On the Forefront: How a Police Department is Pioneering Campus Safety

SJSU PD, GUNSHOT DETECTION AND A PROACTIVE APPROACH TO SAFETY

Lush green lawns, footpaths and quads bind San Jose State University's many academic buildings. Bustling with students, SJSU lies at the heart of the Bay Area and is a microcosm of its diverse urban surroundings – a prime example of an integrated urban city school.

And SJSU Police Captain Alan Cavallo wanted to keep it that way. SJSU isn't unusual in terms of street crime at a big school. But with the rise of mass violence on campuses, Cavallo was not content waiting for tragedy to strike.

The SJSU Police Department is housed in a multi-level facility on Seventh Street and staffed by 30 sworn police officers responsible for protecting a campus that covers 19 blocks of downtown San Jose, California (pop. 1.25 million). If that sounds like an intimidating task, it is. "Even with traditional security cameras, it's impossible to have someone watching all the time," said Cavallo. "We just don't have the manpower."

Industry:
Law Enforcement

Location:
San Jose

Application:
Rapid and portable gunshot detection and video surveillance

Products:
V5 Acoustic Gunshot Sensor and V5 Portable Security Unit

And as America is forced to contend with the tragic reality of frequent high-school shootings, college campuses have not been immune. Most of us remember when thirty-two students and professors lost their lives in 2007 after a Virginia Tech senior went on a shooting rampage, ending only when the killer took his own life. That day still casts a long shadow, far enough to reach the West Coast in 2018. And with the February 2018 attack in Parkland, Florida, the sense of urgency to protect students is even greater.

Although California universities by and large have been spared thus far, Cavallo does not need an unfortunate incident to spur him and his police department to action. He knew that bumping up traditional security measures would only go so far in protecting students and faculty against modern threats. He was determined to upgrade campus safety through a comprehensive approach of training students and embracing innovative technologies.

"We train students and administrators in the 'run-hide-fight' method in case of an active shooter on our campus," said Captain Cavallo. "And we're going to start implementing the training as part of freshman orientation. Fortunately, the administration at San Jose State is all in favor of using high-tech to protect our students as well. We're in Silicon Valley, after all."

Cavallo is an early adopter when it comes to thoughtful technology. He pioneered electric motorcycles within the department, both for their stealth and their low carbon footprint. This spirit of innovation drew Captain Cavallo to V5 Systems in nearby Fremont, California. The self-powered and AI-driven technology was just the outside-of-the-box solution that Cavallo felt could put SJSU ahead of the curve with comprehensive, real-time security. "It helped that V5 Systems is local, but it was the overall package that appealed to us. The ability to have gunshot detection and video all under one umbrella; something that can be easily relocated for special events or wherever trouble spots pop up," he stated.

To have gunshot detection and video all under one umbrella, something that can be easily relocated for special events. Really, why wouldn't we want it?

— Captain Alan Cavallo, *San Jose State University Police Department*

With Cavallo's backing, San Jose State University chose the V5 Systems Acoustic Gunshot Sensor (V5 GSL Sensor), a wireless, portable, solar-powered gunshot-locator that detects the source of gunfire using edge computing and artificial intelligence. The flexibility of a wire-free solution is intended for environments with variable traffic flow, like a university with dynamic crowds and temporary events. Combined with the V5 Portable Security Unit (V5 PSU), the V5 GSL Sensor provides an immediate, scalable solution for campus-wide, round-the-clock proactive gunshot detection with real-time response. As hot-spots shift on campus, SJSU PD can redeploy each unit in under 30 minutes, giving them the flexibility to respond to rapidly changing conditions.

Unlike traditional gunshot detection solutions, the software-driven V5 GSL Sensor does not require trained staff to validate gunshots or notify law enforcement, a process that can take several minutes. By locating gunfire in real time at the edge (on the device itself), the V5 GSL Sensor can notify officers within three seconds — directly on the officer's smartphone or tablet — with up to *97 percent accuracy*. Artificial intelligence-driven software results in fewer false positives as these units gain experience in their environments. This low false positive rate means that officers spend almost no time responding to miscellaneous alarms, acting as a force multiplier and providing real insight during a crisis.

