

SENTRI Schools Smart Sensors Overview

Saves Time & Lives...Not Just GDS



SENTRI Patented Proprietary "Best In Class" Features

Mil Spec'ed Algorithm Suite:

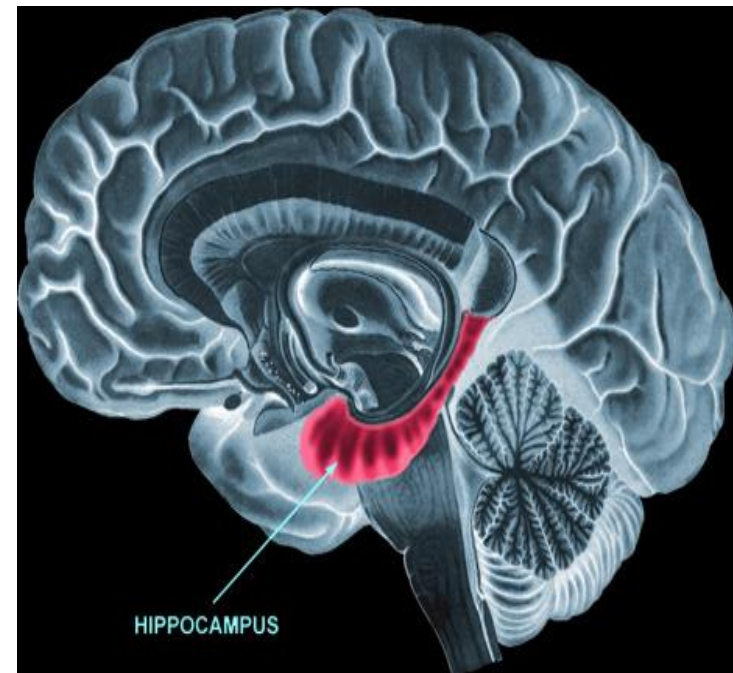
- **DSNN:** Replicates the Hippocampus enables "Real Time Learning False Alarm Rate 0 to <10% "
- **Tri Frame Analysis:** Gunshots consist of 3 frames. SENTRI binds the 3 frames "Increasing Detection Rate to 100%.
- **Time Difference of Arrival:** Triangulates the acoustic signal from the 4 microphones to "Determine Shooter Location to "+/- 1 Degree".



DSNN (Dynamic Synapse Neural Net) Hippocampus... Biological Basis For Pattern Recognition, Real Time Learning, Memory

SDI Owns DSNN Proprietary Rights:

- Enables recognition of any type of pattern...
all five senses
- Enables conversion of short-term memories
to new long-term memories
- Enables linking of features such as facial to
a name
- Enables associations between events such
as those that proceed mass shootings
- Linking sequences of events to form
"episodes"...



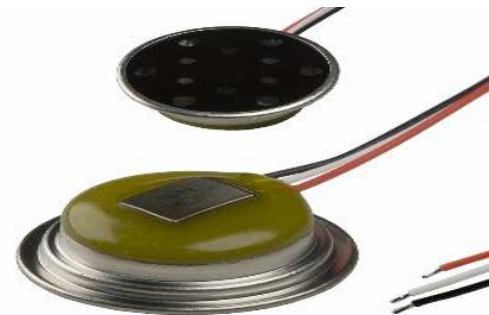
SENTRI Patented Proprietary "Best In Class" Features

