

# CRITICAL SCOUT:

**We May Not Own The Night, But We CAN Deny The Use Of It**

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NDIA White Paper Series, Future  
Force Capabilities Conference 2021

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# Critical Scout:

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Introduction...



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## Introduction...

- Optics For Visible, IR And Thermal Imaging Devices On The Modern Battlefield Have Proliferated For Small Arms, Rockets And Missiles...
- Optics For Observation, Cameras And Remote Sensor Devices Pose A Threat To Friendly Forces Even When Not Mounted To A Weapon...
- There Is Therefore A Need To Detect These Threats And To Geolocate Them For Application Of Appropriate Fires Without Endangering Friendly Forces.

“If You Can No Longer Own The Night, You **Can** Deny Anyone The Use Of It”

# Critical Scout:

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Problem: The Proliferation Of Battlefield Optics



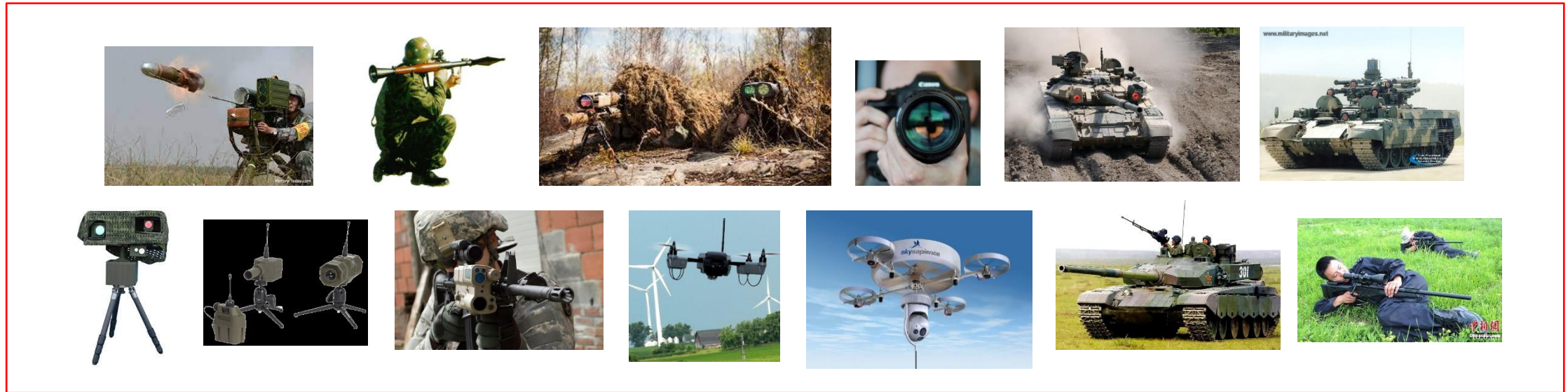
USMC 1903 Springfield / Unertl Scope Wikipedia

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# Critical Scout:

## The Proliferation Of Battlefield Optics:

*Binoculars, Scopes, Cameras, Rangefinders And Designators Everywhere...*



Above Clockwise From Upper Left: Chinese ATGM, RPG-7 With Optical Sight, US Army Sniper Team Photo, DPReview Blog Camera, Russian Tank, Russian BMP, Unusual Chinese Sniping Position Which One Hopes They All Use, Chinese Tank, SkySapience Tethered Drone, Chinese DLI Quadcopter, US Army Rifleman Photo, Bertin Instruments Remote Cameras, Israeli SPOTLIGHT System.

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# Critical Scout:

## Robotic Platforms; The Perfect Detection & Geolocation Tool

*Find All Hostile Observers, Geolocate And Characterize Them For Targeting...*

File Match:  
RPG  
Rifle/MGO



Sweep 70 Deg  
Targets: 22



Wikipedia Small Arms, MartinVFXDeviantart Battle Scene, iRobot Warrior By Howard Kent, TPL Beam System

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# Critical Scout:

## Send The Target Geolocation Scout Forward

*Existing Robotic Platforms Can Provide Mobility For Force Multiplication Sensors...*



Clockwise From Upper Left: What Was In 2012 And Still Candidates; Former iRobot Robotic Systems Family, QinetiQ Armed Talon, NGIC EOD Robotics, Textron Howe & Howe Ripsaw Modified, GD SMSS, HDT Global Hunter, GD MUTT Ground Robotic System.

