



AFTER ACTION REPORT

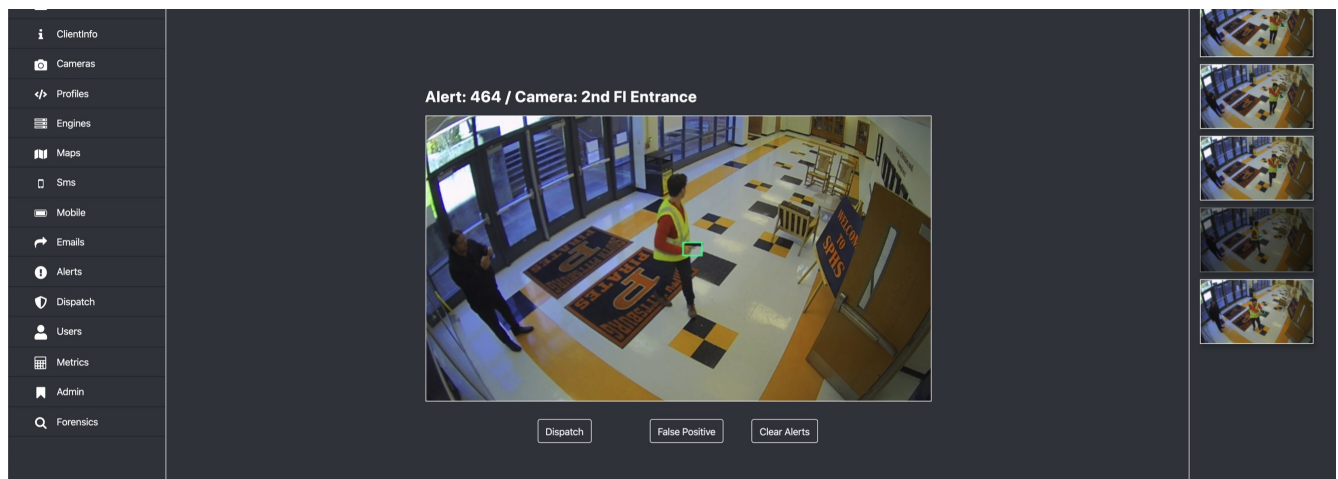
ZEROEYES INSTALLATION AND FIRST RESPONDER DRILLS