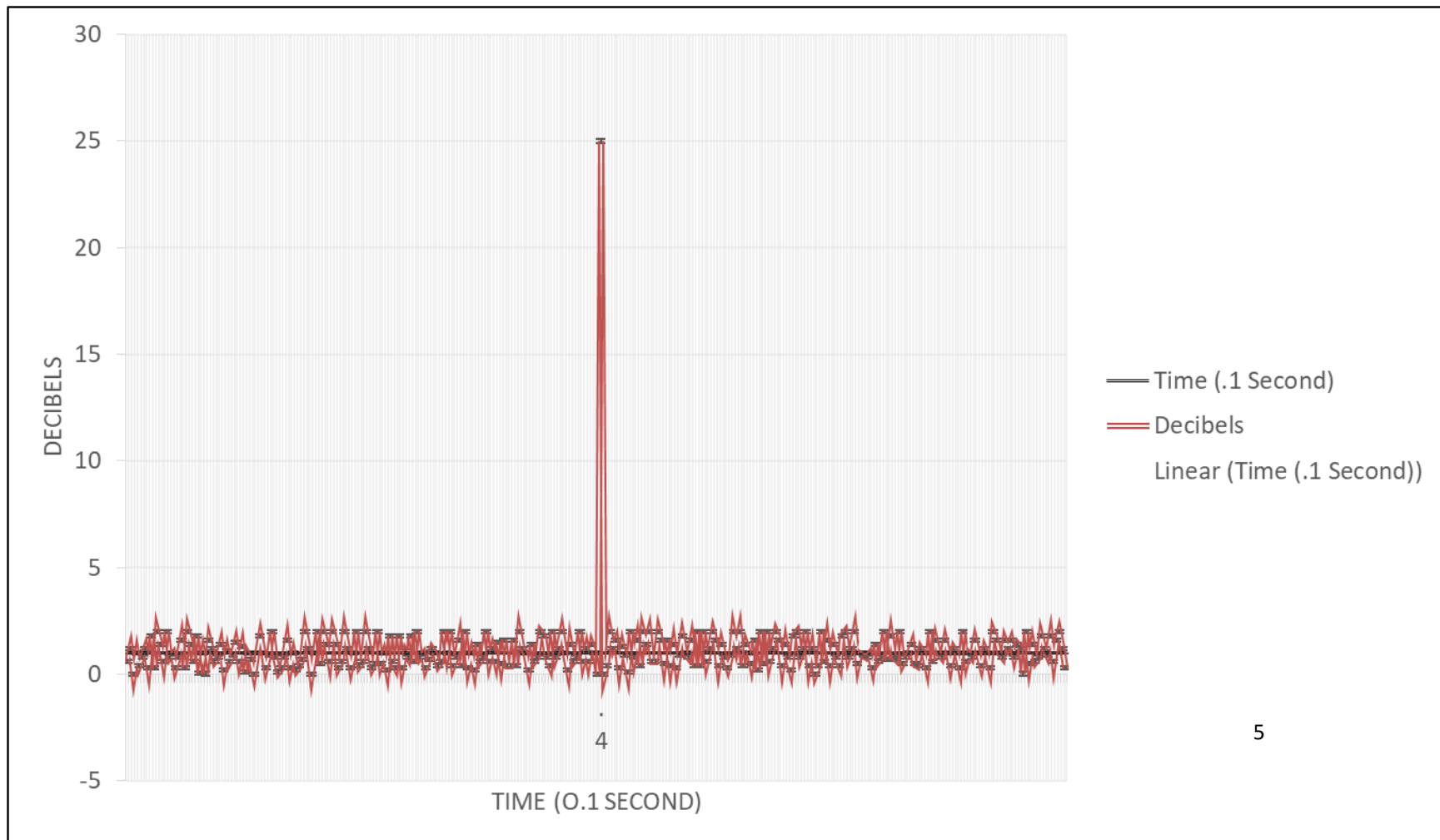
Tri-Frame Analysis Proprietary Rights: Enables detection of a gunshot... a near impossible action... WHY?

1. A gunshot is a **Hair Thin Acoustic Event**
2. A gunshot consists of **3 FRAMES**

To detect a gunshot at a high rate of 98% the system must be able to...

