ECHBeat

Dedicated to Reporting Developments in Technology for Law Enforcement, Corrections and Forensic Sciences

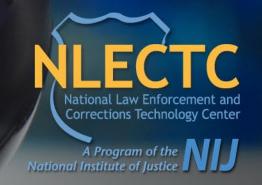
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REPORT PROVIDES INSIGHT INTO MOBILE ID FINGERPRINT TECHNOLOGY

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TechBeat is the bimonthly newsmagazine of the National Law Enforcement and Corrections Technology Center System. Our goal is to keep you up to date on technologies for the public safety community and research efforts in government and private industry.

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TELL US ABOUT YOUR TECHNOLOGY NEEDS

The National Law Enforcement and Corrections Technology Center wants to know your technology needs and requirements as a law enforcement or corrections professional. Use the form at https://www.justnet.org/tech_need_form.html to describe tools that would enhance the safety and effectiveness of your job. This information from practitioners is used to inform the National Institute of Justice (NIJ) research, development, testing and evaluation process and to make recommendations on prioritizing NIJ's investments across its various technology portfolios.

The NLECTC System

The National Law Enforcement and Corrections Technology Center (NLECTC) System is critical to the National Institute of Justice's mission to help state, local, tribal and federal law enforcement, corrections and other criminal justice agencies address technology needs and challenges.

The NLECTC System is an integrated network of centers and Centers of Excellence that offer free criminal justice technology outreach, demonstration, testing and evaluation assistance to law enforcement, corrections, courts, crime laboratories and other criminal justice agencies.

For information, visit www.justnet.org or contact (800) 248-2742.



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For information, visit www.ncjrs.gov.

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Report Provides

INSIGHTIMOBILE





FINGERPRINT

Technology



By Becky Lewis

When a research team first sees the published results of its labors, moments of doubt follow, moments of thinking, "Was it worth the effort?" and "Will it reach anyone?"

For one research team from the Forensic Technology Center of Excellence (FTCoE), a collaborative partnership led by RTI International, those doubts didn't linger for long. Shortly after the Internet publication of Landscape Study of Mobile ID Fingerprint Devices in January 2014, the RTI research team received an email from a law enforcement



branch chief, who was considering the use of biometrics for intelligence, telling them the report provided exactly the information he needed and that it "provided some great insight" and would help his agency decide whether to implement the technology.

Mobile ID Fingerprint Devices provides a "landscape" or overall view of issues related to the devices' use and a survey of commercially available products. The 34-page report also includes case studies of successful adoption. Agencies profiled were selected based on their use of mobile ID devices and other digital fingerprint capture technology for identification of deceased persons, as well as for broader law enforcement uses such as routine patrol and suspect identification.

The National Institute of Justice (NIJ) Forensics Technology Working Group had placed practitioners' need for information on this technology on its high-priority list for a number of years, leading to the FTCoE's decision to produce the report. When the research team members realized that the large number of commercially available options served to further complicate practitioners' decision making as to whether to adopt this technology, they decided to perform the more encompassing landscape study instead of an inthe-field evaluation that would showcase only a small number of technologies.

"This technology has been around for a while, and NIJ wanted to find out about the potential barriers that may be keeping its use from becoming more prevalent, and about ways in which they could help spur its adoption," says Jonas Hall, one of the technical contacts on the



their jurisdictions. She adds that as with implementing any other new technology, funding is always an issue. In addition to the cost of the devices themselves, adoption of the technology includes various IT expenses related to developing and maintaining databases, and managing servers to store information.

Another issue that often arises with all types of technology development is the need for training and skills development. With mobile ID fingerprint devices, the ability to capture a good quality image can make a difference in how well the technology works. Some devices include a scan quality indicator that tells operators if they've successfully captured an image or if they need to scan again. (Regardless of the quality of images obtained in the field, jurisdictions should be aware that legal issues will ultimately require verification by expert analysts in the lab.)

Moline Prak Pandiyan, another member of the research team, says it is important for agencies to field test the technology and to be aware of FBI and National Institute of Standards and Technology device standards before making a purchase decision.

"Real-world testing will help potential users understand if this technology is a viable solution for their departments," Pandiyan says.