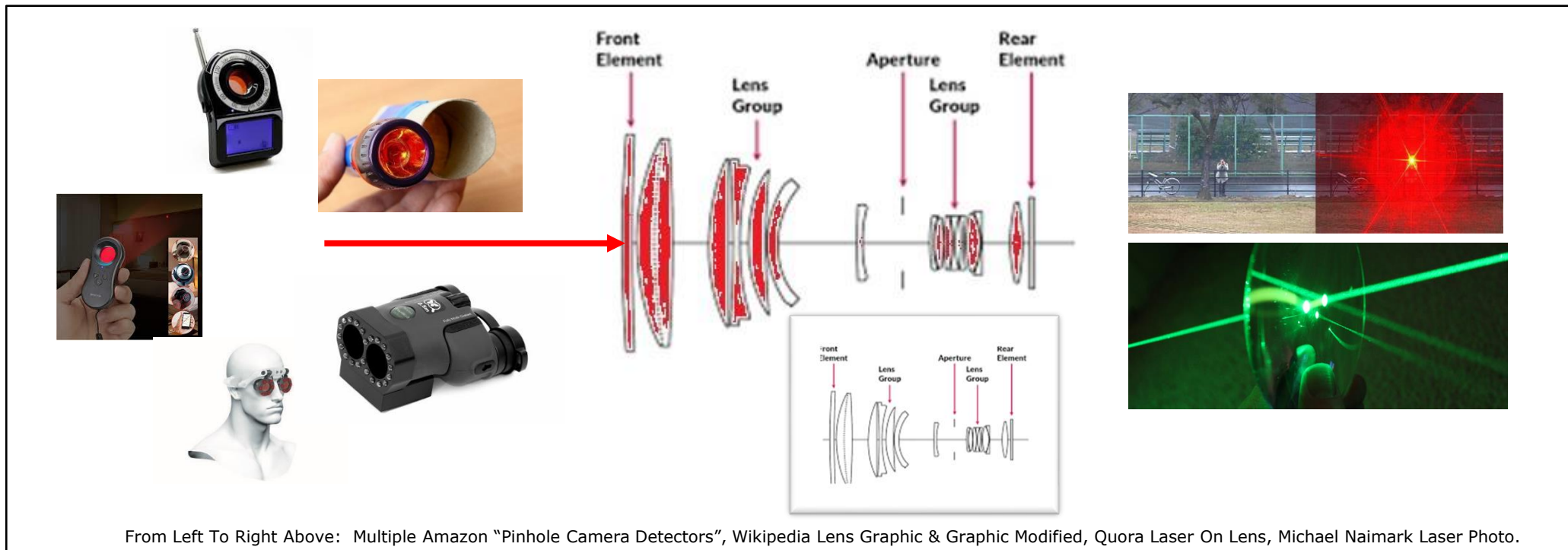
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# Critical Scout:

## Optic Detection Principles: How It Works

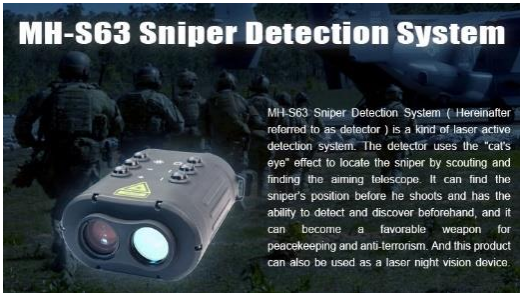
*Shine A Bright Light Into The Lens And Spot The Reflection...*



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# Critical Scout:


## Optic Detection Principles: Early Battlefield Optical Detection Integration *Hand-Held, Clamped On, No Turret Scanning, No Geolocation...*




**MH-S63 Sniper Detection System**






MH-S63 Sniper Detection System ( Hereinafter referred to as detector ) is a kind of laser active detection system. The detector uses the "cat's eye" effect to locate the sniper by scouting and finding the aiming telescope. It can find the sniper's position before he shoots and has the ability to detect and discover beforehand, and it can become a favorable weapon for peacekeeping and anti-terrorism. And this product can also be used as a laser night vision device.