**CAPTURE ALL 3 FRAMES OF THE GUNSHOT:
THE RISE... THE PEAK... AND THE FALL**





SENTRI SCHOOL GUNSHOT DETECTION SYSTEM

- Gunshot & acoustic anomalies i.e.; tires screeching, car crashing, glass breaking, chains rattling
- .4 second detection
- +/- 1 degree gunshot event localization
- Stand alone / one unit / no grid required
- Small footprint & Obscure
- Relocatable, Fixed, Mobile
- Outdoor / Indoor
- Triggers other devices in <1 second i.e. ; Access control lock down / lock out, fire alarms, etc...



SENTRI GDS Key Features

- Interfaces with all PTZ cameras, Access Control, Alarm Systems, etc...
- Slews cameras to precise shooter location in .4 seconds as the trajectory is traveling down the weapon barrel
- Detects the trajectory before the bullet has left the barrel – detects the blast & the flash
- Can send alerts to 911, access control for lock down lock out, alarms, sprinkler systems, etc... to stun shooter/s
- Coverage Area: 1'000s of feet+ depending on typography
- 360 degrees

SENTRI OUTDOOR SCHOOL PROVEN BENEFITS

Ammon, Idaho:

- **Fall 2014 Independent Test**
- **City of Ammon, Bonneville County Sheriff Dept, Idaho Joint School District 93**
- **Bruce Patterson, Technology Director, City of Ammon reported implementing SENTRI in local schools:**
 - **Reduced dispatch time by as much as 6 minutes**
 - **Provided first responders with:**
 - **positive identification and,**
 - **shooter location before entering the scene**

"The joint efforts of Safety Dynamics to bring the SENTRI school gunshot detection system to market could not come at a more critical time in U.S. history, with gunshot activity at an all-time high in communities throughout the country."

SENTRI INDOOR SCHOOL PROVEN BENEFITS

Pennsylvania:

- 2014 vacant high school tested by the State of Pennsylvania.
- Results:
 - 100% detection 9mm
 - Placements: classrooms, corridors, gymnasiums, etc...
 - Ignored...
Doors & lockers slamming
books dropping, balloons popping, crowds cheering



SENTRI BENEFITS



El Paso Shooting Timeline:

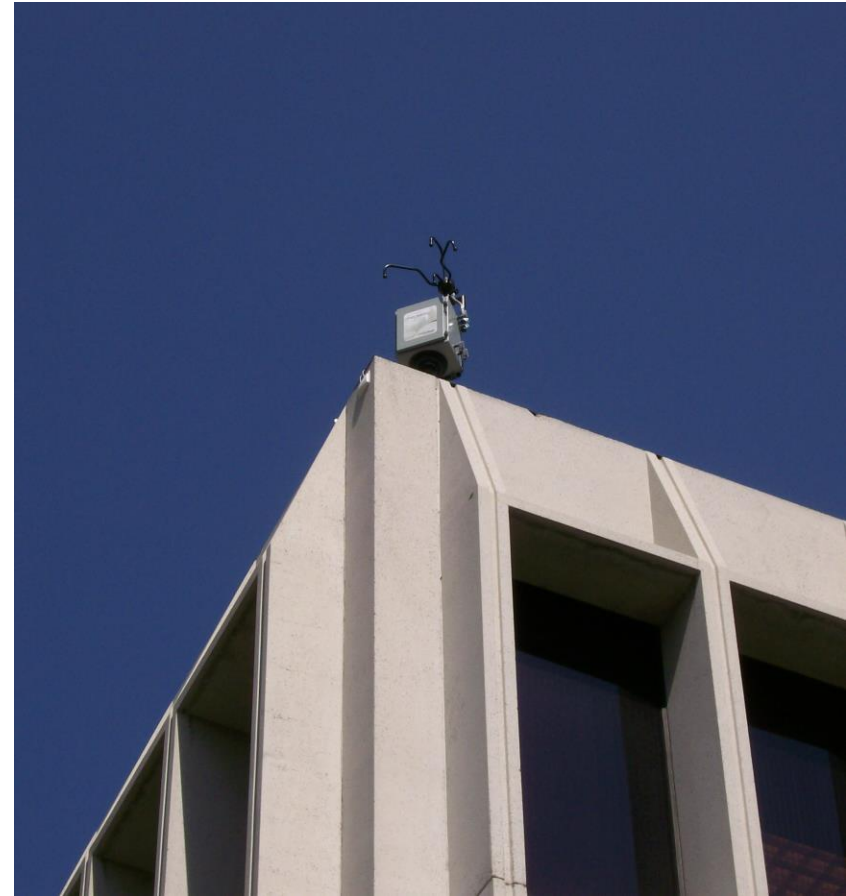
- The first call came in at 10:39.
- 6 minutes later at 10:45 the first officer arrived.
- 11:06 the shooter was arrested.
- 27 minutes from the first 911 call to the time of arrest and 20 killed and 26 were injured.
- Nearly 2 persons per minute were killed or injured by 1 gunman.
- Dayton Shooting:
- 26 shots were fired in 32 seconds

