

# NAVY Transition Assistance Program

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## NEED & CUSTOMER REQUIREMENT

**Need:** The Marine Corps needs a capability to detect a potential sniper at a distance to enable preemptive action. Current after-shots-fired flash and acoustic detection systems are too late to be of maximum value to targeted Marines. Need proactive identification methods rather than existing reactive.

**Value to the Warfighter:** Automatically locates and provides warfighter with real-time pre-shot sniper detection and spotter alerts enabling proactive tactics for cover, concealment and threat elimination. Non-lethal dazzle options to temporarily blind the enemy and location sharing with "active designation" options also enable new aggressive tactics.

**Operational Gap:** Existing technologies find a sniper after he has taken a shot. Photonic Automatic Linking System-for Sniper/Spotter Detection (PALS-SD) automatic real-time PRE-Shot sniper & spotter alerts reliably locate potential enemies enabling use of other systems to determine if the threat detected is real prior to shots being fired.

**Customer Specifications:** Required range is from 100 to longer range in the urban areas. Be able to find a potential sniper and then use other systems, binoculars, unmanned aerial vehicles (UAV), or physical entry of a building to confirm. Must mitigate false positives.

**Technology Description:** PALS-SD provides pre-shot sniper and spotter detections that are fully automated with 360 degrees scanning. Supports standalone, networked, and remote control modes via Global Information System (GIS) based command and control, along with wireless alert sharing to wearable devices and handhelds. Simultaneous multi-spectrum and multi-modal automated scanning and hardware control by advanced analytics software with optics detection, human finder, face finder, and eye finder algorithms. Seamlessly integrates electro-optic and thermal sensors that simultaneously use passive sensing plus active covert illumination and target designation and dazzle options.

## TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Develop analytics software with integrated optics detection, human, face and eye finder algorithms.	3	Low	Developed optics, human, and face finder software with functional prototypes and networks.	November 2009
Optimize to find enemy optics, faces, eyes, and infrared (IR) signature sniper for 'two rooms deep' and 'missing brick in the wall'.	5	Low	Automated detection within advanced sniper urban tactical scenarios inclusive of vehicle and robot mounting. Automated scanning on vehicles and robots.	August 2011
Detect, alert, location share using wireless wearable.	7	Low	Completion testing of urban scenarios.	August 2012
Configure modular add-ons to existing and emerging systems, plus wireless network mobile enhancements.	8	Low	Added to existing & emerging vehicle, robot, wearable & mobile platforms within urban threats.	January 2013

**Open contract:** M67854-10-C-6529 ending August 5, 2012

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# N07-164 - Advanced Anti-Terror Technologies Corp. (A2-T2)

## PRE-Shot Sniper & Spotter Automated Detections and Shared Alerts via Photonic Automatic Linking Systems (PALS-SD)

### SPONSORSHIP of original SBIR/STTR Topic

**SYSCOM:** MARCOR

**Transition Target:** Mine Resistant Ambush Protected (MRAP), High Mobility Multi purpose Wheel Vehicle (HMMWV), iRobot platforms; wearable and handheld

**Original Sponsoring Program:** Infantry Weapons Systems

**TPOC Phone Number:**  
sbir.admin@usmc.mil

**Note:** PALS-SD modular architecture includes wireless network sharing to handheld smart phones, personal digital assistants (PDA)s, and tablets. Options include non-lethal dazzle temporary blinding of the potential sniper, along with real-world sniper location designation.



### TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

**Other Potential Applications:** "Slew to Cue" and Precise Aiming of Weapons capacities complete with real-time moving target tracking and kill assessments; Direct Fire Weapon Sight Augmentation Module added on to existing weapons providing graphically outlining and highlighting of snipers and spotters; unmanned aerial system (UAS) and manned rotary wing aircraft automated detection, alerts and tracking; area security to detect approaching personnel even though they might be camouflaged. Could also be of use in non-Department of Defense (DOD) sectors for a number of situations where personal or physical security requirements are required; Additionally, sensitive areas where photography is desired to be restricted could use the system to detect unauthorized photography.

**Business Model:** Primary model is enhancing programs of record by partnering with or licensing to system integrators and/or sensor and security system manufacturers with existing operational military systems and contracts; Secondary models include innovative disruptive technology insertions of PALS-SD sub-modules as integrations with weapon system and C4ISR manufacturers.

**Objective:** Seeking program office or team partner funding to accelerate developments and operational deployments of critically needed pre-shot sniper and spotter detection automations to warfighters. Seeks prime partners for integrating our add-on modular PALS-SD systems with military and civilian vehicles, robots, plus detached tactical uses, along with alert sharing to wearable and handheld devices including smart phones.