Landscape Study of Mobile ID Fingerprint Devices can be downloaded from https://rti.connectsolutions.com/p6jrhaqgn0f/. For more information on the study, contact FTCoE Director Jeri Ropero-Miller at jerimiller@rti.org, Moline Prak Pandiyan at moline@rti.org or Jonas Hall at jonashall@rti.org. For more information on NIJ's forensics technology portfolio, contact Gerald LaPorte, acting director, Office of Investigative and Forensic Sciences, at Gerald.LaPorte@usdoj.gov.









"This research has been a valuable effort that will provide important information to the law enforcement community and further enhance the tools at their disposal."

- Lars Ericson, SSBT CoE Director

"This research has been a valuable effort that will provide important information to the law enforcement community and further enhance the tools at their disposal," Ericson says.

Best Practices collects lessons learned and advice from practitioners around the country who are using TTWS technology in the field, and leverages information on technical, tactical and functional considerations from a parallel evaluation effort conducted by the U.S. Department of Homeland Security SAVER program. The U.S. Marshals Service and the Gwinnett County (Ga.) Sheriff's Office also contributed to the effort.

"Combined with the market survey, this document helps provide a complete picture for practitioners who are considering implementing the technology," Ericson says.

Best Practices makes four key points, which Ericson says "may seem like common sense, but sometimes it's important to reemphasize this type of information in context." They are as follows:

> Practice with the device and learn how to use it. TTWS contain miniaturized high-technology radar systems, and it's important to understand the technical nuances in order to create confidence in the information gathered and incorporated into tactics.

Think of TTWS as a tool, but not as a substitute for tactical training. Because of their complexity, TTWS provide good information that should not be considered foolproof. Use the information to inform operations, but not to dictate a course of action.

Take multiple measurements at different places along a given wall. The composition of a wall is not uniform. Studs, water pipes and other structural variances can all contribute to skewed results.

Solid metal can block radar signatures; structures such as rebar or chicken wire can interfere with results. Users need to be aware that although TTWS functions through a wide range of building materials, there are some places where it just cannot be used.

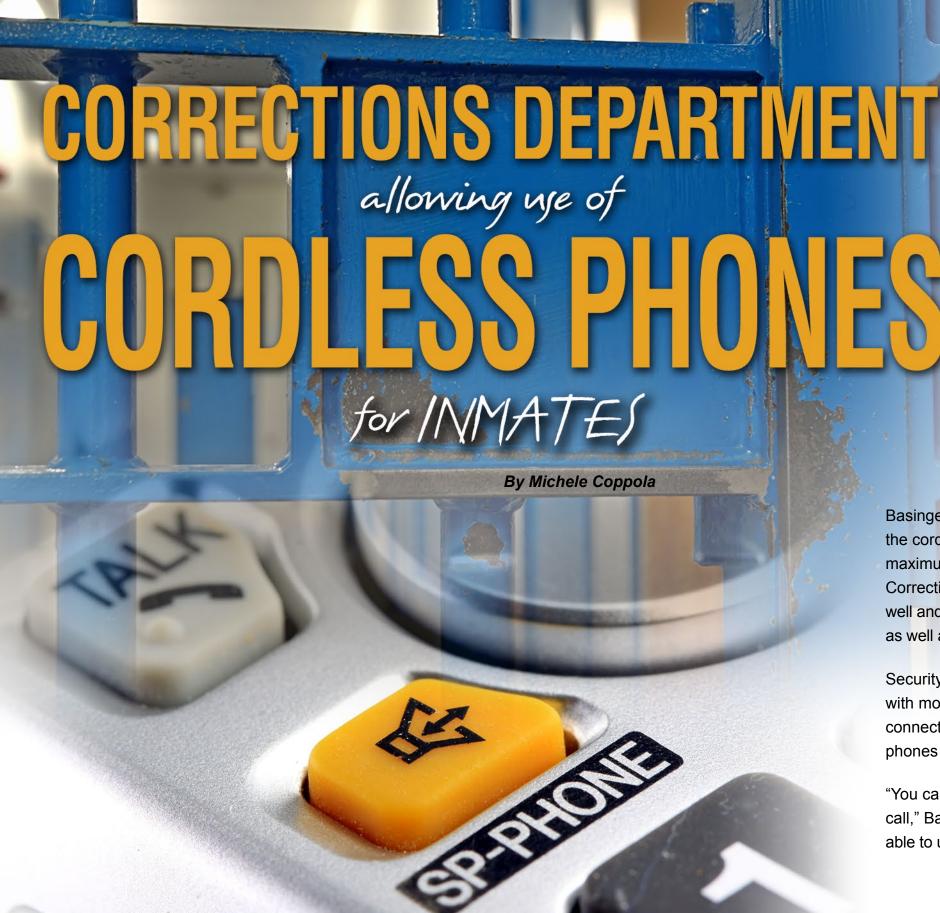
In contrast to the other two reports, *Test and Evaluation* focuses on the capabilities of an NIJ-funded prototype device, AKELA's ASTIR, testing and evaluating it against commercially available devices. This process took place in a controlled, real-world environment, not in a laboratory, and was the first of its kind for this type of technology in criminal justice applications. Overall, every device tested generally performed well, with each having different strengths and weaknesses, Ericson says; all of them could prove useful in different circumstances.