Had SENTRI been installed on the Walmart building or light pole it would have detected in .4 seconds, and sent:

- **An alert & shooter image to security & law enforcement;**
- **Lives could have been saved;**
- **They would not have deployed in three different directions; and, they would have caught the shooter faster.**

SENTRI TEST LASD HDQ

- Mounted on top of 12 Story HDQ
- LASD tested shots fired from .45, 9mm, .22, and .223 caliber weapons
- 1 shooter at a distance of 700 feet away fired shots 3 seconds apart
- SENTRI detected & localized 100% & slewed the camera to the shooter
- 2 shooters at different positions 400 feet away fired 6 shots 3 seconds apart
- SENTRI recognized & localized 100% & slewed the camera to the first shooter and then to the second shooter.



SENTRI TEST LASD HIDDEN SHOOTER SHOTS FIRED

- 1 Officer hid behind a car
- Second officer hid up in a tree
- Third officer in plain view
- Each shooter fired one shot in 3-second intervals
- SENTRI detected all 3 shots recognized in <1 second & slewed to the shooters



SENTRI INDOOR SINCE 2008 MICS IN WALL OR CEILING PANELS



SENTRI INDOOR OR CAMPUS EVENT MAPPING

MainWindow

Indoor AGSD

- ▼ Building 1
 - ▼ Floor 1
 - Sensor 1
 - Sensor 2
 - Sensor 3
 - Sensor 4
 - Sensor 5
 - Sensor 6
 - Sensor 7
 - Sensor 8
 - Sensor 9
 - > Floor 2
 - > Floor 3
- ▼ Building 2
 - > Floor 1
 - ▼ Floor 2
 - Sensor 1
 - Sensor 2
 - Sensor 3
 - > Floor 3
 - > Floor 4
 - > Building 3
 - > Building 4
 - > Building 5
 - > Building 6

OFFICE EMERGENCY FLOOR PLAN

LEGEND

- ↑ N North
- You Are Here
- Exit Route
- +
- First Aid
- ☒ Fire Alarm
- 🚒 Fire Extinguisher
- 🚒 Fire Hoop
- ⊙ Speaker

Event	Location	Acknowledge	Timestamp
Gunshot	Building 1 Floor 1 Sensor 2	N	9/26/2016 10.20.15 AM
Offline	Building 2 Floor 2 Sensor 1	Y	9/25/2016 11.30.20 AM

Gunshot Event

SENTRI INDOOR



Federal Reserve Bank -- Indoor

SENTRI SCHOOL OUTDOOR EVENTS PORTABLE TRAILER & GENERATOR DEPLOYMENTS



SENTRI RECOGNIZED INDUSTRY LEADER THANKS YOU FOR YOUR INTEREST

- National Geographic TV Show
- Discovery Channel TV Shows in the U.S. & Canada
- Numerous articles
- <https://youtu.be/bMHhODckCBk>

