Surveillance Impact Report

Bomb Squad Robots – All SDFD Types/Models
San Diego Fire-Rescue Department

DESCRIPTION

By congressional mandate, the FBI is responsible for the training and accreditation of all public safety bomb squads in the United Staes. In the early 1970's, the FBI established the Hazardous Devices School, or HDS, in Huntsville Alabama. HDS is responsible for the initial certification of all public safety bomb technicians and requires recertification on a three-year interval. There are approximately 465 public safety bomb squads in the United States with approximately 3,000 certified technicians. For the City of San Diego, the Fire Department provides this service citywide with 13 certified technicians.

Bomb technician training involves training with a variety of equipment and tactics with the goal of preventing known or suspected improvised explosive devices, or IEDs, from functioning as they were designed to injure people and damage property. It takes approximately 18 months of in-house training to prepare bomb technician candidates to attend the Hazardous Devices School's certification course. The certification course is an intense six-week course at HDS.

One of, if not the most valuable, tools that technicians are trained to use are robots. Robots give our technicians the ability to visually inspect and perform "render safe procedures" from a remote location ensuring their safety. A "render safe procedure" is a process in which an IED is disabled from exploding as it was intended to.

The San Diego Fire-Rescue Department currently uses or intends to use the following robot makes and models:

> (3) First Look 110
> (2) Dragon Runner DR20
> (1) Telemax Pro
> (1) F6A Robot
> (1) F6A to Spartan Upgrade (future upgrade procurement)
> (1) VideoRay Defender Underwater Remotely Operated Vehicle (ROV)
> Qinetiq Spur (future procurement)

All of SDFD's robots have the below common features:

1. They are all equipped with cameras to provide the technician with the ability to inspect suspicious items and gain situational awareness regarding the layout of a hazardous environment. At this point in time, the land robots do not have the capability to record still images, but this could change in the future.
2. They all have the ability to operate wirelessly through an encrypted radio system with the exception of the underwater remotely operated vehicle (ROV).

The following robots have an additional camera sensor that can take photographs and video in the Forward Looking Infrared (FLIR) spectrum, perform diagnostics, and perform "render safe procedures."

1. Telemax Pro
2. F6 Robot
3. F6A to Spartan Upgrade

MANUFACTURER'S PRODUCT DESCRIPTIONS:

1. **First Look 110**
     i. Manufacturer: FLIR
    ii. Manufacturer Description: FirstLook is a throwable, rugged, and expandable robot that provides immediate situational awareness, performs persistent observation and investigates dangerous and hazardous material while maintaining a safer stand-off distance for operators. FirstLook allows operations where other robots can't fit or maneuver. This rugged, lightweight robot can be inserted into structures and provides operators with visual, audio, and sensor feedback before entry. The robot climbs small obstacles, overcomes curbs, turns in place and self-rights when flipped over.
   iii. (Description source: https://www.flir.com/products/firstlook/)

2. **Dragon Runner DR20**
     i. Manufacturer: Qinetiq
    ii. Manufacturer Description: Small and lightweight, yet rugged and feature-packed, the Dragon Runner 20 (DR20) is a highly specialized and mobile robot designed to provide situational awareness, safety and support for reconnaissance, security, inspection, and IED missions.
   iii. (Description source: https://www.qinetiq.com/en/what-we-do/services-and-products/dragon-runner-small-and-compact-robot)

3. **Telemax Pro**
     i. Manufacturer: AeroVironment
    ii. Manufacturer Description: The telemax EVO PRO's compact design with extended manipulator reach delivers proven performance in complex urban environments. Built for speed and mobility, its 4-track drive system, with optional snap on wheels for extra traction, enables it to easily traverse obstacles, gaps and steep inclines. Its 7-axis manipulator with Tool Center Point Control features a telescopic joint allowing for extended reach and precision operation in confined spaces. An expansive payload bay and automatic tool exchange allow operators to take multiple tools, disruptors or other sensors downrange, eliminating round-trip load-outs. Onboard IP Mesh radio delivers secure communications and the HD pan-tilt-zoom camera produce razor-sharp images with four simultaneous video feeds (QuadView). All AeroVironment UGVs feature the intuitive and operationally simplified Robo Command Control Station with multi-touch screen, pre-programmed motion sequences and ergonomically designed hand controllers for precision control of the robot, manipulator and accessories.
   iii. (Description source: https://www.avinc.com/ugv/telemax-evo)