"It all depends on an agency's needs, and of course on budget constraints," Ericson says, noting that the ASTIR, which is not yet commercially available, performed well overall and functioned at the farthest distance from a wall of any device (70 meters).

Test and Evaluation is not geared toward field officers or SWAT members, but rather toward engineers, vendors and criminal justice technologists.

For more information, contact Lars Ericson at Lars. Ericson@ManTech.com. For more information on NIJ's Sensors and Surveillance Program, contact NIJ Program Manager Mark Greene at (202) 307-3384 or by email at Mark.Greene2@usdoj.gov.





The Indiana Department of Correction is allowing inmates to use cordless phones in their cells in an effort to stem recidivism and contraband cellphones and encourage better behavior while incarcerated.

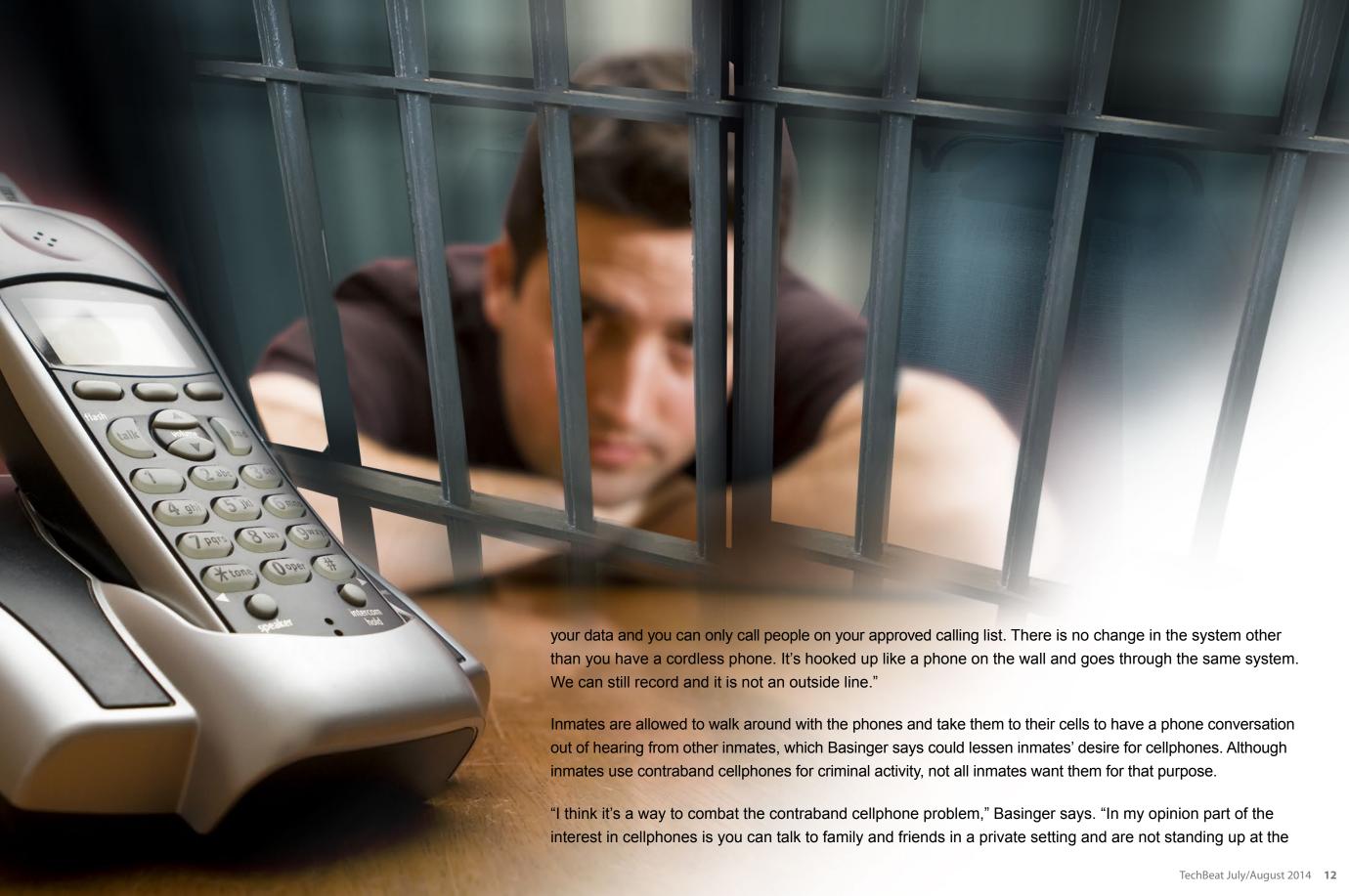
"I think it improves access to family and friends and thereby can improve reentry into the community. So far the inmates are pretty happy with it," says Deputy Commissioner James Basinger.