**South Pittsburg High School
Tennessee, February 2020**

Executive Summary

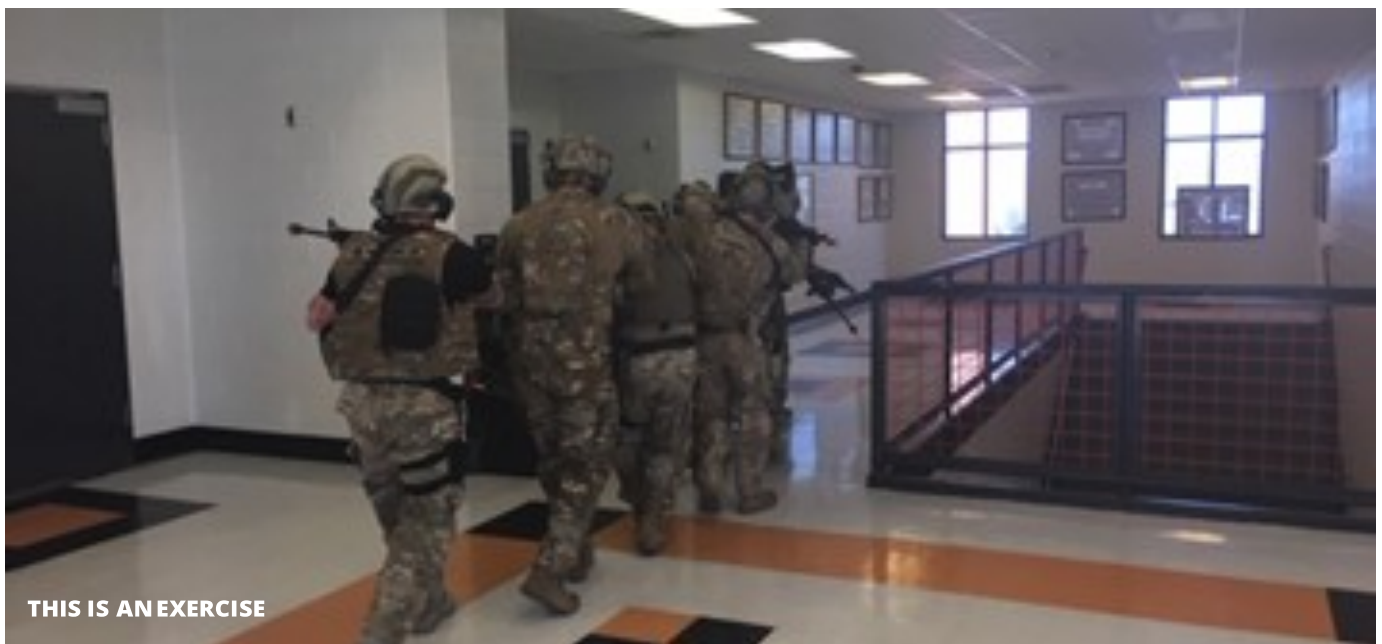
In February of 2020, the ZeroEyes team supported an active shooter drill at South Pittsburg High School (SPHS) in Marion County, Tennessee. The drill was conducted in partnership with the high school faculty and the local Police Department including school resource officers (SRO) and SWAT. ZeroEyes, Diversified, Hanwha, and SWC upgraded the cameras, infrastructure, and video management system prior to the drill. ZeroEyes demonstrated weapons detection and alert capabilities throughout school's campus during these drills.

The ZeroEyes platform was integrated into SPHS's upgraded security camera system. The platform uses an artificial intelligence (AI) algorithm to conduct real-time weapons detection and triggers automatic alerts to school security, faculty, and first responders. ZeroEyes was also integrated into local 911 Dispatch, allowing for continuous real-time alerts, suspect descriptions, and increased situational awareness.



ZeroEyes Technology Overview

The ZeroEyes weapons detection platform integrates with existing security cameras and associated video management systems. Using artificial intelligence, the platform's algorithm is constantly scanning the camera frames for guns and is able to detect a variety of weapons most commonly seen in mass shootings and active shooter environments, with an industry-leading low false positive rate. ZeroEyes employs open architecture that allows the platform to integrate with other systems. Once a weapon is detected, an alert with an image of the shooter and location is pushed through ZeroEyes' monitoring platform and mobile application to staff, on site security, and first responders. The platform is monitored 24/7 by a set of human eyes. The platform also integrates into various CAD and mapping software platforms in order to show threat location in real time.



SPHS Security Updates



SPHS received a large security upgrade to the school's camera and security system after engaging with the ZeroEyes team. Hanwha provided industry-leading cameras. SWC provided integration services and camera installation. Diversified provided project management and installation expertise. Four Honeywell cameras, five Hanwha cameras, and four Hanwha Quad cameras (four directions of observation) were installed to upgrade the system. A new Wisenet Wave Video Management System (VMS) was installed on a Dell 440 server to ensure the ability to upgrade in the future. ZeroEyes provided a Dell 740 server with two NVIDIA T4 cards to power weapons detection.