In addition to gunshot detection, V5 PSUs provide high-definition video that can be easily downloaded to any smart device. "We had a situation with a guy causing trouble, and we were able to track him all across campus to where an officer could intercept him," said SJSU PD Officer Paul Marshall. "We were able to quickly identify him on the video download, leading to a successful prosecution." "It's really easy to use," Cavallo attested. "I'm no rocket scientist with technology, and I got up to speed very quickly."

Embracing New Technology Pays Dividends
Tasked with policing a sprawling open campus located in the heart of a major urban center, SJSU police were forced to think outside the box. Knowing it would be impossible to adequately cover such a large area with limited staff, they chose V5 Systems' cutting-edge technology to get ahead of, rather than react to, property crimes and threats to students' safety.

"With V5 Systems, we're able to easily install the solution wherever we need it," said Michael Cook, Director of Customer Service and IT at SJSU. "Traditionally, you'd have to do trenching, install power, cable and wiring... V5 allows us to place the unit wherever we want. As long as there is sunlight and we can connect to a cellular network or our own Wi-Fi, V5 is going to work."
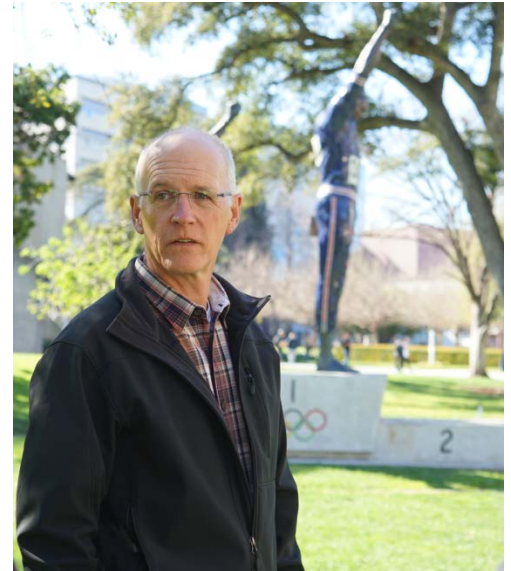
With Cavallo's impetus, SJSU isn't falling back on technology alone, preferring a comprehensive, multi-pronged approach to safety. Cavallo is implementing a safety campaign to mitigate casualties and give students, faculty and their families peace of mind.

The proactive safety campaign is focused on two key audiences.

- **Student education over summer orientation**
  Cavallo emphasizes awareness of surroundings and campus resources for students after hours. Inspired by the Department of Homeland Security's campaign, his unit has developed a *Run, Hide, Fight* training to increase the chances of survival during an active shooter event.

- **Parental education**
  Cavallo educates parents specifically about the types of protocols the university has in place to protect their children. Cavallo talks to parents about contingency plans during emergencies to prepare them for how they can keep track of their loved ones and provides them with resources to streamline communications.

Coupled with technological solutions from V5 Systems and a forward-thinking police department, Cavallo is doing everything he can to ensure that SJSU can confidently tell students and their parents that this campus is prepared for every contingency.

"Typically, criminals are not students," said Captain Cavallo. "It's people who come onto campus. I've had parents tell me: 'My kid wants to go here, but I'm scared to death.' V5 Systems is helping us fulfill UPD's objective, which is to create a safe learning environment for our students and staff. It's hard to put a price on that."

Summary

Organization

SJSU Police Department covers San Jose State University, the oldest public university in California, as well as one of the largest in the California State University system. Its sprawling campus covers 19 city blocks, and, with more than 33,000 faculty, students and staff, SJSU is virtually a city unto itself. The small police department has the daunting task of protecting this large, open campus in the heart of a major urban center.

Challenge

With only 30 full-time police officers tasked with providing safety for more than 33,000 faculty, students and staff across an enormous open campus in the heart of a major city, the University Police Department needed a way to monitor and react to dangerous situations in real time.

Solution

The UPD deployed V5 Acoustic Gunshot Sensors and V5 Portable Security Units: wireless, portable, self-powered devices that detect and localize any source of gunfire, as well as providing HD video, giving SJSU PD "eyes and ears" where none had been available.

Results

The V5 Portable Security Unit provided real-time video that has given the UPD a complete picture of the sprawling campus and has already resulted in the identification and prosecution of a suspect wanted for assault, as well as a car prowler — all without the costs normally incurred from digging power-line trenches or obtaining construction permits. The V5 Acoustic Gunshot Sensor grants students, parents, the Police Department and SJSU peace of mind that they're employing the best available technology to keep campus prepared in case of an active shooter event.