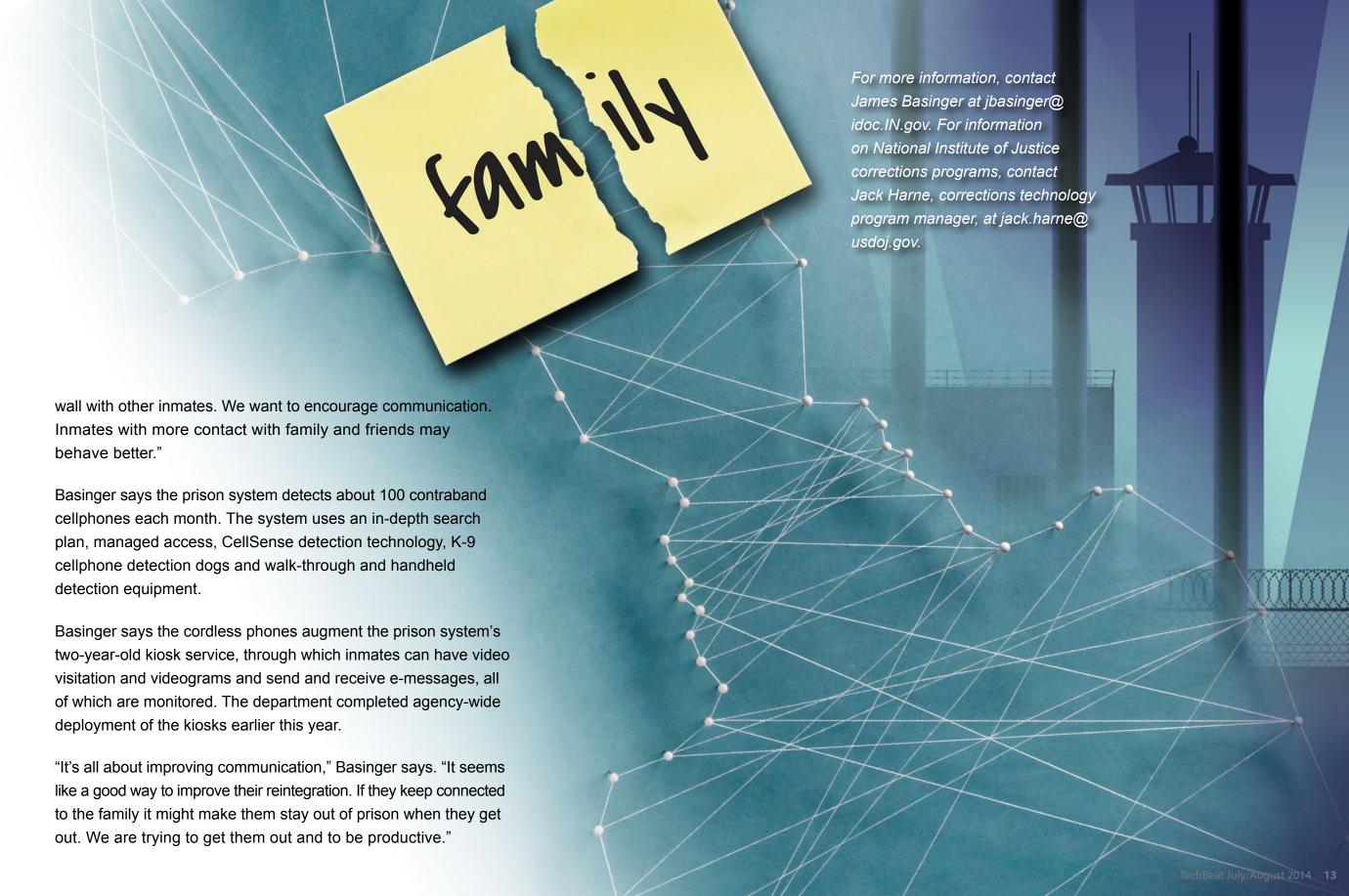
The department has been using cordless phones in prison recreation areas for about two years. From a phone bank, corrections officers pull phones off the charger and hand them to inmates who have signed out to use them.

