THE SIREN

A First Responders Group (FRG) Newsletter Summer 2017

New Virtual Training Gives Responders the Right EDGE

First responders of all disciplines will now be able to train together for active shooter and other critical incidents thanks to a new virtual training platform developed by FRG and the U.S. Army Research Laboratory (ARL). The Enhanced Dynamic Geo-Social Environment (EDGE) is a multiplayer, scalable, online environment that trains responders—single agencies or cross-agency, jurisdiction or discipline—for a coordinated response to active shooter incidents. It is now available to first responders nationwide at no cost.

Built on the Unreal gaming engine, EDGE allows responders to collaboratively role-play complex scenarios in a virtual environment, improving coordination and communication, while mitigating injuries and the loss of lives. The initial scenario—a hotel active shooter response—features avatars, equipment, vehicles and architecture designed completely to scale, using Sacramento, California, as a backdrop, the location where initial EDGE prototype pilots were conducted with local responders.

"We wanted to create a platform that could instantly be used by response agencies to meet specific training needs, using their own standard operating procedures," said Milt Nenneman, FRG program manager for EDGE. "Any responder with Internet access and a computer can now use the platform for free."

FRG developed the technology with ARL's Simulation and Training Technology Center and Cole Engineering Services, Inc. (CESI). CESI will now distribute EDGE to all interested response agencies and provide related technical support. First responder agencies may visit www.cesiedgetraining.com or contact 877-EDGE-011 (877-334-3011) to obtain a copy of EDGE.

Stay tuned: a second EDGE virtual training scenario featuring a school shooting response will be released in fall 2017. Meanwhile, visit https://www.dhs.gov/science-and-technology/enhanced-dynamic-geo-social-environment-edge or contact first.responder@hq.dhs.gov for additional information.

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DHS S&T Awards Metronome Software $750K to Strengthen Security of First Responder Sensor Systems

S&T Works with NYPD to Test Communication Systems for Public Safety Use

DHS S&T Assesses Mitigation Tactics Against Jamming

Making Flood Forecasting Easier, Faster

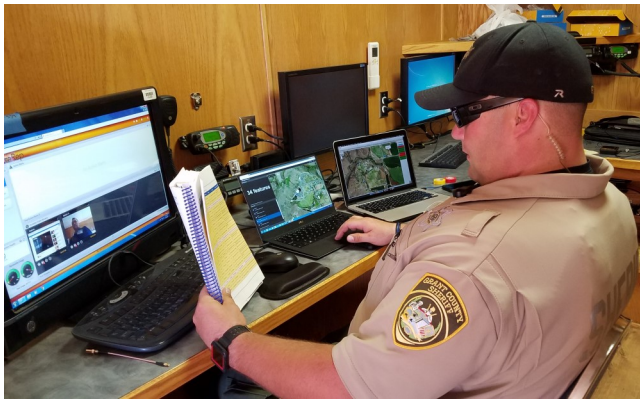
Mannequin Enhances Training and Accessibility for TSA Officers

Check out the S&T Newsroom for more Responder News!

Testing New Technology to Enhance Communications for Rural Responders

Across the nation, rural first responders face numerous challenges as they respond to incidents in their environments – especially when it comes to communications and connectivity.

In June, FRG partnered with Grant County, Washington, first responders to assess their existing communication tools and introduce new technologies designed to address capability gaps. This effort, known as the Grant County – DHS S&T Next Generation First Responder (NGFR) Apex Program Technology Experiment (TechEx), provided responders the opportunity to test the interoperability of deployable communication hubs with their existing communication tools.



The experiment was the culmination of a year-long partnership that began with an assessment of Grant County's technology-based challenges, which highlighted operational gaps while communicating in rural and mountainous terrain. Grant County offered the perfect backdrop for the TechEx due to its resemblance to 55 percent of rural areas within the United States. Like many rural environments, its small responder community is tasked with responding to incidents in a vast geographical area. Grant County's 55 full-time deputies patrol over 2,800 square miles of rolling hills and farmland. What makes the county unique, however, is its famous outdoor music venue, the Gorge Amphitheatre. Almost every weekend each summer, the county's population of almost 93,000 grows to almost 120,000 as music goers and campers descend upon the amphitheater.

The TechEx was held over a two-day period and was based on a routine concert scenario at the amphitheater. Sixty participants from law enforcement, fire and emergency services participated in the event. The concert scenario featured three vignettes simulating incidents to prompt response from law enforcement and emergency responders using NGFR technologies, including missing persons, an altercation at the campsite and a fire at the gorge.

For Grant County responders, perhaps the most significant capabilities the TechEx presented were situational awareness and location reporting, as well as the ability to transmit video from the Sheriff's Office Unmanned Aerial Vehicle (UAV) to their command centers.

