

Traditionally a manufacturing base camp, Asia has always been known for its low-cost, mass-production capability. This is not to say, however, that Asian manufacturers lag behind in terms of research and development because there were certainly plenty of interesting product ideas and features on the show ground that made a lot of buyers and visitors look twice.

According to the latest SecuTech Expo 2007 statistics, CCTVs still took the lion's share at the show, accounting for the most floor space and almost half (49.7 percent) of the total number of exhibitors. From IR cameras, IP-enabled cameras and various pedigrees of DVRs to central management software (CMS) and video analytics, top-notch surveillance technology has never been more in demand. Biometrics also generated quite a buzz at SecuTech, with its ability to fortify identification or verification at access control points and adapt to new applications. Below is a summary of some interesting observations and findings from our editorial team.

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The CCTV Halo

Cameras

With the long-range IR LEDs and condensers, Camdeor's cameras are targeted at both high-end government projects and affordable, do-it-yourself (DIY) markets. Aside from Camdeor's award-winning, auto-iris IR camera, a strong presence of IR day/night cameras could be spotted on the show floor. AVTech's IRpro series uses image comparison software to adjust the brightness of IR LEDs so that image clarity and accuracy are greatly enhanced for true-color captures. High-aperture lenses are also used in AVTech's cameras to allow more light to go through imaging sensors to combat challenging light conditions.

CNB's varifocal/fixed IR dome cameras and weather-proof IR cameras also drew a crowd, with their user-friendly design for easier installation. The embedded IR filters in KT&C's cameras with excellent wide dynamic performance are suitable for environments with frequent, sudden lighting changes.

Designed and developed by its own team, VIVOTEK's IP cameras can be customized to suit different bandwidth or sensor needs. The company predicts that dual-compression technology will become more readily available for both high-resolution, back-end analysis and low-bandwidth, mobile viewing.

Two other features, megapixel and wireless, were also shouting at ears by at SecuTech. iCanTek's iCanView Wi-Fi cameras, with dual CCDs and universal-plug-and-play communication protocols, got quite a few inquiries, as well as some nervous



looks from competitors. Mobotix's wireless megapixel M12 has a slick plug-and-play design, intercom and motion detection capabilities, extreme temperature ratings, ultra-low electricity consumption (2.5 watts), and real-time, video-analytic processing power.

DVRs

Both EverFocus and HeiTel claimed that the demand for mobile DVRs is at an all-time high; for this market to grow even further requires mature H.264 compression which needs to undergo major improvements for more stable and real storage-saving applications. Backed with German government ratings, HeiTel's DVRs have a unique MultiLink design that allows for simultaneous connections via IP networks such as LAN/WLAN, Internet, DSL, GPRS, EDGE, UMTS, HSDPA and CDMA or dial-up options such as PSTN/POTS, ISDN, GSM and HSCSD.



HeiTel's Varifocal (top) and AllMedia hybrid DVR

Other advantages of HeiTel's products include made for public and private transport vehicles and compatible with remote monitoring centers; long-term recording onto removable hard drives with adaptive multi-track management optimized for mobile applications; manual or event-triggered connection for live video transmission to remote monitoring centers; variable voltage power supply input and integrated 12-volt regulator for cameras; compact design made for

surface, flush and ceiling mounting; vibration approval EN 50155; and optional audio recording.

Korean maker Picaso's MEX-series DVRs come with a slew of nifty features such as 480-fps live display, recording and network transmission; power mirroring for automatic archiving in the secured form of HDD data; turbo engine recording; two-way voice communication; POS text insertion and interface; hidden camera function set by user; adopted MPEG-4 ASIC chipset; hybrid input from both analog and IP camera; smart-search, self-monitoring, watermarking and reporting technologies; and remote configuration and upgrade via the Internet.

Hexaplex functions in Rifatron's Versatile-series DVRs include 16-CH live display; 16-CH audio and video recording; playback of 16 channels of archived footage; data backup through USB sticks or DVD burners; network monitoring; and remote configurations. It was stressed that these six functions can be run simultaneously without interference. The internal storage can be as high as three terabytes, and MPEG-4 compression technology is used. Audio detection can be used in many unique applications for example, museum at night to detect break-ins.

AVerMedia's hybrid DVRs can be connected to analog, IP and PTZ cameras and come with a CMS package that enables users to remotely control up to 1,000 DVRs with live notifications. NTIC's dual-codec DVRs boast JPEG 2000 and H.264 compression technologies that yield clearer pictures and faster transmissions. The company's all-in-one LCD DVRs are quite popular with DIY enthusiasts, while its 5,000-GB DVRs with financial institutions. GSP's and Gigabyte's DVRs are equipped with basic analytic functions such as POS monitoring, people counting and crowd/flow control. Chateau Technical goes an extra mile by developing its own DSP that is capable of high-level H.264 compression and video and audio processing.