Basinger says this spring the department decided to extend the cordless phones to one 250-bed general population maximum security housing unit in the 3,000-bed New Castle Correctional Facility as an experiment. The program has gone well and will be expanded to another 250-bed unit in the facility, as well as to the Indiana State Prison in Michigan City, Ind.

Security is essentially the same as a stationary wall phone with monitoring and recording by the prison. The phones are connected to the provider network just like the stationary wall phones so the security protocol is the same.

"You can't call anyone other than who you are authorized to call," Basinger says. "You have to enter a pin number to be able to use it, just like the phone on the wall, which pulls up







Another big one out on the Interstate. Couple of tractor-trailers, a half-dozen cars. Every hour the road is closed to survey the scene costs the local economy thousands of dollars.

But today, the loss won't be as great. Today, the highway will reopen in just about an hour. Today, investigators won't have to take an excessive amount of time out of concern that they have missed a key photograph or measurements, because their "eye in the sky" is documenting the scene quickly, thoroughly and in far less time than they could on the ground.

"In Colorado, it costs the economy \$35,000 an hour to close I-70. If an agency spends \$25,000 to \$30,000 for an sUAS, and it cuts the time the highway is closed from three hours to one, it's paid for itself during the first mission."

– Ben Miller, Mesa County Sheriff's Office

When the sheriff's office in Mesa County, Colo., became one of the first law enforcement agencies in the country to receive a Federal Aviation Administration (FAA) Certificate of Authorization (COA) to implement wide-area use of small unmanned aircraft (sUAS), UAS Program Director Ben Miller says he thought the aircraft would become primarily a search-and-rescue tool. (Mesa County is the fourth largest county in Colorado geographically, and has a population of 147,083.) Instead, it seems to be turning out that the "bread and butter" use for the technology is crime scene and accident scene reconstruction.

"We had the idea that we would be doing everything you see police helicopters do in the movies," Miller says. "We quickly realized there are limitations because of size and weight, and we began to realize that the real key mission is not finding lost hikers and chasing bad guys, it's day-to-day aerial survey capability.

"In Colorado, it costs the economy \$35,000 an hour to close I-70. If an agency spends \$25,000 to \$30,000 for an sUAS, and it cuts the time the highway is closed from three hours to one, it's paid for itself during the first mission," he says.

Mesa County flies two sUAS, a two-pound Draganflyer X4-ES unmanned helicopter and a larger fixed-wing craft called the Falcon UAV. The sheriff's office received its first experimental COA and began a pilot program with the Draganflyer in 2008,



then received the expanded COA to fly almost anywhere in the county in 2009. The agency added use of the Falcon in 2012; both craft were donated by their respective manufacturers to the pilot project, although Mesa County pays for parts and service. Miller describes their aerial survey capability as similar to the process used by Google Earth or other public-sector products, but with a significantly greater accuracy. The sUAS fly at a specified height above the ground and take a series of extensively overlapping photographs, presently programmed manually, but with the potential for robotic control in the near future. Modeling software identifies "like" points from the pixels in the photos, and the overlap allows a triangulation algorithm to produce detailed 3D models proven to be accurate within 3 centimeters.

Mesa County received a donation of software that would normally cost \$3,500 to obtain that accuracy, although Miller expects that in the future, sUAS manufacturers will bundle it in with their devices.