"I think the most amazing part about the whole experiment was the ability to sit at the command center and watch our deputies, fire departments and EMTs respond to these incidents," said Chief Deputy Darrik Gregg. "Being able to use our UAVs in this way means that we have eyes in places we didn't have before – all while sitting at command."

Upon completion of the experiment, NGFR anticipates integrating lessons learned toward further development of an interoperable environment – creating an architecture intended to work for responder organizations with different environments, budgets and mission requirements.

"What we learned by using this technology is how much safer and informed our responders and incident management team members will be," said Sheriff Tom Jones. "DHS has really focused on making our sometimes-dangerous jobs much safer, especially for rural responders who many times don't have access to such advanced resources."

FRG's National Urban Security Technology Laboratory (NUSTL) led the testing and evaluation component, along with technical experts from Johns Hopkins University Applied Physics Lab, National Institute for Science and Technology, ArdentMC, IS4S and SpectraRep.

The TechEx is the first experiment integrating new and current technologies to enhance real-life, rural capabilities. Future experiments will work to integrate more technologies as they mature, aim to define and test how commercial capabilities can plug-and-play into the NGFR system, and invite more first responders across the nation to test and evaluate NGFR program technology.

NUSTL's Assessment of Counter-UAS Technology Executed with Flying Colors

The use of unmanned aerial systems (UAS), commonly known as drones, has significantly increased over the last several years as the technology has become more affordable and available to industry users and hobbyists. Advancements in the capabilities of UAS has created more opportunities to enable the technology to support homeland security and public safety operations and missions; but it has also increased the concerns for nefarious use of UAS, potentially threatening critical infrastructure, operational personnel and the general public. That's why FRG's NUSTL is working to assess technologies currently available to DHS components and the Homeland Security Enterprise that can be used to detect, track and identify nefarious small UAS.

In July, NUSTL executed part one of the Technical Assessment of Counter UAS (C-UAS) Technologies in Cities (TACTIC) at the Marine Corps Base Urban Training Center in Quantico, VA. The assessment focused on small UAS, which are defined as systems weighing 55 pounds or less and primarily consist of three types of sensors: RADARs, electro-optical and infrared cameras, and passive radio frequency sensors. Representatives from several DHS components and other federal and local law enforcement agencies attended the event to obtain insight into the C-UAS technologies.

TACTIC part one served as a familiarization assessment that incorporated a mix of operationally relevant flight scenarios and flight operations with fixed configurations for calculating performance measures. It enabled eight private industry participants to understand DHS's operational requirements. It also enabled NUSTL to determine appropriate flight paths, hone data collection procedures and better understand how to build an operationally relevant environment for future assessments.

NUSTL will execute TACTIC in three phases, with each phase being composed of a two part assessment. Part two is scheduled in early November and will serve as a formal, quantitative assessment to evaluate C-UAS technologies. The data and information gathered during the second assessment will be used to develop and validate modeling and simulation programs to predict system performance in various environments, and build an interagency compendium of C-UAS solutions that will be updated semi-annually for the National Security Council.

NUSTL intends to execute TACTIC over the next two years in coordination with the DHS Program Executive Office for UAS and S&T performers. Each assessment will build on the knowledge gained and lessons learned to further DHS' understanding of the C-UAS technologies and solutions available to protect homeland security interests nationwide.

NUSTL Reaches a Milestone of 20,000 Radiation Detection Units Tested and Deployed

As of last month, NUSTL has tested and deployed over 20,000 pieces of radiological detection equipment worth over $42 million through its Performance Test & Evaluation at NUSTL (PTEN) program. This equipment includes personal radiation detectors, backpack detectors, mobile detection units and isotope identifiers. The equipment undergoes specific tests at NUSTL based on the expected function of the product to ensure the hardware, software and accessories are fully functional before the units are deployed.

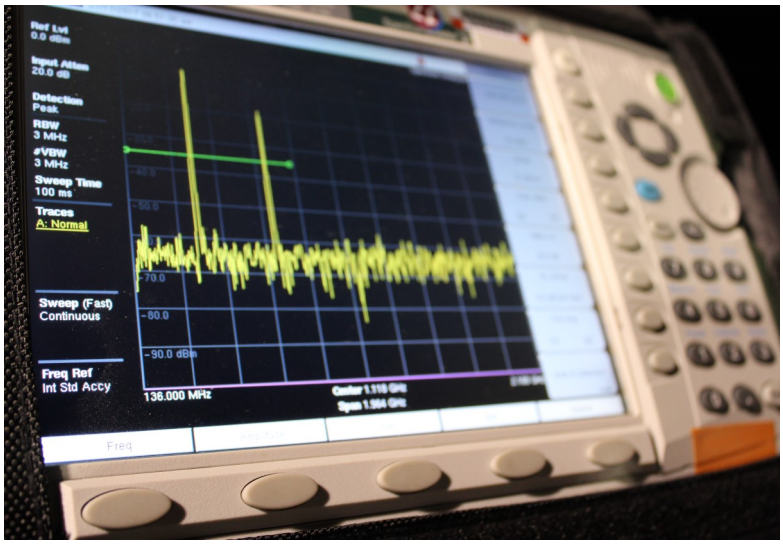
The PTEN program supports the nation's capability to detect and protect against radiological and nuclear threats by conducting functional tests of radiation detection equipment before they are used by law enforcement and first responders in the field. PTEN has been conducting functional tests of first responder detection equipment to ensure operational readiness of deployable units since 2009. The 20,000 units tested includes personal radiation detectors, portal detectors, personal digital assistants, radioisotope identifiers, RadEyes and backpack detectors for state and local agencies throughout New York, New Jersey and Connecticut.

