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Security fears help biometrics firm soar: Face-recognition technology puts **CryptoMetrics** in market lead

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Wayne Cuddington, The Ottawa Citizen
 Devashish Paul, Director of Product Marketing at CryptoMetrics Inc., demonstrates the company's video-detection product, typically used to confirm the identity of people entering secure facilities.
 (FPinfomart: Allowed, Canada.com: Allowed)

In the world of biometrics you can run, but you can't hide. And no matter what disguise you choose to adopt, the ubiquitous camera will track you down. More than that: it will unmask you, strip away the outer covering and reveal the real you.

It is, concedes its proponents, a page out of Aldous Huxley's *Brave New World*, but very necessary for the age in which we live. And there is no turning back. The London bombings took care of that, acknowledges Devashish Paul, Director of Product Marketing of **CryptoMetrics** Inc., of Ottawa, which in September dropped the name BioDentity Systems Corp. after merging with the Tuckahoe, New York, company of the name it now carries.

The merged company is now at the forefront of the biometric vanguard of electronic facial surveillance. While **CryptoMetrics**' software and hardware technology is being developed in Ottawa, the main sales target is in the United States where over the next three years, the New York Metropolitan Transportation Authority will add 1,000 surveillance cameras and 3,000 motion sensors to its subway network and commuter rail facilities. It is part of a \$591-million U.S. security upgrade motivated by the Sept. 11, 2001, terrorist attacks.

But whether the CCTV -- closed-circuit television -- cameras are installed in the New York subway or located along the route of a marathon run in Ottawa, their intent is the same -- to help CCTV operators spot abnormal behaviour and prevent criminal activity. It is in this area that **CryptoMetrics**' technology has its strength.

A drawback of most CCTV systems is that either the cameras are not operating in real time or there are too many cameras and not enough operators watching. Much can happen in the blink of an eye and if an operator loses his concentration for a split-second, the opportunity to apprehend a criminal or prevent a crime can be lost.

CryptoMetrics's digital cameras overcome this by taking up to 90 frames per second, processing the image, cropping the headshots, optimizing them for face matching and digitizing them with an accuracy score against a databank of suspects' photos.

At the low end the camera works at 15 frames per second. "So think about that," says Mr. Paul. "How far can you walk in 15 seconds? Perhaps a few metres. If it grabs dozens of frames of you in that time, it's got you."

As fast as the photos are taken, the technology assigns to them an algorithmic number -- in this case "60" -- which streams across the monitor. Anything registering above this is an alert and the likelihood of it delivering an accurate match is 99.99 per cent correct.

A facial disguise, such as a beard, moustache or toupee, cannot beat the face-recognition technology, says Mr. Paul.

"Face-recognition technology is actually independent of disguises. It's based on the underlying bone structure of the person, so we're not looking for beards, what we're looking for is location, width of the nose, where the nostrils are located, where the corners of the eyes are located, where the corners of the lips are located, the relative position of the ears, and all of these positions versus one another.

"And that is something that you can't easily falsify: How am I going to change the location of the corners of my lips with a disguise? Am I going to put silly putty in between and hope it stays there? These are things that are very difficult to do. So face-recognition technology is independent of disguises."

The biometric industry took a huge leap forward in August when the International Civil Aviation Organization announced that all 188 member nations had agreed to issue their passports according to a common standard, an action that will clear the way for nations to fully accelerate their conversion to a biometric passport that incorporates a photographic chip.

This formal adoption follows approval by the International Standards Organization (ISO) for the biometric-enabled version of the standardized passport, or "ePassport" as it has become known.

Officials believe the ePassport will put an end to the trade in fake passports. The ePassport will still have the passport holder's regular photo for a visual comparison when passing through a border-control point. But the scanner won't accept the ePassport if the regular photo and the biometric chip with the digital photo embedded within the passport don't match.

It is inevitable that privacy concerns crop up with mention of biometrics and the installation of surveillance cameras in public places. One of the earliest and most known cases was of a video clip that showed two 11-year-old boys leading two-year-old toddler James Bulger by the hand as they walked out of a shopping plaza in Liverpool, England.

James's body was found later on nearby railway tracks where he had been beaten to death. His abduction in 1993 horrified Britain and squelched most invasion-of-privacy concerns.

More recently, the four London bombers were caught on CCTV footage on their way to attack three Underground trains and a bus in the heart of the city, and the graphic photos two weeks later of four men fleeing the scene of their failed attacks on the Underground reaffirmed Britons' belief that such surveillance methods are necessary.

London has more surveillance cameras monitoring its citizens than any other major city. The cameras are posted on the corners of many buildings, on buses and in every subway station. In all, there are at least 500,000 cameras in the city, and one study showed that in a single day a person can expect to be filmed 300 times.

Mr. Paul believes that Canadians and Americans, alarmed by the threat of terrorism, are ready to accept this new era of heightened security and surveillance. It's just a matter of time before federal, state and provincial authorities in both countries determine that the benefits of their citizens' protection outweigh complaints that the cameras constitute an invasion of privacy, he says.

"We don't consider it an issue whether the cameras are at sporting events or in amusement parks or at any other leisure activity where the public is in attendance," he said. "There are a number of industries and applications where face recognition is currently deployed. Obviously the biggest one is security-related, so the U.S. Department of Homeland Security is a big market for us."

But would it be accepted if surveillance cameras were installed at National Football League and Canadian Football League stadiums?

"Why not?" retorts Mr. Paul. "If you have a place where 60,000 people are going through the turnstiles, such cameras can easily take their photos as they funnel through."

But what about privacy concerns?

"The quick answer is that, from **CryptoMetrics**' perspective, that's a non-issue. It's our customers' concern because we don't actually deploy the camera in the stadium. If the New York Giants decide that they need a video surveillance system in Giants Stadium that incorporates face-recognition technology, then it's up to them to decide what the impact is to the protection of their customers and the privacy of their customers.

"**CryptoMetrics** has developed some of the most advanced biometrics technology available. Of course, privacy issues are a concern for all of us, but when it comes down to it, it's for the legislative bodies to decide if this technology in public places contravenes privacy or whether public safety is of paramount importance."

Illustration:

• Colour Photo: Wayne Cuddington, The Ottawa Citizen / Devashish Paul, Director of Product Marketing at **CryptoMetrics** Inc., demonstrates the company's video-detection product, typically used to confirm the identity of people entering secure facilities.

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