"It's easy to believe in hardware, but although software provides a product, you don't see the process it uses to create that product," Miller says. "We were very skeptical at first about its accuracy, because typically software has bugs. With this, we haven't seen any bugs. We feed it photos and it produces a model, and we feel comfortable taking its accuracy to the witness stand."

And because the photographs remain on file, if an investigator wants to "revisit" the scene and take a different measurement later in the process, the crime scene remains always open. This provides another level of reassurance that it's okay to release the actual physical scene.

"The time savings compared to doing it manually are tremendous," Miller says. "Also, we're not using modeling software that uses a template of, for example, a Ford truck, then extrapolates from there. You have a photograph that shows the actual vehicle involved in the incident, and everything in the surrounding area is there, every tree, every rock. The distances are accurate and everything is in its precise position. The increase in available data is significant."

Miller makes that statement based on six years of experience with using sUAS, during which Mesa County has used the aircraft in various search-and-rescue and tactical missions, in addition to using them for crime scene reconstruction.

"We initially were thinking more about the 'fun' stuff," he says. "Most agencies want to talk about using sUAS for tactical missions, but our opinion now is that what we originally thought was the most obvious use is really the least frequent mission. Aerial mapping is really going to turn out to be number one."

For more information on Mesa County's use of sUAS, contact Ben Miller at (970) 244-3955, or by email at benjamin.miller@mesacounty.us. For information on the National Institute of Justice Law Enforcement Aviation Technology Program, which identifies and evaluates the use of safe and lower cost aviation assets by smaller, predominately rural, law enforcement agencies across the United States, contact Program Manager Mike O'Shea at (202) 305-7954 or by email at michael.oshea@usdoj.gov.

Shorts Technology News Summary

TECHshorts is a sampling of the technology projects, programs and initiatives being conducted by the Office of Justice Programs' National Institute of Justice (NIJ) and the National Law Enforcement and Corrections Technology Center (NLECTC) System, as well as other agencies. If you would like additional information concerning any of the following TECHshorts, please refer to the specific point-of-contact information that is included at the end of each entry.

In addition to TECHshorts, JUSTNET News, an online, weekly technology news summary containing articles relating to technology developments in public safety that have appeared in newspapers, newsmagazines and trade and professional journals, is available through the NLECTC System's website, www.justnet.org. Subscribers to JUSTNET News receive the news summary directly via email.

To subscribe to JUSTNET News, go to https://www.justnet.org/subscribe.html, email your request to asknlectc@justnet. org or call (800) 248-2742.

Note: The mentioning of specific manufacturers or products in TECHshorts does not constitute the endorsement of the U.S. Department of Justice, NIJ or the NLECTC System.

Updated First Responder Biodetection Technology Guide Available

Pacific Northwest National Laboratory

Biodetection Technologies for First Responders: 2014 provides a comprehensive compilation of commercially available detection devices and products to help first responders when purchasing equipment and supplies needed to rapidly assess biological threats. The guide

updates a previous publication and includes technology summaries that provide Web links, equipment specifications, pricing and annotated references from peer-reviewed publications for about 30 detection technologies and 25 sampling products from nearly two dozen companies.

Factors for first responders to consider before purchasing biological sampling and detection technologies include type of information obtained and usefulness and accuracy of results (performance); ease-of-use in the field; total cost of ownership (e.g., hardware and training needs) understanding that reagent cost, shelf life, instrument maintenance and upgrades are significant contributors;

> total time from sample to answer; and weight and size.

The guide is not meant to be an exhaustive list nor an endorsement of the technologies it describes. It is meant to provide useful information about available technologies to help end-users make informed decisions about biodetection technology procurement and use.

The guide was funded by the U.S. Department of Homeland Security Science and Technology Directorate and prepared by the U.S. Department of Energy's Pacific Northwest National Laboratory.

To access the report, go to http:// biodetectionresource.pnnl.gov/ and click on "download First Responder Biodetection Technology Report."



Investigating the Use of Portable Raman Spectrometers

Forensic Technology Center of Excellence

The Forensic Technology Center of Excellence is investigating the use of portable Raman spectrometers to identify unknown substances in the field. Portable Raman spectrometers enable law enforcement to verify the identity of unknown substances seized in the field and can provide rapid, sensitive, nondestructive analysis of a variety of drug types.