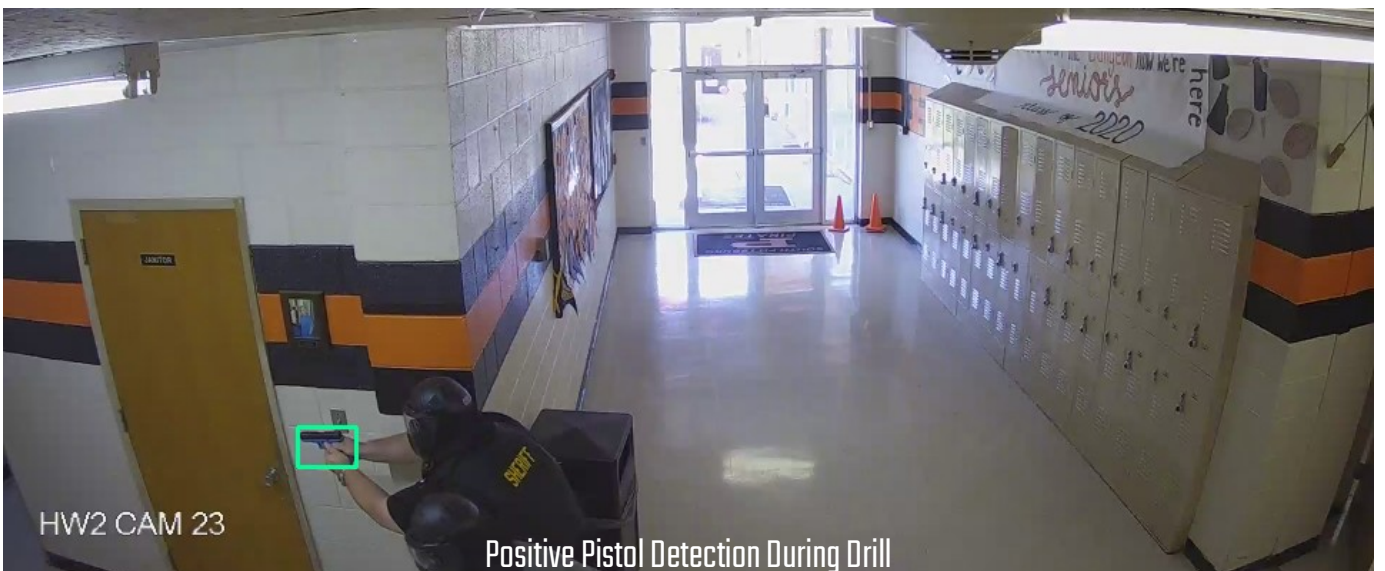
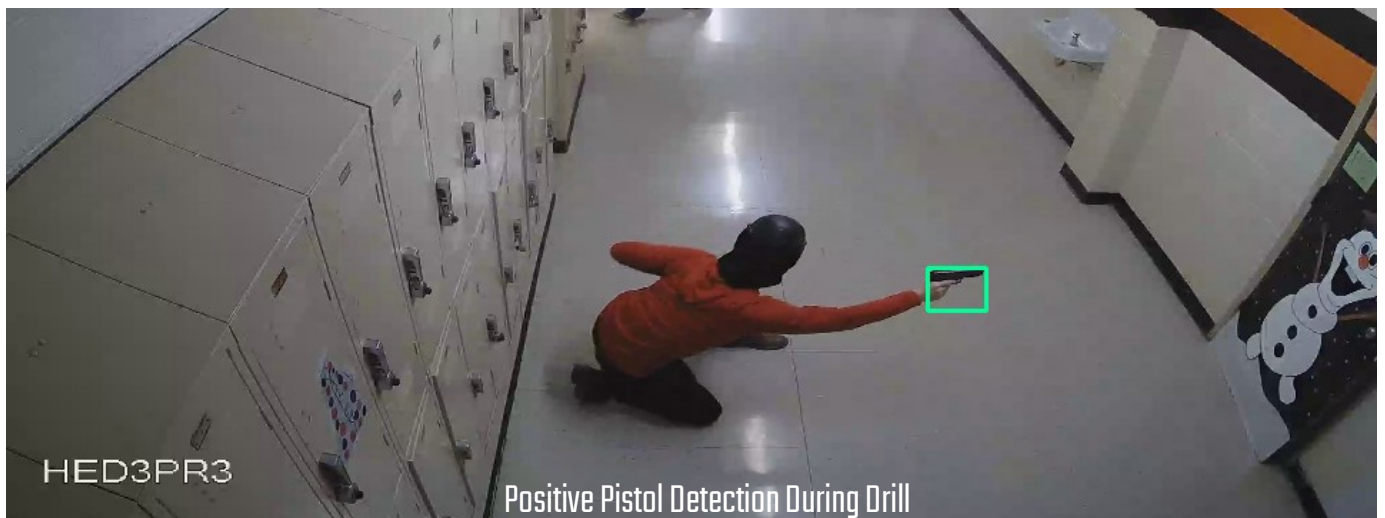
Camera Infrastructure Improvement

