EQUIPPING OUR EVERYDAY HEROES
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S&T makes the jobs of our nation’s law enforcement officers, firefighters, paramedics, and others safer, easier, and more efficient with scientific know-how and technical expertise. Here are some examples of capabilities that help protect and prepare responders so they can be ready for anything.

**REDZONE™ SMOKE AND PARTICULATE RESISTANT STRUCTURAL TURNOUT ENSEMBLE**

Designed by S&T in partnership with North Carolina State University’s Textile Protection and Comfort Center and LION First Responder PPE, Inc., this enhanced design provides protection from carcinogenic particles at vulnerable spots like arm and leg holes.

**WILDLAND FIREFIGHTER ADVANCED PERSONAL PROTECTION SYSTEM**

S&T worked with the U.S. Army Natick Research, Development and Engineering Center, the U.S. Fire Service, CALFIRE, and local California firefighters to develop protective garments that reduce heat stress and improve fit, feel, and function.

**FLEX-TUFF HS FIREFIGHTER STRUCTURE GLOVE**

Next-generation protection for firefighters developed by S&T, NanoSonic, Inc., and Shelby Glove provides enhanced dexterity, water repellency, and fire resistance. The innovative HybridSil® material can also withstand punctures and lacerations that other structure gloves may not.

**HOIST GLOVE FOR AERIAL RESCUE**

Improved design by S&T, Higher Dimension Materials, Inc., and the North Carolina State University Textile Protection and Comfort Center features increased flexibility, durability, and dexterity to protect the hands of rescue helicopter hoist cable operators. This new solution lasts at least three times longer than commonly used rescue gloves.

**FINDING INDIVIDUALS FOR DISASTER AND EMERGENCY RESPONSE (FINDER)**

Radar device developed by S&T in partnership with NASA’s Jet Propulsion Laboratory and SpecOps Group, Inc. that enables search and rescue teams to detect heartbeats and respiration of people trapped beneath rubble.

**REVERSE VELOCITY JET TAMPER (ReVJeT)**

Water cannon tool developed by S&T in partnership with the Federal Bureau of Investigation for bomb squads to safely disrupt improvised explosive devices from a distance. ReVJeT improves upon existing tools by 300%.

**PHOTOVOLTAIC ENERGY HARVESTING FABRIC**

S&T is working with Protect the Force, LLC and University of Massachusetts Lowell to create a solar-powered fiber that can be woven into first responder garments, shelters, and related equipment to provide reliable power for charging batteries and electronics.

**QUICKROUTE**

Mobile application, developed in partnership with Azimut1, LLC, that calculates the best directions for driving to the scene of an incident by tracking real-time traffic, weather, and construction, as well as hazards particular to emergency vehicles such as low overpass clearance.

**FEDERAL LAW ENFORCEMENT TRAINING CENTERS (FLEET) DRIVING SKILLS COURSE**

Experts from S&T’s National Urban Security Technology Laboratory helped validate a new Law Enforcement Operations Driving Skills training course by riding along with students, administering surveys, and preparing a report that helped make the course more effective.

**PRECISION OUTDOOR AND INDOOR NAVIGATION AND TRACKING FOR EMERGENCY RESPONDERS (POINTER)**

3D location technology under development with NASA’s Jet Propulsion Laboratory that uses magnetoquasistatic fields to pinpoint where a firefighter is inside a building to within a centimeter, without the need for network connectivity.

We rely on our state and local first responders as that first frontline. They take care of us. They protect us. They protect our way of life—and who protects them? I’d like to think that the lab does the work to ensure that they do their jobs more safely and have the tools and technologies that they need to do it.

Alice Hong
National Urban Security Technology Laboratory Director

*commercially available/in operational use*