A growing number of criminal justice and law enforcement agencies recognize the benefits of adopting this technology. These organizations can benefit from an examination of how evidence collected using portable Raman spectrometers is used, how the technology impacts policing and investigational outcomes, and how its implementation affects department procedures.

The goals of the report are to provide insight on the portable Raman spectrom-

eter landscape, including various attributes such as market penetration, technology providers, current use cases, device cost and drug identification databases.

Once published, the report information will be published at https://forensiccoe.org/ reports.aspx.



Expected report highlights include:

- Key technology providers.
- Available products and device capabilities.
- Future product offerings.
- Applications and current use cases.
- Procurement and implementation considerations.
- Summary of challenges or technology gaps.

For information, contact Shane Hamstra at shamstra@rti.org. For more information on the National Institute of Justice's forensics technology portfolio, contact Gerald LaPorte, acting director, Office of Investigative and Forensic Sciences, at Gerald.LaPorte@usdoj.gov.



PUBLIC SAFETY TECHNOLOGY In The News

Following are abstracts on public safety-related articles that have appeared in newspapers, magazines and websites.

Oklahoma Law Enforcement Agencies Have a New Crime-Fighting Tool

NewsOn6.com, (06/10/2014), Lacie Lowry

The Oklahoma City Police Department has signed on to Leads Online, a national database that can help police solve property crimes, homicides and missing person cases. Leads Online is a database of pawnshop transactions. It allows pawnshop owners to share information on transactions electronically with police, rather than submit paper reports that police would then enter into their own records. Pawnshop records can help find suspects in criminal cases who have been hard to find and missing persons who may have pawned an item.

http://www.newson6.com/story/25745756/oklahoma-law-enforcement-agencies-have-a-new-crime-fighting-tool

A Drop in the Bucket: Law Enforcement Agencies Train to Fight Forest Fires

The Saratogian, (06/04/2014), Paul Post

In some areas of New York state, law enforcement agency personnel are being trained in fighting forest fires in case additional personnel are needed during the summer fire season. At a practice session, state police and New York Army National Guard helicopters teamed up with state forest rangers to practice dropping huge buckets of water on targets. Lt. John Solan, who supervises rangers in Saratoga and Washington counties, noted that lightning and campfires are the most common causes of forest fires.

http://www.saratogian.com/general-news/20140604/a-drop-in-the-bucket-law-enforcement-agencies-train-to-fight-forest-fires

Fremont Spending \$300,000 on Surveillance Cameras, License Plate Readers

Insidebayarea.com, (06/18/2014), Chris De Benedetti

The Fremont City Council has approved \$300,000 for surveillance cameras and license plate reader technology. Noting that most of Fremont's burglaries are committed by people living in other communities, police Chief Richard Lucero said cameras will be placed at 12 intersections near city limits to capture information on vehicles entering and leaving town. Of the 46 people convicted of burglaries in Fremont during a six-month period between late 2012 and early 2013, about 85 percent lived outside Fremont.

http://www.insidebayarea.com/breaking-news/ci_25984817/fremont-spending-300-000-surveillance-cameras-license-plate

CONTACT US

Call the NLECTC Information Hotline at 800-248-2742 or email asknlectc@justnet.org

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FUNDING ASSISTANCE

NLECTC is offering tools and assistance to help law enforcement and corrections agencies locate and apply for funding opportunities.

Federal Funding Opportunities:

See www.nij.gov or www.grants.gov.

Give Us Your Tech Ideas

We are actively seeking ideas to help us identify technology needs and requirements as part of the National Institute of Justice's Research, Development, Testing, and Evaluation process.

Click here for recent public safety-related articles from the news media.



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JUSTNETNews. Includes article abstracts on law enforcement, corrections and forensics technologies that have appeared in major newspapers, magazines and periodicals and on national and international wire services and websites.

Testing Results. Up-to-date listing of public safety equipment evaluated through NIJ's testing program. Includes ballistic- and stab-resistant armor, patrol vehicles and tires, protective gloves and more.

Calendar of Events. Lists upcoming meetings, seminars and training.

Social Media. Access our Facebook, Twitter and YouTube feeds for the latest news and updates.

Do More With Less. Highlights creative programs and resources to help agencies meet challenges as budgets shrink and demands on departments grow.

Tech Topics. Browse for information on specific topics such as biometrics, cybercrime, forensics and corrections.

Public Safety Technology in the News.

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