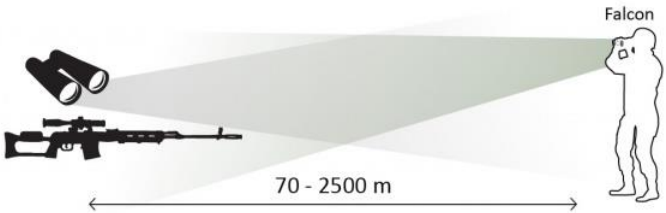


**Thermal channel range performance:**

	3600 m
	900 m
	390 m
	1200 m
	290 m
	130 m

■ Detection   ■ Recognition   ■ Identification

**Optics detection range:**



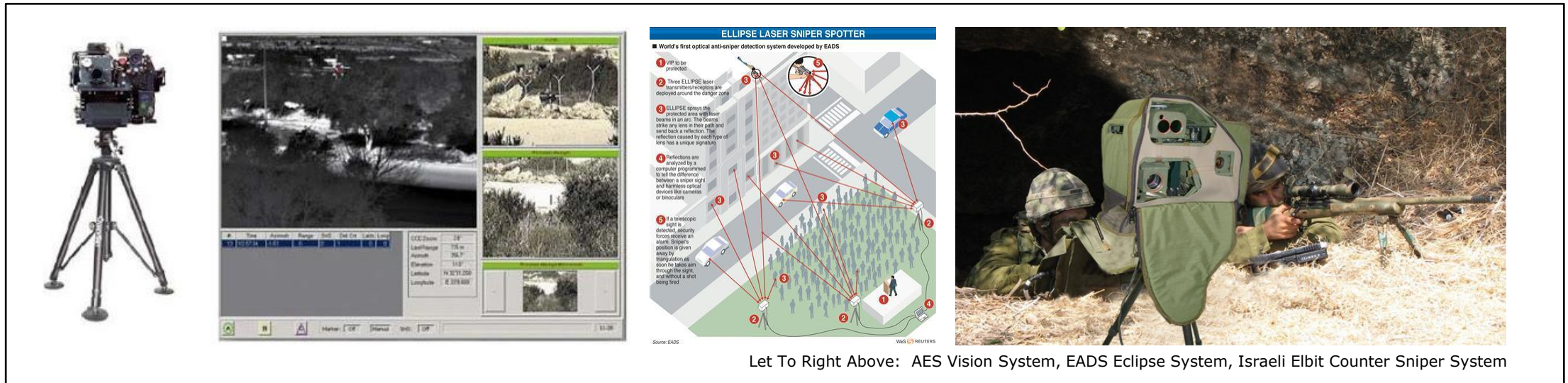
70 - 2500 m

Clockwise From Top Left: Chinese Optic Detection System From Amazon, Jetprotect Counter-Sniper System, Popular Mechanics Russian Weapon Mount, FALCON Handheld Detector, iRobot + Photonics Center Photos

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# Critical Scout:

## Optic Detection Principles: Early Battlefield Optic Detection Integration *Fixed Site Observation, Low Mobility, Narrow Field, Multiple Units Required...*



Let To Right Above: AES Vision System, EADS Eclipse System, Israeli Elbit Counter Sniper System

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# Critical Scout:

## TPL BEAM; Modern Battlefield Optic Detection System Capability:

*Small, Lightweight, Scanning, Wide Area Coverage, Highly Mobile, Geolocation...*



Horizontal



Vertical Over



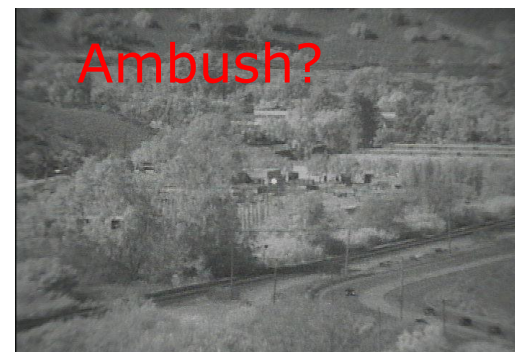
[Beam™ 230 – Torrey Pines Logic \(tplogic.com\)](http://tplogic.com)  
[Campanile™ 233 – Torrey Pines Logic \(tplogic.com\)](http://tplogic.com)

