

The Tactical Micro-Robot - SWAT MVP

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— LIEUTENANT DAVID FRANKEL, BERKELEY PD SWAT



Five years ago, Alan Bignall observed the proliferation of large police robots and thought, “Many police officers could really use a surveillance robot that is much, much smaller.” Bignall reckoned that police tactical teams are safest when they can deploy robots on a moment’s notice, and that in the midst of a high-risk operation they often need a robot for just one thing: to quickly tell them what the heck is going on.

In 2006, Bignall became President and CEO of ReconRobotics and introduced the 1.2-lb Recon Scout® Throwbot®. His theory was to let the bomb squads and EOD teams keep their 100-lb tracked devices, but give SWAT teams a reconnaissance robot that was sublimely small and simple. Designed to be thrown up to 120’, the Throwbot could also move quietly throughout a structure and send back real-time video that revealed the layout of rooms, the location of barricaded subjects and the condition of hostages. He believed that this information would save lives and help resolve many situations much more quickly.

Over time, this new category of robots - *the tactical micro-robot* - transformed SWAT operations. Today,

more than 200 police agencies and most federal law enforcement branches are using these robots.

The military has also taken notice. Working house-to-house in rugged urban centers and remote walled villages, soldiers are clearing structures that could contain any combination of IEDs, insurgents and innocent civilians. Like their SWAT counterparts back home, these soldiers are in the greatest danger when they are walking through a door or climbing over a wall. Today, they use Recon Scout Throwbots to explore these environments before they enter them. These robots fit in a pocket and can be deployed in five seconds, and dismounted soldiers love them because they don’t slow them down. Several hundred Throwbots are deployed in Afghanistan and Iraq, and more are on the way. The following are accounts of how these devices are currently being used by two U.S. law enforcement agencies.

Bank Robbery in San Mateo; MVP in Berkeley

San Mateo (pop. 95,000) is located 25 miles south of San Francisco on the west side of San Francisco Bay. Detective Anthony Riccardi has been with the San Mateo Police Department for eight years, and

with its SWAT team for six years. Riccardi is also a member of the county’s Terrorism Counter Assault Team (TCAT), which is a federally funded SWAT team dedicated to dealing with WMD incidents. TCAT is made up of eight different agencies with just over forty tactical operators – sixteen of which are from San Mateo PD.

In 2010 the San Mateo SWAT team responded to a bank robbery call-out, using new technology that helped them complete the operation quickly and safely. According to Riccardi, the experience proved that good things come in small packages.

“I have been involved with buying new equipment for the P.D. and SWAT team for quite some time, and we are always on the lookout for new technology that can help protect our operators,” says Riccardi. “In 2009 I attended a trade show and saw a flyer for the Recon Scout XT, and we really liked the concept of a very small, throwable robot. ReconRobotics sent us a demo unit and that’s when we were pretty much sold on getting one. TCAT had some DHS funds left over, and we were able to purchase a Recon Scout XT and Command Monitoring Station in late 2009.

“What appealed to us about the robot was its size. It was compact, easy to carry, and also very simple to operate. You can take it with you and deploy as needed, and it won’t slow you down.”

Riccardi and San Mateo’s Tactical Commander, Wayne Hoss, integrated the XT and the Command Monitoring Station into monthly SWAT training exercises and were impressed with the new capability. Those in the command post could now see what the robot was seeing as their operators moved the robot through a scenario. It was only a few weeks before they had the opportunity to use the robot on a live call-out.

Three Bank Employees Unaccounted For

“Our first actual use of the robot on a live call out was on a Friday morning a little after 10:30 A.M.,” says Riccardi. “We were advised over the radio that South City P.D. was requesting a Code 3 SWAT response to the Bank of the West on Westborough Boulevard. They advised us that two subjects came

into the bank armed with handguns, ordered everybody onto the ground and then jumped the teller counter. South City PD advised that it was a takeover bank robbery and that they had conflicting accounts from witnesses about whether the subjects were still in there. We grabbed the robot and headed to South City with it. We plugged the XT into our car charger on the way up there, and it was charged up when we arrived. Upon arrival at the scene, we were told that there were still three employees unaccounted for and that no one knew if the subjects were still in the bank.”

Our SWAT team decided to clear the bank, utilizing the robot to search ahead of us. The primary entry team set up on the open back door of the bank and deployed the robot.