Cameras can be a powerful tool to make our schools and institutions safer. 13 state-of-the-art cameras were installed that effectively act as 22 cameras. ZeroEyes partnered with Hanwha to install a cost-effective solution that provides an incredible increase in situational awareness. Four quad cameras were installed that give 360 field of view on one IP address. These cameras can provide external coverage in a very meaningful way. SPHS administrators and SROs now have the ability to view all avenues of approach in and out of the school. They are now able to view the parking lot, which is critical because a majority of threats start in the parking lot. In a school environment, contraband often sits in cars, not lockers. Fights also tend to originate in parking lots. The quad cameras can make these areas less vulnerable in an extremely cost-effective manner.



Video Management System Improvements

A quality VMS allows all video footage to be accessible in an instant. We installed a cost-effective, feature rich VMS called Wisenet Wave. (<https://wavevms.com>) This system makes it easy for any individual to monitor in real time or use forensic searches. Wave VMS is robust, and will allow for both software updates and additional weapon detection or security camera coverage in the future.



Optimal Camera Coverage

At ZeroEyes, our approach is to achieve the optimal balance of camera coverage and affordability. Obviously, more cameras to a site will provide greater coverage. However, high quality cameras such as the Hanwha quad camera can maximize coverage. All entrances and exits need to have proper coverage. Hallways cameras are also crucial to ensuring student safety. At SPHS, we fortified the security infrastructure by adding 13 new cameras.



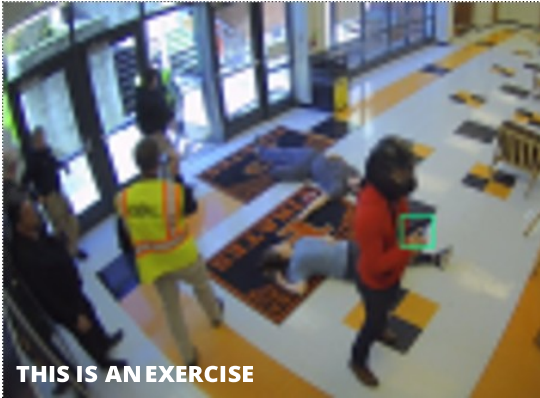
Exercise Overview

Once the exercise began, the ZeroEyes system sent out a constant stream of weapon detection alerts. During the hour and half that the event took place, over 500 alerts came through, and the proper detections were pushed to dispatch for review. As the main active shooter moved through the school, the ZeroEyes platform continued to dispatch alerts into the 911 center. This stream of alerts allowed the 911 center to send active updates to the police and on-site SWAT teams who were deployed to engage the threat.