Software

High-end video analytics was showcased at ObjectVideo's booth, to counter the problem of "too many eyes (cameras) and no brains." The company predicts that intelligence is moving to front-end, edge devices for higher system efficiency and better utilization of resources. huperLab's intelligent video solution was bundled with Gigabyte's hardware for affordable retail and home applications.



huperLab's intelligent video bundle

Biometrics Catch on to People

A section of SecuTech Expo 2007 was dedicated to biometrics, ranging from scanners and access control devices to portable readers. Several solutions included fingerprinting, vein recognition and facial recognition, with different vendors promoting their individual technologies.

At Hundure, the new prototype for its fingerprint card reader for time and attendance was on display. It is expected to come out by the company's third quarter this year. The Taiwanese maker has biometric readers as part of its product line, which includes cameras and software, but does not believe that there is a significant market for biometric products. "The market is smaller for biometrics, such as integrating fingerprint recognition with access control," said a Hundure representative. "The facial recognition market is also very small, as there are a limited number of applications, so development for this segment will not be large." Other makers hold different opinions. At DSHitech, a Korean company featuring biometric solutions, fingerprinting is the name of the game. Its products include fingerprint scanners for computer devices, which can be embedded in computer mice or keyboards, said Jerry Ji, Manager of the Overseas Department. The fingerprint image is stored in the computer's server, so the next time a person logs in, the scanned image can be compared to previous scans.

The company also makes fingerprint sensors for readers in commercial buildings that connect multiple doors, as well as for locks used for homes or hotels, Ji said. Its sensor for DSHitech's access control system can store data for 4,400 fingerprints in order to match them to users.

Differing Image Capture Technologies



DSHitech partnered with SecuGen, a biometrics maker based in Silicon Valley, for FBI approval on resolution, hardware and algorithm, he said. Its biometric products use optical scanning instead of CMOS semiconductor chips.

"If we use a semiconductor to capture the image, the accuracy will be reduced because it will be affected by the body's electricity," Ji said. "The user's fingerprint can be used, whether the finger is dry or wet. And, it could identify if the finger is from a live body or just a piece of silicon. The secret is in the body's electricity."

Other makers agreed with DSHitech on image capture technology. Elid, a Malaysian maker, offers a range of optical fingerprint scanners combined with card readers and numeric keypads for extra security. "We use a sensor from Korea, replacing a Chinese sensor after a year when it did not meet our needs," said Swee Ling Goh, Senior Hardware Engineer for Elid.

Other makers prefer alternative image capture methods. Lucky Technology from Hong Kong chose CMOS sensors for its fingerprint scanners from Fujitsu, said Sales Director Andy Chung. For image comparison, Elid uses one-to-many verification, or matching an individual's fingerprint to a print stored with others in a database, Goh said. The fingerprints are stored to the reader, instead of to a computer. Privacy is not a concern, as the fingerprint is stored as a code, after it is processed with Elid's own algorithm. If the database was to be breached, the data would be read as strings of numbers, making it difficult to duplicate a fingerprint from the data.

Biometrics Not Just About Fingerprints

"Match-on" technology, or one-to-one verification, is the favored method of data comparison for

Korean Samho. Instead of a fingerprint solution, the company showcased its iris identification mouse for logical access. Users pick up the mouse, turn it sideways and look into a round concave mirror, which is the iris capture camera. The iris scan is then stored to the mouse instead of a database, which runs the risk of being hacked.

Other companies are still looking at hands instead of eyes, but under the surface. Hitachi displayed its finger vein authentication solution, which uses an optical scanner to check for user vein patterns, typically in their forefinger, according to its press releases. As the hemoglobin in blood has a high absorbance rate for the near-IR wavelength sent out by IR LEDs, the vein pattern can then be captured by the CMOS camera.

Vein recognition has higher accuracy rates than fingerprint recognition, as dryness or wetness can affect the scanner's ability to correctly identify a fingerprint, while vein recognition is impervious to external conditions, said Keiichi Hasegawa, Manager of ID Management Global Sales, Global Business Planning and Operations Division, Hitachi.

The accuracy of vein recognition is why Jantek Electronics offers a palm vein reader using Fujitsu's scanning technology, along with fingerprint solutions. However, the most excitement was around facial recognition technologies. Face-Tek, PenPower Technology and AutoBio Tech demonstrated how their solutions could accurately recognize faces, even when people removed their glasses or were not looking directly at the camera.