The program ensures that equipment supplied to first responders works as designed and that all supporting materials are functional. As a result of PTEN, first responders have increased confidence in their equipment because they know that each unit has been independently tested.

PTEN will continue to instill confidence in radiological detection capabilities by ensuring responders have quality equipment for deployment in the field. Since many first response agencies do not have the capability of testing their own equipment, the PTEN quality assurance program is valuable and has a significant impact on ensuring that thousands of devices will perform as intended.

Helping Responders Recognize, Report, Respond and Resolve Jamming Incidents

When asked about the most significant piece of equipment or tool a first responder needs on a day-to-day basis, Assistant Chief of Operational Support Rodney Reed with the Fire Marshal's Office of Harris County, Texas, answered without hesitation, "A responder's most important tool is his or her communication device. It's what provides the awareness we need to accomplish our mission when responding to an emergency. It is ultimately what serves as our lifeline and determines whether we make it home or not."

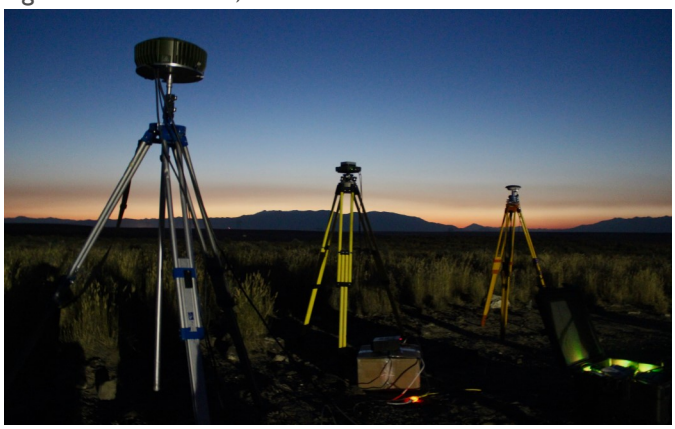


First responders face a growing threat of interference caused by jamming, which can leave them without vital communications or critical situational awareness. To help combat this issue, last year, the NGFR First Responder Electronic Jamming Exercise assessed jamming vulnerabilities in responder communications systems at White Sands Missile Range, New Mexico. NGFR continued the effort this year with the 2017 First Responder Electronic Jamming Exercise (JamX 17), which focused on evaluating solutions to increase communications resiliency by helping responders recognize, respond to, report and resolve jamming incidents.

JamX 17 took place at the Idaho National Laboratory in Idaho Falls, Idaho. There, representatives from NGFR, NUSTL and S&T's Behavioral, Economic, and Social Science Engine (BESS-E), along with agencies such as the U.S. Customs and Border Protection, U.S. Coast Guard, the Federal Emergency Management Agency and the Marine Corps Warfighter Laboratory, joined nearly 300 participants from public safety agencies and technology developers from across the country. Of those participants, local first responders represented communities with nearly 24 million Americans.

Reed, who attended the 2016 exercise, was excited to come back to discover new basic mitigation strategies. "Last year's exercise helped us to recognize that there is potential for intentional or unintentional interference on our devices. I believe it was an eye-opener for a lot of responders who attended," Reed said. "This year, we get to learn about basic strategies that may help first responders out in the field while responding to an emergency. This information is invaluable."

DHS S&T Acting Under Secretary William Bryan attended JamX 17 and was awed by the passion displayed by first responders and DHS participants. "For the first responders who are charged with protecting our communities, communications are a lifeline. Americans rely on first responders, and responders rely on their ability to communicate," said Under Secretary Bryan during remarks for the JamX 17 VIP event. "S&T is committed to ensuring that responders have the tools they need for consistent, uninterrupted communications – it's mission critical."



FRG and JamX 17 participants are working diligently to analyze the data and develop after action reports, as well as clear tools for DHS components and state and local public safety organizations. FRG is also working on an outreach and education campaign to expand the impact of the program from 24 million Americans to the entire country. For the men and women who work diligently to protect American lives, it is important that FRG strengthen the capability to mitigate and overcome this threat.

Helpful Links

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