“We drove the robot in as far as we could and cleared the hallway that led from the rear door into the main lobby of the bank,” said Riccardi. “There were some desks and tables that needed to be cleared, and some difficult corners that you could not see from the rear door. Once we cleared that area with the robot, the SWAT team made entry, holding the rear hallway of the bank. We then threw the robot over the teller counter and did a robot search of that area. During this search, the robot located the first victim hiding underneath a teller table. We called to her and told her to come out. She was rescued and escorted out of the bank by SWAT operators. We continued to search behind the counter with the robot and located the second victim. We called to her and escorted her safely out of the bank. Continuing our search by clearing each area with the robot and then advancing the team, we then saw the third teller hiding under a desk. We now knew that we had accounted for all of the employees.

Clearing The Vault And The Attic

The SWAT team had now cleared the entire bank except for the vault and an attic space. “We discovered that the vault door was locked, but the robot was able to fit under the door so we drove the robot into the vault and cleared it”, says Riccardi. “I was then able to take the robot and stick it up into the attic, much like a pole cam. The infrared optics allowed us to clear the majority of the space around the trap door so we could safely deploy several operators to clear the rest of the attic. No subjects were found anywhere in the bank.

“If we didn’t have the robot, we would have used more traditional, methodic search techniques using

pole cameras and mirrors. These methods force you to be closer to what you’re searching, and as a result you don’t have as much cover and concealment. The robot gave us greater standoff distance and safety when clearing the bank and enabled us to complete the operation much more quickly.

“We now train with the XT almost every month, both as a regional team and with the TCAT Team, and it’s a great tool. It allows you to search ahead of the team to give you a clear idea of what you’re getting into – you know, what’s around the next corner. We believe it keeps our operators in safer positions during high-risk call-outs.”

Enhancing The Barricaded Subject Hostage Negotiation Team

Forty miles north of San Mateo, on the other side of San Francisco Bay, is the city of Berkeley, CA. Home to the University of California flagship campus, Berkeley shares its southern border with Oakland and has a diverse population of 130,000.

In 2009, the Berkeley Police Department applied for a grant from the Urban Area Security Initiative (UASI) to purchase a Recon Scout XT. In its grant application, Berkeley P.D. said, “the Recon Scout produced by ReconRobotics would enhance the capabilities and safety of the Barricaded Subject Hostage Negotiation Team, the Bomb Squad, the Berkeley Fire Department HAZMAT Team, and other regional assets.”

The application went on to describe their robot requirements as follows:

A small two wheeled reconnaissance robot with the capability of seeing in complete darkness thanks to its infrared light array and accompanying camera. It is controlled by an Operator Control Unit (OCU) that allows its operator to remotely control its movement and view what the robot sees from a safe standoff distance. The Recon Scout IR and the OCU are small enough and light enough to be carried in a pocket or pouch of a first responder and deployed into a threat area to conduct reconnaissance prior to committing human lives. The IR scout is rugged and can be thrown through open doors or windows, up stairs, over walls and into environments that may pose hazards to public safety personnel. BSHNT does not currently have a piece of equipment that

has the capabilities of the Recon Scout XT and this robot bridges the equipment gap between our inoperable pole camera and the Remotec HD-1 bomb disposal robot.

Real-Time Intelligence On A High-Risk Warrant

In the fall of 2009, Berkeley received the funds and purchased a Recon Scout XT. Less than a year later, the Berkeley SWAT team named the XT its MVP for its role in the following call-out, as described by Lieutenant David Frankel:

In the early morning hours of October 28, 2010, the Berkeley Police Department SWAT team served an extreme high-risk arrest warrant in the neighboring City of Antioch on a murder suspect with an extensive violent criminal history.

The team established a secure perimeter and parked an armored car on the front lawn. The utilities were then shut off. From the safety of the armored car, the negotiators began calling out the occupants. The wanted person failed to obey the commands of the negotiators, so the Recon Scout XT robot was inserted through the open front door.

Operating from the safety of cover, the Team Leader used the Scout to negotiate the home and parked it in front of the suspect’s bedroom door. The Scout was invaluable to the team as it provided real-time intelligence as the suspect opened his bedroom door and appeared to be formulating an escape plan. SWAT operators watched remotely as the suspect stepped over the Scout, which was positioned in the dark hallway, without ever realizing what it was. The Scout’s timely intelligence provided the team with the location of the remaining three occupants. That information not only enabled the team’s Commander to formulate plans to safely remove an 8-year-old boy, but it also led to the suspect being taken safely into custody.

As tactical operators we are all keenly aware of the risks inherent to the execution of high risk warrants. The Recon Scout XT proved instrumental in our ability to better mitigate those risks and go home at the end of the shift.

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