4. **F6A Robot**
    i. <u>Manufacturer</u>: Peraton/Remotec
    ii. <u>Manufacturer Description</u>: The Remotec ANDROS F6A is the most versatile, heavy-duty robot on the market. Speed and agility unite to make it the first choice for a wide range of missions, and its proven stair climbing ability, rugged and dependable chassis, and an arm capable of lifting 65lbs mean that the F6A is more than strong enough to handle any task. The F6A also offers multiple communications options, a chassis and manipulator that allow for unlimited accessories and tool combinations, and quick-release pneumatic wheels for rapid width reduction
    (<u>Description source</u>: https://www.army-technology.com/contractors/mines/northrop-remotec/)

5. **F6A to Spartan Upgrade**
    i. <u>Manufacturer</u>: Peraton/Remotec
    ii. <u>Manufacturer Description</u>: The Andros™ Spartan was designed based on the success, reliability, and versatility of the 6 series platform—our flagship platform. The Andros Spartan incorporates the same proven chassis design of the Andros™ F6 and adds the highly dexterous manipulation capabilities of the Andros™ FX. Preserving the legacy of the Andros™ 6 series, the Andros Spartan integrates new technologies, optimizes the user experience, and reduces time on target. These updates are what make the Andros Spartan an industry leader.
    iii. (<u>Description source</u>: https://www.peraton.com/wp-content/uploads/0523_Andros_Spartan_ov_digital.pdf)

6. **VideoRay Defender ROV**

    i. <u>Manufacturer</u>: VideoRay
    ii. <u>Manufacturer Description</u>: The VideoRay Mission Specialist Defender ROV is a system which utilizes interchangeable, modular components residing on a single, intelligent network. This topology provides an extremely flexible and customizable platform which can be easily adapted to target Specialist ROV series apart from current technology in the Remotely Operated Vehicle industry.
    iii. (<u>Description source</u>: (https://videoray.com/wp-content/uploads/2023/09/2023_Specsheet_71036_Defender-Base_1.0.0.pdf)

7. **Qinetiq Spur**
    i. <u>Manufacturer</u>: Qinetiq
    ii. <u>Manufacturer Description</u>: SPUR revolutionizes robotic capability for dismounted forces with its rapid deployment from its stowed state, tactical mobility and radio range, high-performance manipulator arm and our proven UC-LITE universal controller. Like a bantamweight fighter, SPUR provides

exceptional strength, mobility and endurance. SPUR can easily navigate through rocks, water, sand and other rough terrain. Weighing less than 28 pounds, SPUR can nimbly climb stairs and surmount obstacles, yet is sized to operate effectively in culverts and sewer pipes that wider robots cannot penetrate.

iii. (Description source: https://www.qinetiq.com/en/what-we-do/services-and-products/spur-next-generation-backpackable-robot)

PURPOSE

The purpose of the technology is to enhance SDFD Bomb Squad's ability to perform tasks in potentially hazardous areas remotely, limiting personnel's exposure to danger and injury.

The SDFD will use robots to support the following types of incidents/operations:

1. Bomb Squad incidents
2. HazMat incidents
3. Maritime incidents
4. Search, rescue, and recovery operations

LOCATION

SDFD robots are primarily deployed within San Diego city limits throughout the entire city. SDFD robots may also be deployed outside of the city limits if requested by an outside agency or if requested by an authorized SDFD unit that is responsible for an emergency operation beyond city limits. An example of this is when the San Diego Sheriff's Bomb/Arson Unit requests assistance with a large-scale bomb incident.

