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14-16 May 2019

Stockholmsmässan, Sweden

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Optically Based Small Arms Targeting for Air Defense Applications

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Goals of the Project

- Provide a laser-less capability for air defenders to fully participate in force-on-force training
- Link to Common Training Instrumentation Architecture (CTIA)
- Stimulate Identification of Friend or Foe
- Reinforce proper operation of the weapon
  - Proper tracking
  - Super elevation
  - Proper steps in firing procedure

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History

- Technology was originally developed to eliminate the need for laser engagement systems
  - Fire through foliage
  - Properly lead moving targets
  - Properly elevate rifle based on range to target
  - No appended equipment – use soldier, go-to-war kit
  - Engage targets at ”realistic” ranges
- Successfully demonstrated target engagement out to 375 meters and beyond

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System Overview

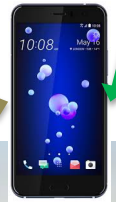
- Shooter tracks targets and sends position and orientation to OBSAT CTIA Gateway.
- Player Unit displays correct tone.
- The player unit determines if the shooter properly tracked and super-elevated.
- The OBSAT CTIA gateway determines hit or miss.

Targets with no MILES gear report their location.

LTE Network

LTE

LTE



Wi-Fi

Optional instructor Operator Station

Soldier Worn Player Unit (Net Warrior Surrogate)

OBSAT CTIA Gateway

Ethernet

CTIA

System Overview

(Player Unit and Stinger Surrogate)

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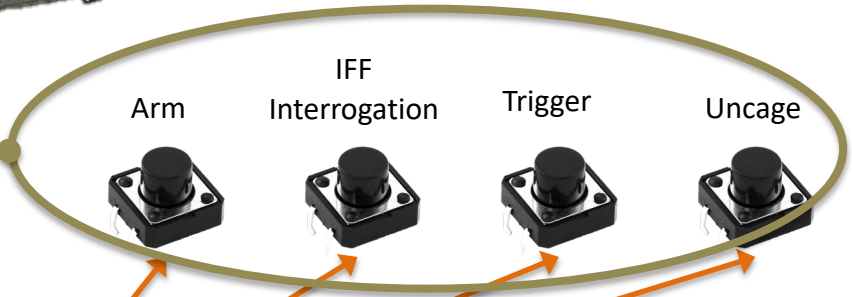
Instructor Operator Station (IOS) (Optional)

Stinger Surrogate



Wi-Fi

Thermal Scope

Player Unit

Wi-Fi

Wi-Fi

Raspberry PI Zero

Inertial Labs OS3D Orientation Sensor

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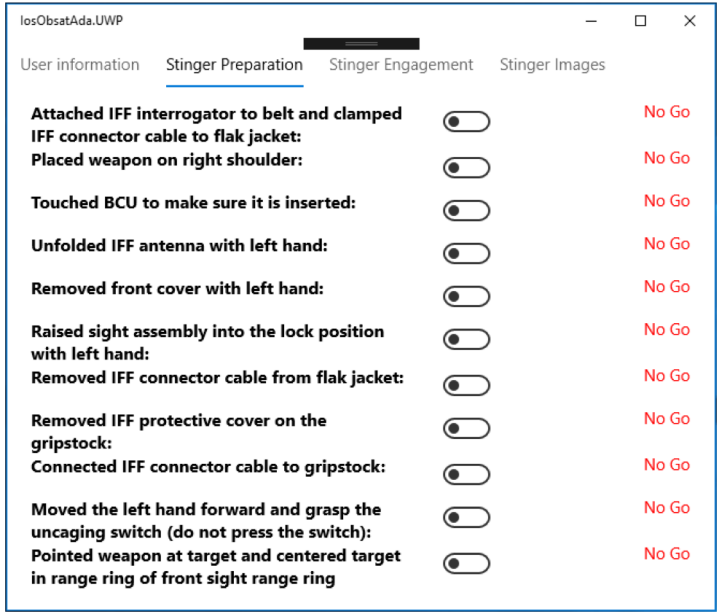
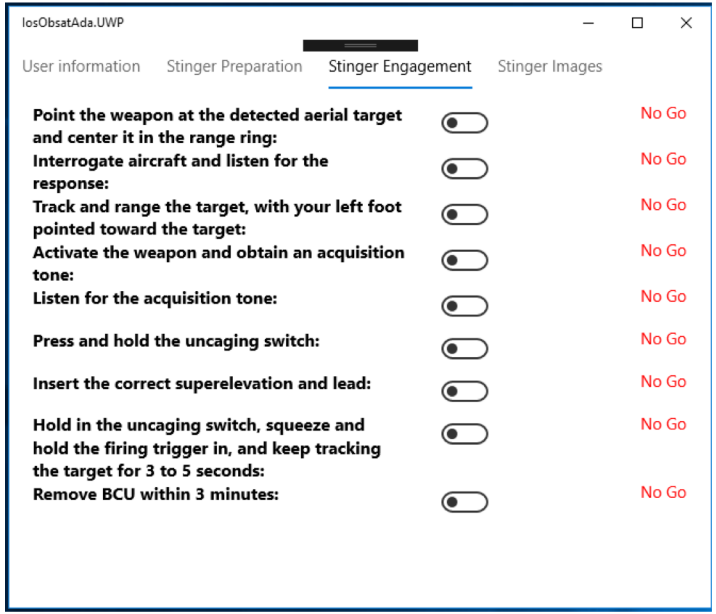
Air Defense System Instructor Station