Torrey Pines Logic Photos Beam System

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# Critical Scout:

## Torrey Pines Logic Optic Detector Technology In Action...



Torrey Pines Logic Photos BEAM System

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# Critical Scout:

## Torrey Pines Logic Optic Detector Technology Scenario...

*"Small Robot Goes Forward With BEAM System And Locates Enemy Formation In Ruins"*

High-Rate Laser Linescan Sweep Creates Reflections, IR Camera System Detects Reflections And LRF Determines Distance, Bearing And Angle To Target, System Makes Map Overlay Geolocation Based On It's Own Location.

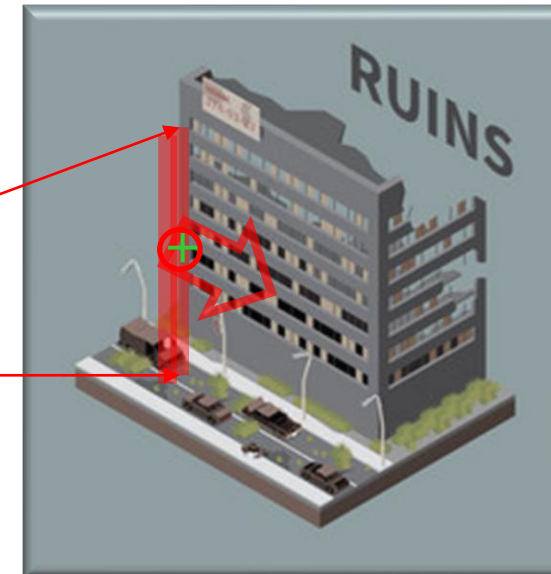
BEAM Turret:



Sweep: 30 Deg  
Targets: 1  
Range: 1,121  
Angle: 015

34.8021° N, 38.9968° E  
LOC Image Attached

Laser Line:



Vectorstock Ruins

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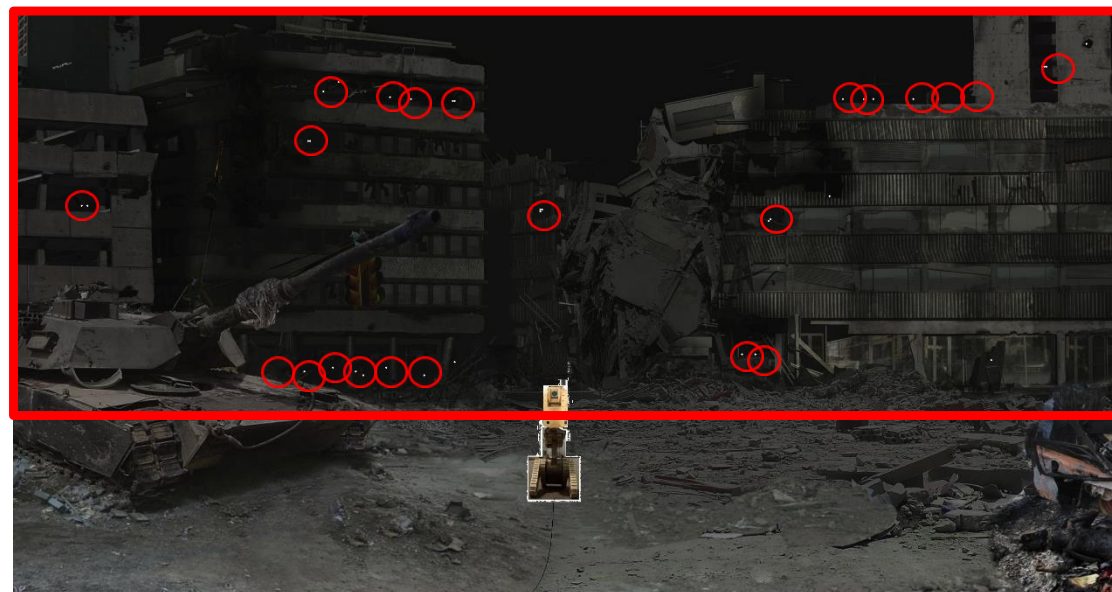


# Critical Scout:

Torrey Pines Logic Optic Detector Technology Scenario...

