

Pioneering the Intelligent-Surveillance Revolution

A Micron/ioimage Case Study

ioimage

ioimage pioneered the concept of intelligent video appliances. Founded in 2000, ioimage specializes in creating high-performance, uniquely designed devices that provide easy installation and robust, reliable operation. Their self-sufficient systems provide real-time detection and alerts, and proactive tracking of vehicles, intruders, and other threats.



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ioimage is a guiding force in the intelligent video market, and their strategy of design simplicity continues to attract high-profile customers in both industry and government.

The Challenge

Intelligent surveillance systems have gathered increased attention and adoption since their commercial introduction just two years ago. These systems offer clear efficiency and labor-saving advantages over traditional camera systems, but most just scratch the surface of what’s possible with surveillance analytics. To deliver a full-featured intelligent system, designers must overcome some significant technology challenges.

Conventional analytics are limited by the security camera’s field of view. Common CCTV systems work on the NTSC/PAL or D1 standards, which offer resolutions of just 352 x 240 or 720 x 480 pixels, respectively. Although adequate for standard surveillance images, these resolutions don’t provide the flexibility needed to fully employ the far-reaching abilities of intelligent surveillance systems. For example, they don’t provide the resolution needed to zoom in on items of interest for accurate identification and verification.

System bandwidth is also a large concern for intelligent surveillance systems. Several companies are work-

ing to improve performance and efficiency by developing smarter cameras, but prevailing models still rely on centralized processing. Because centralized systems must pull in all image data for processing, they demand much greater bandwidth and can’t deliver key features like picture-in-picture imaging.

ioimage engineers were armed with a strategy for overcoming these challenges, but knew they needed an innovative image sensor to make their camera solution possible. They wanted a high-resolution CMOS imager with strong performance in harsh outdoor conditions; one that had the output sophistication to support complex camera features. After analyzing the field, ioimage engineers selected Micron’s 3.1 megapixel MT9T031.

The Solution

The advanced features of Micron’s CMOS imager helped ioimage deliver three key advantages that differentiate their design from other intelligent systems: high-resolution output, sophisticated camera processing, and design simplicity.

High-Resolution Images

ioimage’s high-resolution system removes the limitations of conventional CCTV. At 3.1 megapixels, Micron’s sen-



sor provides nine times as much visible resolution, which enables the ioimage camera to zoom and track objects without any loss in image detail.

In-Camera Processing

In-camera processing improves bandwidth, performance, and efficiency. ioimage's smart cameras handle image processing and can further preserve bandwidth by zooming in on the relevant part of the camera's field of view. The ioimage camera also offers sophisticated picture-in-picture displays—such as a tracked object picture within a whole scene view. The advanced digital output and dual-streaming capabilities of Micron's sensor help make this key feature possible; a valuable analysis tool that can't be delivered with conventional analytics.

Simplicity

ioimage's camera system is one of the first on the market to offer such high-powered features in a simple, self-contained device. The system is designed for easy use and support, and its quick installation process is attractive for both high-end and mass-market applications. Micron's CMOS sensors offer inherently lower power consumption than CCD sensors, reducing overall power requirements for the camera. The sophisticated sensor output also plays a significant role in design simplicity, since on-camera processing creates a much simpler system.

Additional Key Benefits of Micron Image Sensors

Micron's technology leadership in imaging has put us at the top of the CMOS image sensor market. ioimage chose Micron sensors for three primary reasons:

- **Low-light sensitivity** – Excellent image quality despite severe outdoor conditions and drastic light changes.
- **High frame rate with advanced digital output** – Real-time, picture-in-picture capability, with good detail.
- **Excellent support** – Quick prototype processes help control cost. "Micron's good design enabled an easy integration," says ioimage's Dvir Doron, "which was a significant factor for us."

The End Result—Innovation that Changes Markets

ioimage's advanced surveillance system is a great example of how Micron's innovative imaging technology, quality, and support help inventive companies deliver bold new ideas—ideas that open up markets and change the way business is done. To read more and see video of ioimage's intelligent surveillance in action, visit their web site: www.ioimage.com.

Learn more about what Micron CMOS sensors can do for your design. Visit us at www.micron.com/imaging or contact one of our regional representatives for more details and design specifications.

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