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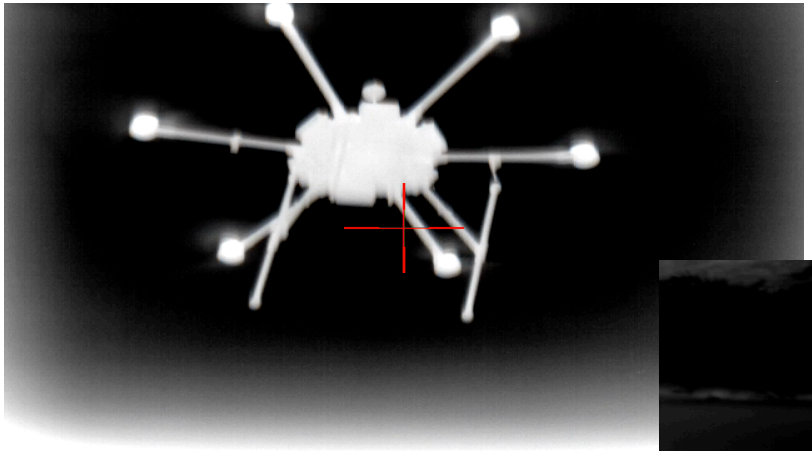
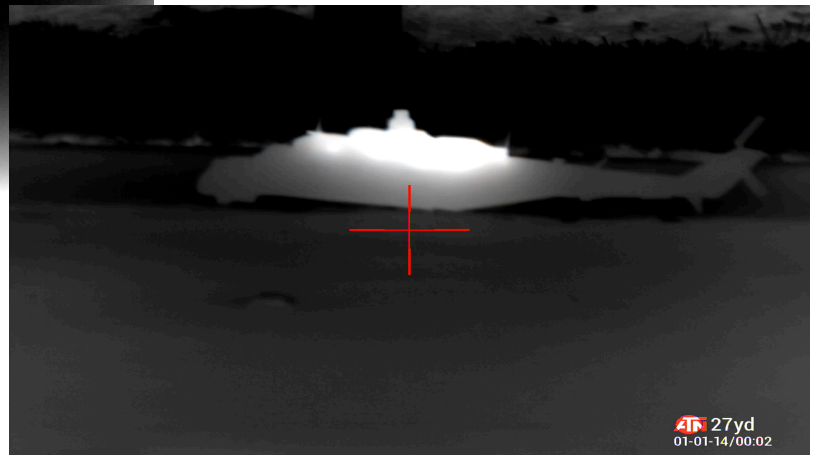
Air Defense System Instructor Station



Hexacopter drone through thermal seeker

Metal target through thermal seeker



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Summary

This technology enables Stinger gunners to participate in live, force-on-force training for the first time.

The use of COTS orientation and position sensors provide enough accuracy.

The system ensures the gunner:

- Properly tracks and lead the target
- Confirms identification of friend or foe, and
- Properly super-elevates the Stinger before firing.