*"Small Robot Goes Forward With BEAM System And Locates Enemy Formation In Ruins"*

BEAM Detects All Optical Devices: Scopes, RPGs, ATGM, Binoculars, Rangefinders, Designators, Etc.



MartinVFXDeviantart Battle Scene, iRobot Warrior By Howard Kent, TPL Beam System

May Not See All Enemy Troops, Just The Most Dangerous Ones With Optics On Their Weapons.

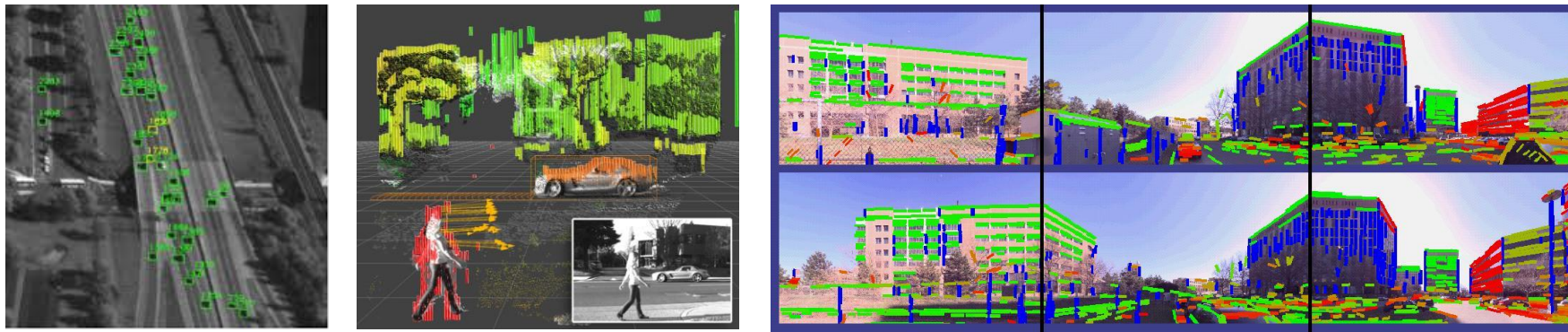
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Torrey Pines Logic Optic Detector Future Development Path:

*"Small Robot Goes Forward Autonomously With BEAM System And Locates Enemy Formations"*

*Future Developments: Incorporation Of Self-Driving Car Technology*



From Left To Right Above: SightLine Applications MTI, Google Autonomous Vehicle Sensor Data, MIT LIDAR Digital Scene Matching Area Correlation

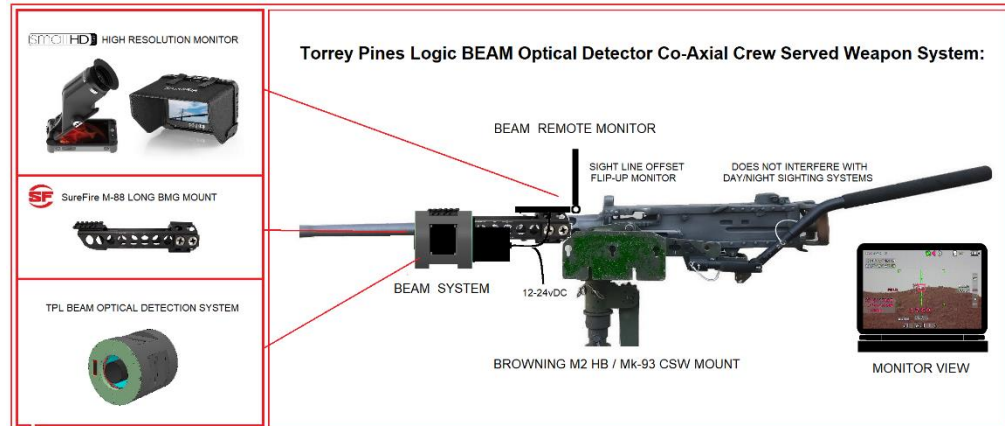
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# Critical Scout:

## Torrey Pines Logic Optic Detector Future Development Path:

*"Small Robot Goes Forward Autonomously With BEAM System And Locates Enemy Formations"*

*Future Developments: Coaxial Weapons Integration For BEAM System*



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# Critical Scout:

See **Co-Axial Optical Detection For Crew Served Weapons** Poster

In The Exhibit Hall

**CO-AXIAL OPTICAL DETECTION FOR CREW SERVED WEAPONS:**  
*The Torrey Pines Logic BEAM System Shortens The Kill Chain*

Day/Night Capability, Integral GPS/LRF/Compass Geolocates Targets, Detect-Fire Kill Chain  
 Allows Operators To Immediately Address Multiple Types Of Optic Equipped Threats



**Torrey Pines Logic BEAM Optical Detector Co-Axial Crew Served Weapon System:**

Optics Detected Include All Infantry And Vehicle Mounted Systems, UAV And UAS Cameras, Binoculars, All Cellular And Digital Cameras, Night Vision Devices And Laser Designators

Scenario: Gunner Scans Scene Revealing Multiple Emplaced Enemy Troops With Optic Equipped Weapons And Night Vision Sights, Immediate Action With 12.7x99mm HMG...

**BEAM System Also Adaptable To Daniel Defense Robotic Optimized Precision Rifle:**



**Robotic Optimized Rifle From Daniel Defense:**  
 Advanced Design For Use On Small Robotic Vehicles. Action Tuned To Cycle With Remote Firing Precision. Address Non-Functioning Repetitive Fire Capability. Most Secure Removable Porous Ceramic Recoil Spring LSCM Construction. Superior Fire Control System With W-Lock Precision Construction.

**Key Productive Rifle Mounts:**  
 Posing Module Orp-Mod/Modulation

Most Firearms Require Resistance To Recoil In Order To Cycle Reliably Which Small, Lightweight Robotic UAS/UGV Systems Capable Of Firing Them Do Not Possess. This Accurate And Powerful Weapon Is Designed To Do Exactly That. When Combined With BEAM, A Small Robot Can Deliver Significant Effects Downrange To Eliminate Threats And Provide Overwatch For Friendly Forces.

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 NDIA Future Force Capabilities Conference 2021, Ft. Benning, Georgia

Featuring **Torrey Pines Logic & Daniel Defense** Robotic Payloads For Future Unmanned Ground Combat Systems

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## Conclusions:

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- The Proliferation Of Optics On The Battlefield Creates Both A Threat And Opportunity.
- Locating Optic Equipped Observers And Weapons Is A Proven Military Technology.
- Enemy Forces Possess Optic Detection Capabilities Which Will Be Used Against Us.
- Placing The BEAM System With Geolocation On A Mobile Platform Is A Leap Ahead Enabling US Forces To Find Threats Without Endangering Friendly Forces.
- Once Identified And Located, Concealed Enemy Forces May Then Be Eliminated...

## Recommendations:

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- Develop Robotic Applications Of The BEAM System, Including Stand Alone And Coaxial Mounting To Weapons Mounts For Immediate Response To Enemy Detection.
- Develop Tactics And Weapons For The Use Of Optic Detection In Robotic And Combined Manned-Robotic Operations Teaming To Reduce Friendly Casualties.

*"We May No Longer Own The Night, But We **CAN** Deny Others The Ability To Use It"*



Credits:



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[Torrey Pines Logic – Welcome \(tplogic.com\)](http://tplogic.com)

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NDIA White Paper Series, Joint  
Armaments Conference 2020

Credits:

The Testing And Demonstration Facilities Of:

Mr. Joby Hawkins

LTC Steve Brown, USA-Ret.



Secure Confidential Research And Development Location  
For Defense Applications In Laurens, South Carolina