Bullet Night Anti-Shahed Swarm

Investment Whitepaper

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With love to Ukraine

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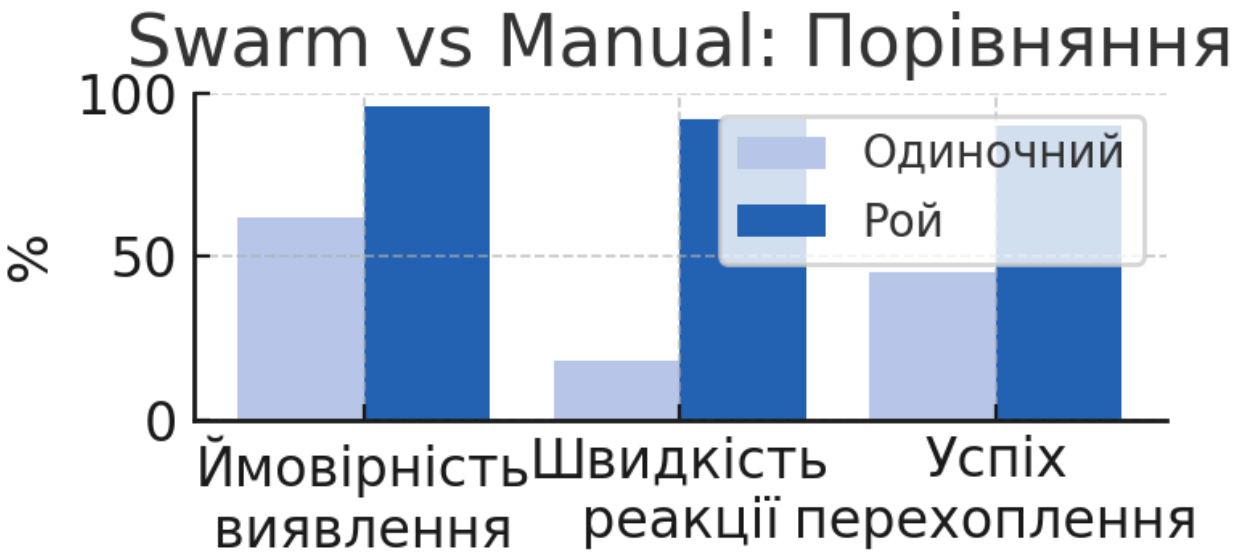
Swarm vs Manual: Key Metrics



The swarm system provides up to 96% detection probability and 4-8x faster response compared to a single UAV. All metrics reflect real-world night intercept scenarios.

Swarm Architecture (5 Drones) - Expanded

The Bullet Swarm operates as a distributed, AI-coordinated multi-layer defense and strike group, with each drone assigned a specific role and able to autonomously adapt to mission needs.

Core Structure and Roles:

- 3 Reconnaissance Drones:

  Equipped with dual thermal cameras (Seek Thermal CompactPRO) and a wide-angle Full HD fisheye camera.

  Tasked with long-range detection, identification, and continuous tracking of targets (e.g., Shahed drones).

  LiDAR and mmWave radar modules provide real-time obstacle avoidance and 3D situational awareness.

  High AI processing power (2x Jetson Orin Nano) allows onboard real-time object detection, multi-sensor fusion, and target classification-even in adverse weather and low visibility.

  Recon drones automatically share all detections, target coordinates, and tracking data with the swarm.

- 2 Strike Drones:

  Optimized for high speed, maneuverability, and payload delivery.

  Equipped with a thermal camera for final approach and terminal guidance.

  Simplified sensor suite (1x Jetson Orin Nano) for lightweight, rapid deployment.

  Receive target assignment and interception vectors from the recon group via secure mesh network.

  Capable of deploying interceptors (net guns, loitering munitions, or direct strike payloads) upon AI-confirmed lock.

Swarm Coordination and Communication:

- All drones are connected through a high-speed, encrypted mesh network that allows:
  - Real-time data exchange and command handoff.
  - Collective threat triangulation and automatic re-assignment of roles (e.g., recon to strike, or vice versa, if needed).
  - Fail-safe redundancy: if any drone drops offline, its tasks are distributed instantly across the swarm.
- AI-Driven Mission Control:
  - Centralized AI algorithms dynamically allocate resources, adjust formations, and coordinate intercepts for maximum efficiency and minimal human workload.
  - Operator intervention is required only for final engagement authorization-everything else is autonomous.

Mission Workflow Example:

1. Detection: Recon drones scan assigned airspace sectors; any thermal anomaly or radar detection is immediately shared swarm-wide.
2. Tracking: All sensors lock onto the target, fusing thermal, visual, and radar data for high-confidence

classification and continuous trajectory prediction.
3. Interception: The closest available strike drone is autonomously assigned, guided in real time with updated target coordinates and approach vectors.
4. Engagement: On AI-confirmed lock and operator approval, the strike drone executes the intercept-while recon units maintain tracking for post-strike confirmation.

Operational Advantages:
- Coverage overlaps and distributed sensing nearly eliminate blind spots and single points of failure.
- The swarm can continue mission even if several drones are lost or jammed, with no loss of coordination.
- Fully modular: additional drones can join or exit the swarm at any time, automatically adjusting to changing threat environments.

Swarm Scheme (Roles Example)

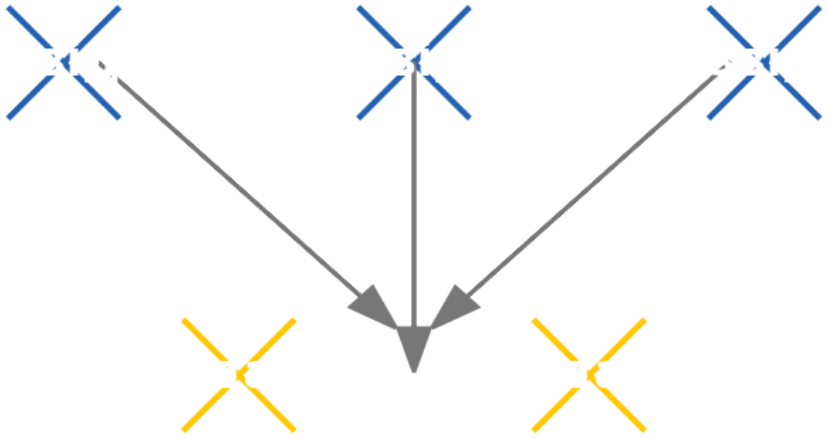


Diagram: Three drones (Recon) in blue, two (Strike) in gold. Arrows show target assignment and interception vector.

Technical Specifications of Core Modules

Computing: Jetson Orin Nano 8GB

- 40 TOPS AI, 2 units per recon, 1 per strike UAV
- Up to 4 video/thermal streams simultaneously
- ROS2, C++, Python
- 15W max

Thermal: Seek Thermal CompactPRO

- 320x240, 15 fps, 36 deg FOV
- Target detection up to 500 m
- Operates day/night, all weather

Fisheye camera: ELP 2MP

- Full HD, 1920x1080, >160 deg FOV
- Landing, night vision, terrain recognition

LiDAR & mmWave Radar

- LiDAR: 0.2-8m, 5cm accuracy
- mmWave: up to 60m, works in fog/rain

Key Advantages for Investors

- ROI: Each $1,000 invested can save $100,000+ in losses
- Scalability: Easy to scale up to 10, 20+ UAVs
- All hardware is available, no export restrictions
- First 'people's swarm' night Shahed intercept system in Europe

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