Time	2:00 PM
Camera	2 nd Fl Entrance
Type	Pistol

Series of Dispatches



Dispatch 1/26



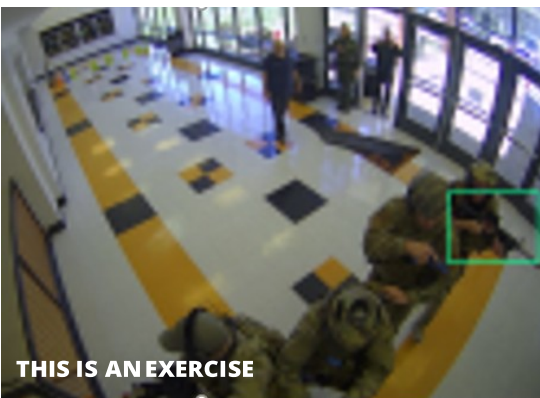
Time	2:00 PM
Camera	2 nd Fl Entrance
Type	Pistol



Dispatch 2/26



Time	2:00 PM
Camera	2 nd Fl Entrance
Type	Pistol

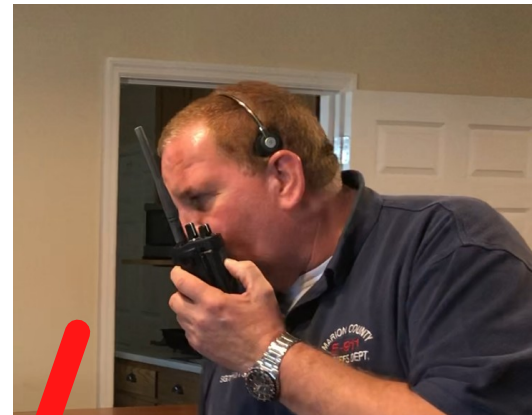
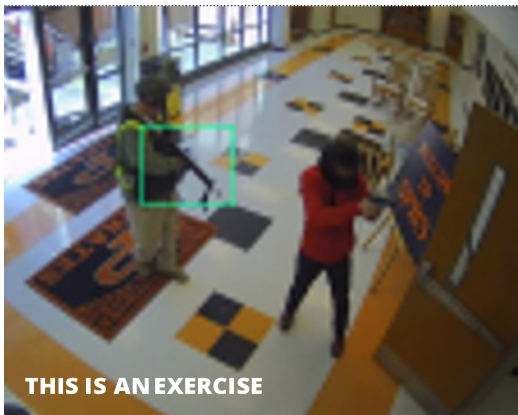


