

Firefighter Accountability and Proximity System

Rapidly rescuing firefighters in distress

Heavy smoke and fire can hinder firefighters' ability to locate a fellow responder who may be trapped, disoriented or disabled inside a burning building. Rapid Intervention Teams (RIT) typically use roll calls or firefighter mayday calls to track downed team members. In certain instances, personal alert safety system alarms can also assist, but locating where the alarm is coming from can be difficult, particularly in a noisy, raging fire, as the time it takes to locate a fallen colleague increases, so too does the risk to the rescuers themselves.

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) developed a solution, the Firefighter Accountability and Proximity System (FFAP), which allows responders to quickly hone in on a colleague in distress. The FFAP approach leverages existing time-of-flight tracking developed by S&T's commercial partner, TRX Systems, Inc, and is being sold commercially as NEON-P®. This technology has been tested in fire conditions and is used in several other technologies, including DHS's Geospatial Location Accountability and Navigation System for Emergency Responders.

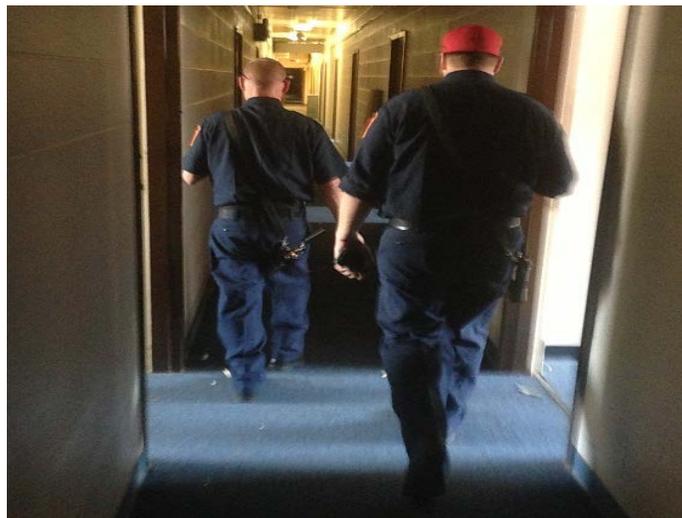


Responders wear a beacon that is detected via handheld application

The goal: a simple, intuitive, cost-effective device that easily integrates with existing equipment, practices and incident command systems.

Ranging beacon connects with existing systems

NEON-P® operates on a ruggedized, off-the-shelf Android platform that connects with responders' radios and self-contained breathing apparatus via Bluetooth.



Testing the device with local responders

How it works:

- Firefighters wear a small ranging beacon that turns on automatically upon detection of motion. The system sends an alarm when triggered, either automatically—when no motion is detected for a certain amount of time—or manually by an individual or rescue team.
- Firefighters and RIT members launch a handheld application that provides the distance to firefighters. Those in distress would be indicated in red and ranges for other firefighters in proximity will be displayed, sorted by distance.
- Regular system updates allow the team to track multiple alarms, as well as provide RITs better awareness of all team members.

Field testing with local firefighters provided key input for technology development

S&T and TRX Systems, Inc. conducted several tests on the NEON-P® prototypes with responders in Arlington County, Virginia, New York City, and Butler, Pennsylvania. Test scenarios included rescue attempts during simulated mayday calls in a fire and building collapse. Based on the responders' feedback, the system is now designed to meet the unique needs of small, rural, or volunteer fire departments. Final prototypes were delivered to DHS S&T in Summer 2016, and the technology is now being used operationally at select agencies nationwide.