Hitachi's finger vein authentication solution

Applications in the Real World

CCTVs took the lion's share at SecuTech 2007, accounting for almost half of the total number of exhibitors; from IP/IR cameras and various kinds of DVRs to CMS and video analytics, top-notch surveillance technology has never been more in demand.

While demonstrations of biometric scanners worked well on the show floor, makers said they required specific environments to function correctly. AutoBio Tech's Steven Chang said lighting was very important for facial recognition. "We need tracking and zooming in and out to detect the full face," he said, in order for the facial recognition to work for in an access control application.

Dust and dirt were other factors for fingerprint biometric companies. Goh said that Elid's fingerprint scanners need to be used in relatively clean places like offices to ensure accurate reads. A factory where workers might get their hands covered in flour or syrup would not be recommended, as the particles could get between the ridges of the workers' fingers and affect the scanner's ability to match the prints with their stored templates.

Other practical concerns are simply beyond maker control. Hitachi's finger vein readers have about 70 percent market share for Japanese biometric ATMs, Hasegawa said, while Fujitsu's palm vein scanners make up the remainder of the market. This is because palm vein readers, which read the whole hand instead of just a finger, are bigger and take up more space in ATM areas of banks. These areas, in turn, are usually separated from the rest of the bank to allow for 24-hour access, where every square foot is valuable real estate. While the technologies both use IR LEDs to read vein patterns, the application for them comes down to space factors that neither company could have predicted.

Where Do Products Go?

With the wide range of products, the places they end up going are all over the map. One thing is for sure: Asian products are largely made for export,

rather than domestic use. Samho's iris recognition algorithm is patented in the U.S. where its iris-scanning mouse is exported to, said a company representative.

For fellow Korean DSHitech, which was founded in 2002, most of their fingerprint products are sold to Japan, as well as domestic sales, Ji said. Japan has a high demand for biometric products in vertical markets such as banks and hospitals. The biometric data is used to manage health records for medical checkups.

DSHitech's embedded computer devices are sold in the U.S. as well as European countries, he said. Specifically, for the U.S. market, its compliance with the FBI's testing standards allows its products to be used in government agencies. However, DSHitech's access control systems are not sold in North America yet, since they would be unable to respond to maintenance issues. The company plans to have overseas services in the future.

The bulk of Lucky's sales is to Europe and America as well, Chung said. The company's fingerprint solutions have CE approval for Europe, along with FCC approval for the U.S.

For FingerTec from Malaysia, its fingerprint scanners and access control solutions are sold to Indonesia, India and 70 other countries, said Teh Hon Seng, Managing Director and CEO.



FingerTec's fingerprint scanners

Promising Land

With the array of surveillance products on display at the show, several trends stand out when comparing them. IP is clearly the talk du jour. From megapixel cameras, hybrid DVRs and NVRs to access control and home automation systems, broadband networkability has become the name of the game. IP cameras transmit live feeds over the Internet, useful for homeowners who choose to receive alerts on third-generation (3G) cell phones if an event triggers an alarm. Network products contribute to the productivity of Asian manufacturers producing network-enabled cameras, NVRs and home solutions. The trend also indicates that out-of-the-box, plug-and-play simplicity is a must.

Another trend is the rapid improvements in DVRs, with the standard becoming a hybrid machine able to store data in more than one compression format. Another feature is embedded intelligence video surveillance (IVS) software, allowing analytics to process images for storage. As higher-resolution images are captured, hard drives are growing in capacity, with memory in the terabytes. A number of vendors effectively showcased the smarter DVRs which will only get better.

With the amount of input from network cameras, CMS becomes increasingly important to respond in time. Virtual maps are now a given, allowing people in central monitoring stations the ability to locate problem areas in real time, instead of checking each camera's display against its location one at a time. Scalability of systems requires appropriate CMS solutions, and some of those were on display at SecuTech Expo 2007. Finally, mobile solutions were featured prominently as well. More applications for personal digital assistants (PDAs) in access control and real-time alerts will continue to become the norm. Apacer, a Taiwanese maker of flash memory sticks, is going for mobile storage solutions, so large files from a DVR or NVR can be portable instantly, instead of burning CDs or DVDs for hours.

SecuTech Expo never had a lack of exciting products. The latest trends in security indicate a move toward Asian companies, with increased innovation in their offerings. With more Asians branding their products and doing less OEM work, more integrated solutions will be offered, instead of

components. Clearly palpable, Asian manufacturers are quickly evolving with an intent to have more and more presence and influence in the world of electronic security.