Crime statistics for the City of San Diego can be found at https://www.sandiego.gov/police/data-transparency/crime-statistics/annual-crime-reports.

IMPACT

Most incidents that would require the use of robots are for known or suspected improvised explosive devices. In these situations, all citizens and non-essential personnel will be told to either evacuate or shelter in place. It is highly unlikely that the robots will be in a position to view persons not directly involved in the emergency response. There is no indication that that technology will be used in a manner that may disproportionately affect marginalized communities.

MITIGATIONS

SDFD has not identified any impact to civil rights and liberties or use that disproportionately affects marginalized communities.

DATA TYPES AND SOURCES

A robot is, in essence, a manually controlled video/photography camera that is attached to a remote-controlled robot. The robot cameras are similar to handheld "point-and-shoot" video cameras. The live camera stream is video in either the Visual, Infrared, or Thermal spectrum.

None of the SDFD robots analyze the collected imagery, produce reports based on imagery, or use any algorithms associated with collected data. The robots solely stream live video to the operator console.

DATA SECURITY

In the event that the imagery is recorded while using the underwater ROV, SDFD will be guided by the same policy that addresses the collection and use of UAS imagery.

The SDFD Operations Manual, special instruction 02, section 46, addresses the use of UAS. Section 46, part 3 – Data Collection, VIII states the following:

C. Digital Media Evidence (DME) Retention and Management

1. The manner in which the DME is stored by the ROV as it is being captured will dictate how the evidence will be secured. If the evidence is stored on a removable device, that device shall be secured at the completion of each mission by the flight crewmember that obtained the evidence. The crewmember will document the date, time, location, and incident numbers or other mission identifiers and the crewmembers involved in mission. This evidence shall be handled in accordance with agency evidence procedures.

2. If the DME is stored on the system hard drive, it shall be handled in accordance with accepted forensic standards for DME without the need to remove the actual storage device.

3. As with all evidence, unauthorized personnel shall not edit, alter, erase, duplicate, copy, share, or otherwise distribute DME.

4. All access to DME must be specifically authorized by agency policy and in accordance with proper evidence handling procedures. The chain of custody documentation for the DME allows for necessary auditing to ensure that only authorized users are accessing the data for legitimate purposes.

5. SDFD may provide DME to outside agencies, i.e., the FBI. SDFD is only responsible for the retention and management of DME in its possession and cannot control the use, retention and management of DME lawfully in the possession of a third party.

D. Digitally Recorded Imagery Not Considered DME

1. All digitally recorded imagery (video, or still photography), or other data, not required as evidence or for use in an on-going investigation shall be managed and disposed of in accordance with federal and state laws, San Diego Municipal Code, and City Administrative Regulation 85.10, Records Management, Retention and Disposition.

2. Agency personnel shall not edit, alter, erase, duplicate, copy, share, or otherwise distribute UAS imagery in any manner without their supervisor's approval and in accordance with agency policies.

3. The public has no access to SDFD robot data. Robot collected DME can only be accessed by SDFD bomb technicians and is managed by SDFD policy and procedure.

4. Nothing in this policy restricts the City's ability to comply with state and federal law regarding disclosure of public records.

E. Personally Identifiable Information (PII)

1. Files containing PII shall be retained in accordance with agency policy, but for no longer than 180 days unless retention of the information is determined to be necessary to an authorized mission of the agency.

2. To retain PII more than 180 days requires documentation stating the reason, estimated length of time the PII will be needed and supervisory approval.

3. PII that becomes DME shall be handled in accordance with the procedures for DME.

FISCAL COST

Over the past ten years, SDFD has purchased robots totaling approximately $1,415,000.00.

All funding has been awarded under the Federal Emergency Management Agency (FEMA) Urban Area Security Initiative grant.

Below is a fiscal Breakdown of the individual cost of each of the SDFD's robots, and the specific funding source(s) used to procure them. Funding sources and estimated costs for future procurements are also listed below.

