



Frequently Asked Questions about The Security Oracle (TSO) Gunshot Detection System (GDS.aⁱ)™ in the context of the Las Vegas Massacre on 10/1/2017

Q1: Would GDS.aⁱ™ have been more rapid and expedient in pinpointing the shooter?

A1: Yes. Had GDS.aⁱ™ been deployed in the area surrounding the venue, shot reports would have communicated in <2 seconds showing the trajectories of the shots being fired.

Every second counts in an active shooter situation. Police radio transcripts from the event reveal confusion and conflicting reports about the location and number of shooters. First responders immediately need to spot the active shooter once a shot is fired in order to assess the volatile situation and take immediate action while minimizing risk and casualties.

Transcripts from 10/01/17 - Las Vegas Metropolitan Police Department (source: Dispatch Feed NPR.org)

10:08 "We have an active shooter inside the fairgrounds!"

10:10 "Shots fired from the Mandalay Bay"



10:12-10:15 "We're in front of the Mandalay Bay... If anyone can advise if they're coming from the Mandalay." "It sounds like it's either the Mandalay or Luxor. We cannot tell" "North of Mandalay Bay! It's coming out of a window" "Flashes in the middle of the Mandalay Bay on the north side. Kind of on the west tower, but towards the center of the casino, one of the middle floors." (reports of wounded) "I'm inside the Mandalay Bay on the 31st floor. I can hear the automatic fire coming from one floor above us."

10:17-10:19: "Just be advised it is automatic fire. Fully automatic fire from an elevated position" .. (more reports about the victims.)

10:20-10:25: "He's still firing." "It's been a while since we've heard any shots. Does anybody have eyes on the shooter?" "We're getting from civilians saying there might have been three shooters." "We've interviewed multiple people leaving the concert venue say that there have been multiple people that were shooting in the concert venue."

10:32 (Team gets to the gunman's floor) "It's room 135 on the 32nd floor. I need SWAT" "We have a security officer also shot in the leg on the 32nd floor. He's standing by the elevator"

Q2: Would GDS.aⁱ™ detect the shots?

A2: Yes. GDS.aⁱ™ detects gunfire including shockwaves emanating from supersonic rifle bullets. The image below show the bullets would have been supersonic in the concert venue area.



Q3: Would GDS.ai™ be able to locate the shooter in the hotel room?

A3: Yes. GDS.ai™ would have located the shooter and plotted a trajectory of the shots intersecting with the hotel.

Q4: How long would it take to report?

A4: GDS.ai™ can transmit shot reports in <2 seconds to subscribers including computer-aided dispatch and mass notification applications; the speed of reception is dependent on the applicable network transmission bandwidth.

Q5: Would it weed out other sounds, firecrackers, backfire, etc.?

A5: Yes. Shockwaves have a unique signature and GDS.ai™ employs multiple sensors to weed out false detections and bad answers as well as formulate a solution for trajectory.

Q6: The shooter was shooting hundreds of rounds (up to 90 bullets in 10s); would you have charted each round?

A6: No. GDS.ai™ in its standard configuration reports only 1 shot per second per location. Rapid, repeated fire from the same location is not reported as separate shots, unless multiple GDS.ai™ processors are deployed per customer specifications.

Q7: Would GDS.ai™ be able to locate the shooter if the shooter were to use a flash suppressor or a silencer?

A7: While the flash suppressor, also known as flash hider, suppresses the visual phenomenon and makes it harder for naked eyes to physically locate the shooter, TSO

GDS.ai™ "listens" for the muzzle blast, which travels at or below the speed of sound, and the supersonic shock wave of the bullet flying at supersonic speed through the air, to determine trajectories of rounds.

On October 10, 2017, TSO tested with the Columbus Police Department at Ohio Peace Officer Training Academy (OPOTA) in London, Ohio and verified that the shots fired by a firearms instructor using a M4 equipped with a silencer were detected. (The documentary video showing that actionable intelligence was transmitted to the safety personnel on site's mobile devices is available upon request.) The muzzle blast is associated with all firearms, sonic and supersonic, which is used to determine the location of the shooter, while the shockwave determines the direction of travel, or trajectory.

Q8: Would there be situational awareness and actionable intelligence provided to first responders?

A8: Using military grade Artificial Intelligence (AI), RCADS™ drives the Bosch MIC 7000 Pan Tilt Zoom (PTZ) High Definition cameras to zoom in on the shooter. The Intelligent Coordinator™ can transmit the video and mobile alerts to responding personnel, enabling them to act more decisively to minimize casualties.

Q9: Why is RCADS™ a game changer?

A9: Trajectory reporting is currently a unique feature offered by GDS.ai™ which is an enhancement of the ShotPoint subsystem. TSO's GDS.ai™ can drive many cameras and non-lethal actuators simultaneously from multiple locations – unlike other systems which must have the GDS unit and the camera on the same pole.

The Intelligent Coordinator™ can fire sound and light beams back at the same trajectory to disorient and disable the shooter. The non-lethal actuator beams can be used constantly, without interruption, on the shooter. If the shooter can see the target, the target can see the shooter, and hence the beams will adversely affect the shooter's ability to fire more rounds on targets. Just a few degrees of inaccuracy (caused by the non-lethal actuator beams) will put the rounds way off target, at any distance.

As the shooter has difficulty in re-loading and/or changing weapons due to impairments in sight and becoming dizzy/disoriented with hearing impaired, the shooter would have great difficulty firing at the approaching SWAT team.

With multiple RCADS™ units deployed at the venue, the Intelligent Coordinator™ can autonomously assign (in accordance with an event-driven protocol programmed into the artificial intelligence) one or more of the units as a public address system, providing light and sound to guide the affected crowd to the safe evacuation path(s) to avoid a panic stampede as shown in the video.

TSO's goal is to neutralize the shooter(s) while enabling first responders to act in the shortest time frame and assist potential victims to escape unharmed.

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