Pacific Northwest
NATIONAL LABORATORY

Pacific Northwest National Laboratory's (PNNL's) Acoustic Gunshot Detection technology alerts authorities when a weapon has been fired indoors in confined spaces. Researchers also are expanding the technology for use in large indoor spaces and outdoor environments where large crowds gather for music concerts, sporting events, or festivals.

ACOUSTIC GUNSHOT DETECTION TECHNOLOGY

Detects weapon being fired and its caliber; alerts authorities

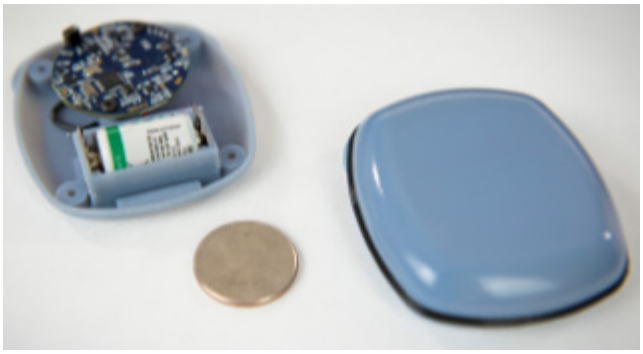
WHEN EVERY MOMENT COUNTS

A relatively small device could mean the difference between life and death when a shooter opens fire. The award-winning technology works in indoor environments, such as schools, office buildings, and other confined spaces. It's also being modified for outdoor gatherings, such as concerts and festivals, and larger indoor environments, such as football stadiums and coliseums.

Within a matter of seconds and with high accuracy, PNNL's Acoustic Gunshot Detection technology distinguishes between loud noises that sound like gunfire and an actual gun being fired. It then immediately alerts authorities of an active shooter and the location of the shooting. Using machine learning capabilities, researchers developed patented,

TECHNOLOGY FEATURES

- Discriminates between threat and non-threat with 99.99% accuracy.
- Classifies between rifles and handguns in confined spaces with 99.7% accuracy.
- Battery power and wireless connectivity provide ease of installation with minimal cost.
- Acoustic data is analyzed on a low-cost, general-purpose computing platform that performs weapon classification.
- 2017 R&D 100 Award Winner selected by R&D Magazine as part of the top 100 innovative scientific breakthroughs of the year.



PNNL designed the R&D 100 Award-winning Acoustic Gunshot Detection technology to be easily adapted and affordable. The golf ball-sized sensor contains a Wi-Fi-enabled microcontroller, microphone, and battery.

mathematical algorithms that "trained" the suite of sophisticated sensors to not only identify a gunshot but also the caliber of the weapon.

COMPATIBLE WITH SECURITY SYSTEMS

The Acoustic Gunshot Detection technology is battery-operated and can be inexpensively and easily incorporated into existing security systems. It is designed to be installed in each room, hallway, and common area inside of a building.

EASILY INTEGRATES WITH LARGER SECURITY SYSTEMS

Engineered specifically with public schools in mind, the technology is easily integrated into larger security systems with hardware that performs accurate threat and firearm classification at a fraction of the battery capacity, computational power, and cost of today's smartphones.

Police departments have tested the Acoustic Gunshot Detection technology with multiple calibers of weapons.

When a gunshot is fired, the Acoustic Gunshot Detection technology classifies the noise as an alarm/gunshot event. To the human ear, a firecracker might sound like a gunshot, but PNNL's technology relies on mathematical algorithms and can't be fooled—eliminating human error. After a gunshot event is detected and classified, information is wirelessly transmitted to a command center to initiate a response and alert first responders to the location, caliber of the weapon, and number of shots fired.

Several police departments and school systems across the United States have tested the prototype Acoustic Gunshot Detector.

OTHER APPLICATIONS

The technology has been licensed to four companies for confined spaces. These companies have all reported early successes in deploying systems at schools.

PNNL is presently engineering the Acoustic Gunshot Detection technology for use in large public buildings, such as airports, train and bus stations, football stadiums, coliseums, and large courthouses.

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LET'S CONNECT

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