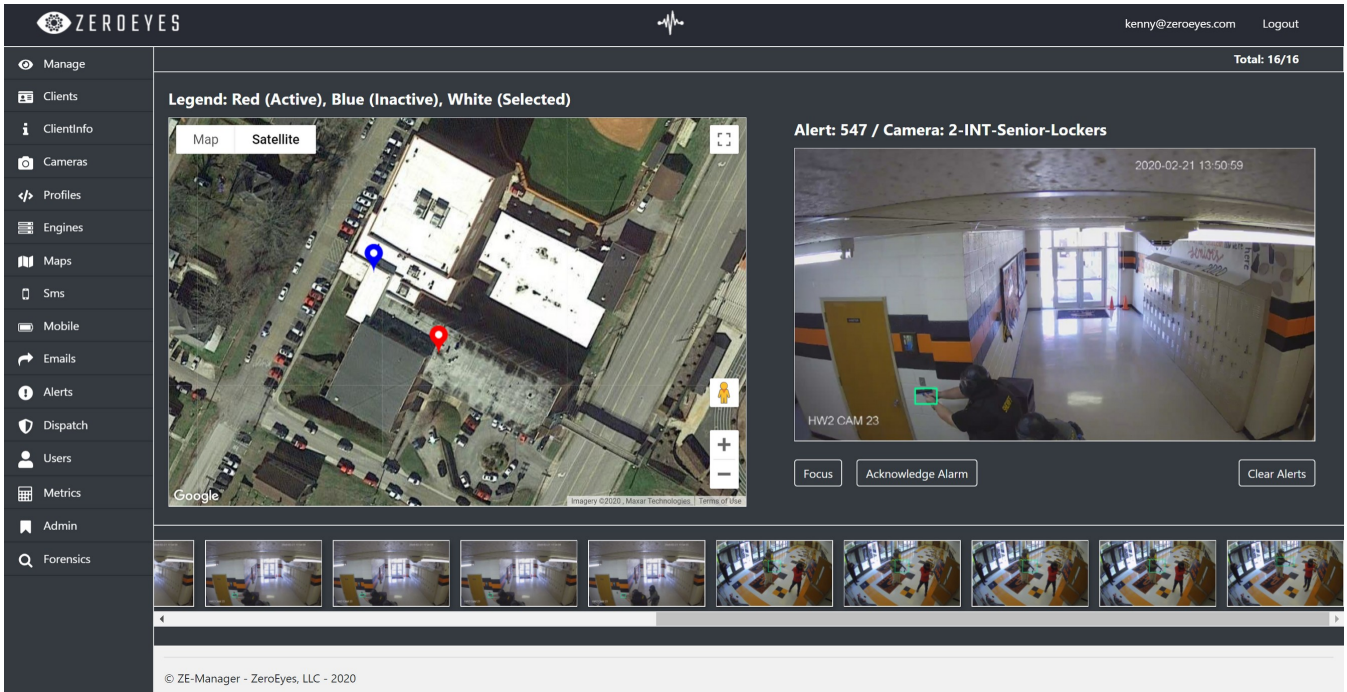
Dispatch 3/26



Time	2:09 PM
Camera	3-INT-Outside-Gym-W
Type	Rifle

The images below represent the basic flow of information. Image one shows a detection from the ZeroEyes system. Image two shows a local 911 dispatcher receiving that alert and communicating in real time about the detection.



The screenshot displays the ZeroEyes web management interface. On the left is a dark sidebar with navigation icons and labels: Manage, Clients, ClientInfo, Cameras, Profiles, Engines, Maps, Sms, Mobile, Emails, Alerts, Dispatch, Users, Metrics, Admin, and Forensics. The main content area is dark-themed and includes:

- Top right: User email `kenny@zeroeyes.com` and a `Logout` link.
- Below the user info: `Total: 16/16`
- Legend: `Red (Active), Blue (Inactive), White (Selected)`
- A satellite map view showing a school building with a red dot (active) and a blue dot (inactive) on its roof. The map includes `Map` and `Satellite` tabs and zoom controls.
- Alert details: `Alert: 547 / Camera: 2-INT-Senior-Lockers`
- A live camera feed from `HW2 CAM 23` showing the interior of a school hallway with lockers. The timestamp `2020-02-21 13:50:59` is visible in the top right of the feed. A person is visible in the hallway, and a green bounding box highlights a specific area.
- Below the main feed is a row of 10 smaller thumbnail images showing a sequence of frames from the camera feed.
- At the bottom of the main content area are three buttons: `Focus`, `Acknowledge Alarm`, and `Clear Alerts`.
- Footer: `© ZE-Manager - ZeroEyes, LLC - 2020`

Key Outcomes

- SPHS's security system received a significant upgrade. Effectively 25 new cameras were emplaced, a new robust VMS was installed, and ZeroEyes weapons detection now protects the school.
- Using the ZeroEyes platform, 911 dispatch was able to continuously update responding officers on suspect location, physical description, weapon type, and disposition, which resulted in demonstrable improvement in tactical situational awareness by responding units.
- South Pittsburg High School became the first school in the state of Tennessee to purchase the ZeroEyes platform.

The ZeroEyes Team

Headquartered in Philadelphia, the ZeroEyes team consists of US Military veterans with deep Special Operations and Intelligence Community experience, including Navy SEALs and Navy Intelligence Officers. Many members of the core leadership and operations team have MBAs from top-tier programs such as Wharton, Columbia, Cornell and Vanderbilt and corporate experience at companies such as Amazon, Walmart, Comcast, and PwC. The technology team consists of serial tech founders, application and software development experts, and passionate systems engineers. Regardless of individual background, each and every member of the ZeroEyes team is laser-focused on providing the nation's leading weapons detection solution that will ultimately protect schools and students.