CHDS Students View Wearable Technology Through the Eyes of First Responders

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Ever since the rise of desktop computers first responders have sought ways to capitalize on mobile technology as companies raced to produce ever smaller and more nimble gadgets – laptops, on to smart phones to tablets and, most recently, wearable technology.

Center for Homeland Defense and Security master’s degree students are exploring the promise and perils of wearable technology in a course taught by Kathleen Kiernan and Rodrigo Nieto-Gomez, “Special Topics in American Government for Homeland Security: Framing the Discourse.”

“Our goal at CHDS is to explore the boundaries, look at leading edge capabilities and enable the first responder community,” Kiernan said. “What better way than with professional practitioners who will push the limits of technology, often improvising to need which in fact helps shape further development and more importantly, learning.”

Google Glass is one wearable technology that could offer a wealth of potential. The wearable glass will ultimately offer the same features as any other computer – facial recognition, quick access to data-bases and real-time analysis, building addresses and schematics – all without missing a step.

For master’s degree student Brent Cotton of the Transportation Security Administration’s Risk Based Security Core Team the wearable glass technology could be valuable in reinforcing the agency’s security techniques for its Behavior Detection Officers (BDO).

The nature of the BDO job requires quick thinking in evaluating a passenger’s demeanor. A computerized eyeglass device could assist in gauging a passenger’s physiological responses such as pupil dilation or micro-facial expressions. The technology could also potentially monitor a traveler’s walking gait to determine if the person is concealing an item, as well as provide a remote feed where other officers can analyze what the wearer is seeing.

“The officers might talk to a passenger that appears to be exhibiting signs of deception,” Cotton said. “And the Glass
could be monitoring physiological responses that the human eye cannot detect. This allows the officer to focus on the conversation with the passenger, while receiving a technical assist from the device.”

The TSA is also tasked with monitoring potential insider threats, a job that wearable technology could make more efficient. Cotton believes that facial recognition software coupled with the technology could be used to constantly verify that only appropriate personnel are present in sterile or secure areas.

“With Google Glass you may also be able to look at any CCTV video and the Glass could perform the analytics.” Cotton noted. “The benefit of using Glass to analyze video is that CCTV systems may not require expensive upgrades to have video analytics added.”

Agencies such as the Secret Service could potentially improve how its agents protect people and spaces, said current CHDS student Brian Murphy, Special Agent in Charge in Baltimore. Agents visually scanning the perimeter could benefit from facial recognition features while doing so.

“It’s a force multiplier,” he said. “It’s allowing a human trained to look at behavior issues while the technology looks at the face and can determine if this is a guy we should be concerned with.”

Wearable technology would also be beneficial during sometime chaotic natural events, said Detective Sgt. Tim Coyle of the New Jersey State Police. During the response to Superstorm Sandy washed out roads and bridges necessitated land vehicles use digital maps to get to affected locations while using the now-traditional method of camera-equipped helicopters to transmit situational awareness to an emergency operation center.

“How cool is it now that you can put first responders out there and they can beam back live scenes of what they are seeing?” Coyle said. “It’s an immediate canary in a coal mine. You have the EOC (Emergency Operations Center) seeing on the spot. They can make instant assessments without having to be there or getting it from a helicopter 200 feet above.”

One of the most touted features has been the video recording function. Dash cameras provide a limited perspective and existing wearable cameras – on caps or vests, for example – don’t capture an event from an officer’s vantage point as glasses may. SWAT units could benefit by connecting to their command structure through computerized glasses, Coyle suggested.

“If the first two guys through the door are using Google Glass they’re giving command a bird’s eye view,” Coyle said. “Command could gauge the situation to gauge if more or less lethal force is needed.”

The glass could initially be a distraction, some students said, and Murphy was concerned that the onslaught of data could lead to information overload and diminish an essential trait among law enforcement officers.

“Law enforcement agents are trained to rely on instincts and intuition,” Murphy said. “You can become too dependent on technology.” Kiernan added. “The bread and butter of practitioner survival requires the ability to think critically and adapt to situations in a dynamic fashion. Technology is certainly an enabler as long as it does not create an untenable dependency which degrades the other skills.”

Other concerns include bad actors using the devices for anything from counter-surveillance of law enforcement and surreptitiously recording copyrighted material.

Even before its public release, Google Glass has grabbed the attention of law enforcement and other first responders. The Byron, Ga., Police Department partnered with a private company last fall to test the device’s capability. This month, New York City media outlets reported that city’s police department was testing two sets of the glasses.
Otherwise, testing by homeland security professionals has been challenging as only a select number of people have been accepted for Google’s Explorer Program, reportedly 1000 worldwide. One of them was Kiernan, who is using CHDS classrooms to garner feedback on wearable technology from an academic and practitioner’s perspective.

Other forms of wearable technology are also pending or on the market. Samsung has released a smart-watch and Apple is said to have a prototype as well which students will have a chance to investigate.

‘The whole purpose of working with practitioners is having them explore perceived boundaries,” Kiernan said. “Good ideas come from exploring and in many cases, exploding those boundaries.”