First Look 110 - $1900.00 each. 3 Purchased with UASI grant funds.
Dragon Runner (DR20) - $215,000.00 each. Purchased with Urban Areas Security Initiative (UASI) grant funds.
Telemax Pro - $337,000.00 Purchased with UASI grant funds.
F6A - $223,000.00 Purchased with UASI grant funds.
F6A to Spartan Upgrade – $324,000.00 Future Procurement – Awarded UASI grant funds.
VideoRay Defender - $368,000.00 Purchased with UASI grant funds.
Qinetiq Spur - $300,000.00 Future procurement with UASI grant funds.

The Bomb Squad is located at Fire Station 1 and is staffed by two bomb technician/UAS pilots 24/7.

THIRD PARTY DEPENDENCE

The SDFD UAS Program does not share UAS-collected DME with third-party vendors.

ALTERNATIVES

The only alternative to using robots would be to place human technicians in close proximity to explosive devices.

TRACK RECORD

The use of robots is standard operating procedures for all public safety bomb squads. The FBI provides the accreditation of all public safety bomb squads. Part of the accreditation process is the verification that all bomb squads have the minimum equipment required to respond to a known or suspected IED. At least one general service bomb squad robot is a required piece of every bomb squad's inventory. The inability to use robots would jeopardize the City of San Diego's accreditation and unnecessarily put our bomb technicians in harm's way.

PUBLIC ENGAGEMENT AND COMMENTS

SDFD has made efforts to engage with the public and allow for comments. Use policies have been posted to the SDFD website for citizen review with the ability for citizens to submit comments or ask questions. SDFD will provide a prompt response to any questions that are posed by citizens or other interested parties.

Website: https://www.sandiego.gov/fire/about/technology

On November 2, 2023 SDFD and SDPD issued a joint press release announcing nine community meetings, one in each council district, to be held on November 8, 2023 at 6:00 PM. The locations and summaries of each location are listed below.

- District 1 - La Jolla Recreation Center – 615 Prospect St.
  - Number of citizens in attendance – 5
  - Questions/comments relating to this technology:
    - Comment #1 – Citizen expressed support for all SDFD and SDPD technologies presented. Citizen was not in support of the personnel utilized to attend the nine community meetings, they felt it was an inefficient use of resources.
- District 2 - Point Loma/Hervey Library – 3701 Voltaire St.
  - Number of citizens in attendance – 0
  - Questions/comments relating to this technology: None
- District 3 - Central Library (Mary Hollis Room) – 330 Park Blvd
  - Number of citizens in attendance – 0
  - Questions/comments relating to this technology: None
- District 4 - Anchor Church (Host Location) – 1765 Pentecost Way
  - Number of citizens in attendance – 0
  - Questions/comments relating to this technology: None
- District 5 - Scripps Ranch Community Center – 11885 Cypress Canyon Rd.
  - Number of citizens in attendance – 0
  - Questions/comments relating to this technology: None

- District 6 - Hourglass Park (Room J223) – 10440 Black Mountain Rd.
  - Number of citizens in attendance – 0
  - Questions/comments relating to this technology: None
- District 7 - Police Plaza (Auditorium) – 4020 Murphy Canyon Rd.
  - Number of citizens in attendance – 2
  - Questions/comments relating to this technology: None
- District 8 - San Ysidro Library – 4235 Beyer Blvd.
  - Number of citizens in attendance – 2
  - Questions/comments relating to this technology:
    - Question #1 – Citizen asked a three-part question and did not specify a specific technology. The question was in regards to technology vendor lobbying, data analytics and what comes next. Captain Jordan, SDPD, explained relevant policies and practices that are utilized by city departments to address these topics.
- District 9 - Clark Middle School – 4388 Thorn St.
  - Number of citizens in attendance – 0
  - Questions/comments relating to this technology: None

SDFD offered multiple methods for citizens to provide input regarding this technology. As listed above, very little feedback was received. There were no questions or comments that were considered to be negative or unsupportive. Based on the input received, SDFD will implement the use of this technology in accordance with all relevant policies, procedures, and the published surveillance use policy.