Telepresent Rapid Aiming Platform (TRAP)

Spiral Development of a Lightweight Remote Weapon System and Integration Into a Mobile Sensor-Shooter Network
• TRAP T-250D MK IV Hardware Overview
• Cameras
• User Interface
• Tactical Display
• SLAM-R Laser Unit
• Counter Sniper Vehicle
• Image Stabilization
• Quad-X Portable Security Unit
• T250-FS: Facility Security Model
• SWORDS UGV
• EOD applications
• TRAP T360: Moving Forward
• Points of Contact / Questions?
TRAP T-250D MK IV

- Thermal Camera
- Ammo Feed
- Delta Tripod
- Pan Actuator
- 360° Module (not shown)
- Laser Unit (not shown)
- I² Camera (not shown)
- Color Camera
- Weapon Adapter
Cameras

- Color - Sony FCB-980S camera + US Optics booster lens; 19° – 1.2° HFOV; 3.75 lbs
- I² - XR/MEGA-10LC tube, Sony XX285 CCD, CAT lens; 12°, 6°, 3° HFOV (digital zoom); 2.7 lbs
- Thermal – L3 320 x 240 core; 12°, 6° HFOV (digital zoom); 1.7 lbs
User Interface

- Selector
- Arming
- Power
- Camera Control
- Motion
- Fire (top + bottom)
- Multi-function Buttons
- 6.5” LCD
- 6.5” LCD
Sensor/Laser Aiming Module – Remote (SLAM-R)

- Uses modified STORM optical bench
- Remote operable RS-232 interface
- MILES and Digital Compass removed
- Modular IR illuminator spot/flood
- Accepts MIL-STD-1275B host power
- 6” x 1.75” x 4.75” (incl. illum. pod)

- High / Low power lockout switch
- Class 1 LRF, +/- 1.5m to 4,500m +
- Visible aiming laser, Class 3b / 3a
- IR aiming laser, Class 3b / 1
- IR illuminator (30 mW), Class 3b / 3a
  - Expandable to 100 mW
CSV concept to combine emerging / COTS technologies in a light weight, low-cost package to counter the ongoing sniper threat in Iraq and Afghanistan

- Initiated by USMC 1MEF at Camp Pendleton
- Prototype tested March 2006 at Twenty Nine Palms, CA
Counter Sniper Vehicle

- Third-Party software maps vector and GPS location of incoming rounds, slews TRAP to target bearing for manual engagement via TRAP interface
- GPS coordinates stored – can be used for squad deployment, call for fire, or GPS-guided ordnance

- System can store video/stills for analysis
- Current controller may be replaced with the system in use on Gunslinger and the Full Spectrum Effects Platform (FSEP)
- In-theater testing Summer ‘07
Image Stabilization

Uses Ovation Systems “Stable Eyes” module by QinetiQ Technology

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<tr>
<th>Stabilized</th>
<th>Un-Stabilized</th>
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Video recorded from moving CSV – system has detected a shot and is orienting TRAP towards the shooter
Quad-X: Portable Security Network

- Network up to four (4) TRAP systems
- Master operator/supervisor
- Video outputs for additional displays or recording devices
- Programmable security sweeps
- Linux-based, fully upgradeable
Facility Security Model

• In use at the Prairie Island Nuclear Power Station and Kirtland Underground Munitions Security

• Designed for elevated locations (0-60° depression, 190° traverse)

• Motorized enclosure provides weapon security, environmental and small-arms fire protection

• Fiber optic network – can integrate with existing perimeter sensors and surveillance systems
SWORDS
Special Weapons Observation Remote reconnaissance Direct action System
U.S. Army’s first Safety Confirmed Armed Unmanned Ground Vehicle!

- Weaponized Foster Miller Talon 3B robot
- Missions:
  - Over Watch / Recon
  - Security
  - First In / Room Clearing
  - Offensive

- Range: 1,000m LOS, 200m NLOS
- Speed: Up to 5 mph
- Weapons: M249, M240, M107, M203, 12 gauge, AT-4, and SMAW
- Sensors: Microphone, LRF, pan/tilt/zoom camera, wide area camera, weapon sight camera (day + I²), front and rear driving cameras
Joint EOD TechDiv
I-SCS: Improved Submunition Clearance System

Allows EOD Technicians to locate, identify, and engage explosive ordnance items from inside armored vehicles – improved safety and accuracy with less operator fatigue.

Identify / Engage:
Threshold
- BLU-61 at 50 m
- 155mm rounds at 500 m
- MK84 bomb at 1,000 m

Objective
- M42 at 50 m
- 130mm rounds at 500 m
- MK82 bomb at 1,000 m

Range: 50 m (actual screen shot)
TRAP T360

- Incorporating the spiral improvements from the past 5 years
- 400 round 7.62mm
- Brushless motors
- Anti-slip brake system

- Integrated 360 drive
- Closed-loop feedback
- Better environmental resistance
- Mechanical stabilization
- Prototype testing July ‘07
Points of Contact

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