, Maddox recommended a MOBOTIX decentralized surveillance system for its cost efficiencies, high-resolution video and video management system with simplified user interface.

Solution

MOBOTIX is a pioneer in the development of high-resolution surveillance technologies and its decentralized concept makes high-resolution video systems cost efficient. One MOBOTIX camera with 3.1 megapixels records 30 times more detail than traditional CCTV cameras. As a result, larger image areas of up to 360-degree views are possible. This reduces the number of cameras needed in any environment and therefore, upfront and long-term costs. Unlike other systems, the decentralized MOBOTIX concept incorporates a high-speed computer into every camera to reduce network bandwidth because video is processed on the cameras itself and images do not have to be transferred continuously.

Advanced Integration installed 12 MOBOTIX high-resolution cameras to cover all areas within the five-acre exhibit, select point-of-sale stations and the safari café. The cameras, a mixture of MOBOTIX M12, M24 and Q24 cameras, are managed by MOBOTIX MxControlCenter. MxControlCenter is professional video management software included with the purchase of MOBOTIX cameras at no additional cost. It includes all the functions required from a robust security software solution including unlimited users, simple configuration and installation, layout editor for floor plans, and a user-friendly interface

and camera view. When combined with the MOBOTIX decentralized concept, it delivers a complete security system at an extremely cost effective price.

"The comprehensive surveillance system from MOBOTIX enables Birmingham Zoo to record footage of the elephants' behavior for scientific purposes, which is critical to understanding the breed's inherent personality," Maddox said.

The MOBOTIX surveillance system is also used to enhance security in critical park areas. The zoo called upon Advanced Integration to add cameras at additional point-of-sale areas, its membership office, its parking lot, and at high-risk areas such as entrances and exits. In total, more than 30 cameras are included in the zoo's security infrastructure. Trausch said the zoo makes the safety and security of its guests a priority and uses the camera system to investigate incidents such as lost children or incidents of theft. The system has already

proved useful in reducing crime. A camera facing the entrance caught the image of a suspected thief leaving the zoo and zoo officials were able to pass the image over to police as evidence.

Results

"At the moment, we have 70 percent of the exhibit area covered by the MOBOTIX system and we'll look to expand the coverage as the exhibit grows," Trausch said. "We have three elephants now and will soon have four. As the new elephant is introduced to the existing herd, we will be able to record the interactions and that footage will be immensely valuable to the scientific community at large. We are happy with the results we've experienced with the MOBOTIX system as it provides detailed images of situations, including close ups of live and recorded images through its built-in PTZ capability."

Birmingham Zoo is one of the top five largest elephant exhibits in the nation. Trausch said

the zoo's commitment to animal research and development, and its new exhibits, drove visitors numbers up in 2011. It continues to innovate with the addition of new animals and exhibits, and technology deployments. The zoo recently installed a portable MOBOTIX camera to monitor a pregnant female orangutan that recently gave birth. The event and the baby orangutan's first days were available for zoo officials to view through remote access to the MOBOTIX video system, providing the zoo with access to more detailed scientific data than previously thought possible.

MOBOTIX

MOBOTIX has developed and manufactured IP video systems, video management and analysis software in Germany since 2000.
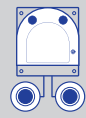
MOBOTIX stands out for its **high level of reliability**. All outdoor cameras are subjected to a stress test for temperatures between -30°C and +60°C (-22°F and +140°F). Without additional components, without heating or cooling and with no moving parts (for example auto iris), they are virtually maintenance free.

MOBOTIX delivers a **perfectly matched package**, starting with the microSD card for storage management and HD audio (microphone and speaker) with VoIP telephony through video analysis, a professional video management system and motion detection software reducing false alarms.

The **decentralized architecture** means that a central computer is not required and the network load is minimal. The intelligent cameras from MOBOTIX process and store image data themselves, trigger events and, in the event of remote access, manage the frame rate and resolution depending on the available bandwidth.

The **6MP Moonlight sensors** and complementary **thermal imaging technology** ensure reliable detection of moving objects, even under the most challenging light conditions and over long distances. As a result, it is possible to cover large areas with just a few cameras. Less power cabling, less IT infrastructure and fewer additional light sources are needed. MOBOTIX cameras are powered using standard PoE and do not require more than 4-5 watts.

An intelligent IP video system from MOBOTIX allows you to **reduce total costs**. The investment pays for itself after a short time and the free-of-charge software and updates ensure it is a future-proof investment.

Outdoor Dual Lens			Thermal	
M15/16 AllroundDual	S15/16 FlexMount	D15/16 DualDome	M15/16 Thermal	S15/16 DualThermal
Robust for extreme conditions	Flexible dual camera	Modular dual camera	Thermal dual	Thermal dual

Outdoor Single Lens			
M25/26 Allround	S15M/26 FlexMount	Q25/26 Hemispheric	D25/26 Dome
Robust for extreme conditions	Discreet, video analysis	Discreet, video analysis	Modular Fix dome

Indoor			
i25/26 Panorama	c25/26 Hemispheric	p25/26 Allround	v25/26 MiniDome
180° hemispheric	Discreet, video analysis	Modular ceiling camera	Vandalism camera

Door Modules			MxDisplay+
Camera	BellRFID	Keypad	Remote Station

Door Sets	
Double Frame	Triple Frame

Retailer information:

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