

Intelligence and Situational Awareness for Modern Tactical Drone Systems



Real-Time Understanding.
Operational Decisions.
At the Drone Edge.

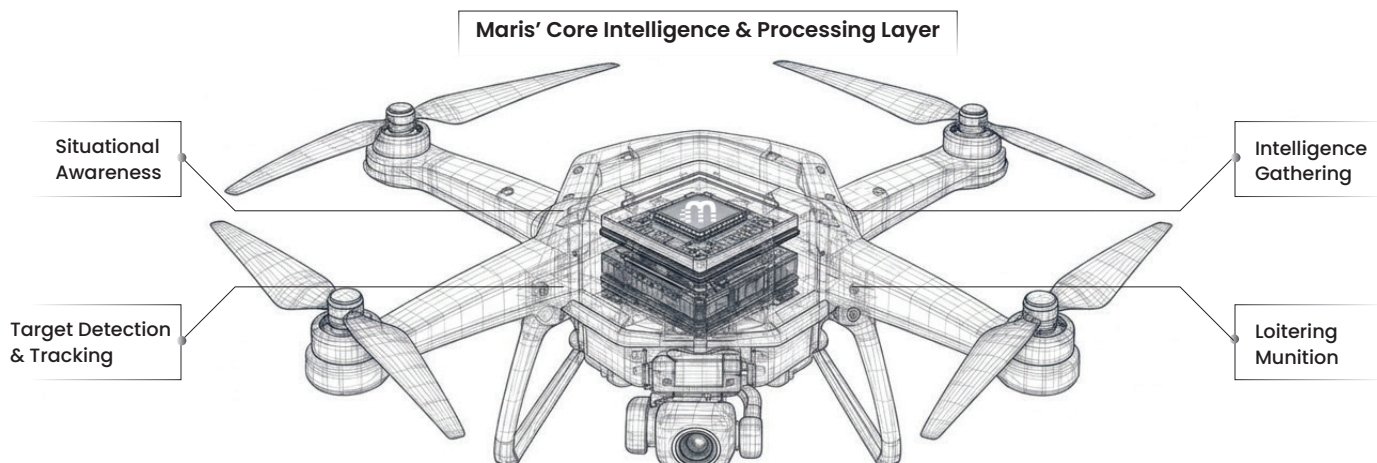
Today's tactical drones operate in environments where visibility is limited, connectivity is unstable, and the operational picture is constantly changing. Operators have to interpret live video feeds, often under time pressure and with incomplete information.

At the same time, drones are no longer used only for observation. They are expected to support detection, tracking, and at-the-edge real-time decision-making, including loitering munition, across complex environments. This creates a gap between what drones capture and what operators can process and act on in the moment.

Maris-Tech delivers an edge intelligence solution purpose-built for small and tactical drone platforms. By processing video, running AI, and managing data directly onboard the drone, Maris enables faster understanding, reduces operator burden, and improves operational response in real time. The solution is designed for seamless integration into today's drone architectures, supporting both newly developed drone platforms and existing commercial systems adapted for tactical use.

Solution Overview

Maris-Tech provides the core intelligence and processing layer within drone systems, enabling advanced operational capabilities beyond basic flight. We don't build the drone. We enable what the drone can do. Maris transforms drones from flying platforms into mission-capable systems.



Drones Provide Visibility. Not Always Understanding.



Tactical drones operate in environments where conditions change quickly and communication is not guaranteed. Video is often transmitted over constrained links, and suffers from latency, degradation, or interruption. Operators have to interpret this information in real time while managing multiple inputs and mission demands.

In many cases, the drone functions primarily as a sensor platform. Video is captured and transmitted, but analysis depends on ground systems or human interpretation. This creates delays between observation and action, which is a disadvantage in time-sensitive scenarios.

As operational requirements evolve, drones are expected to do more than provide visibility. They are required to support detection, tracking, and continuous situational understanding, even when connectivity is limited. This shift requires intelligence to move closer to the point of collection.

Solution Highlights

Central Intelligence Layer

Provides onboard computing that processes video, runs analytics, and manages data flow directly within the drone.

End-to-End Video Processing at the Edge

Handles sensor ingestion, encoding, analytics, and transmission within a single onboard pipeline.

Onboard Detection and Tracking

Enables real-time identification and tracking of objects, reducing reliance on human interpretation of raw video.

Low Latency Streaming

Delivers end-to-end video transmission at under 100ms, ensuring real-time operator visibility across all conditions.

Adaptive Communication

Adjusts video output based on available bandwidth to maintain communication in degraded or constrained environments.

Multi-Sensor Fusion

Combines day and thermal inputs into a single operational view, improving clarity across varying conditions.

Low SWaP Design for Small Drones

Optimized for size, weight, and power constraints while maintaining consistent performance in operational environments.

Flexible Platform Integration

Deploys as part of new drone systems or as an add-on to existing platforms, operating alongside flight control systems.



Application Across Operational Scenarios

Maris supports a range of drone-enabled missions where real-time understanding is required.

Situational Awareness

- Real-time understanding of dynamic environments
- Fused sensor data provides a clearer operational picture

Intelligence Gathering

- Operates in low-bandwidth or covert scenarios
- Transmits only relevant, prioritized information

Target Detection & Tracking

- AI-based identification and continuous tracking
- Supports faster and more informed decision-making

Autonomous Support Capabilities

- Onboard processing sustains mission performance even with limited connectivity
- Delivers real-time analysis to support operator decision-making across complex mission scenarios

Loitering Munitions

- Seeker-capable architecture for advanced mission profiles
- Onboard AI enables autonomous target acquisition and precision engagement at the edge

Commercial-to-Tactical Adaptation

- Enhances commercial drones for security and defense applications
- Adds intelligence without replacing existing platforms

Key Benefits

- Faster decision-making through real-time onboard intelligence
- Reduced operator workload by filtering and prioritizing data
- Improved mission effectiveness in degraded environments
- Continuous operation despite bandwidth limitations
- Enhanced situational awareness through multi-sensor fusion

Key Features

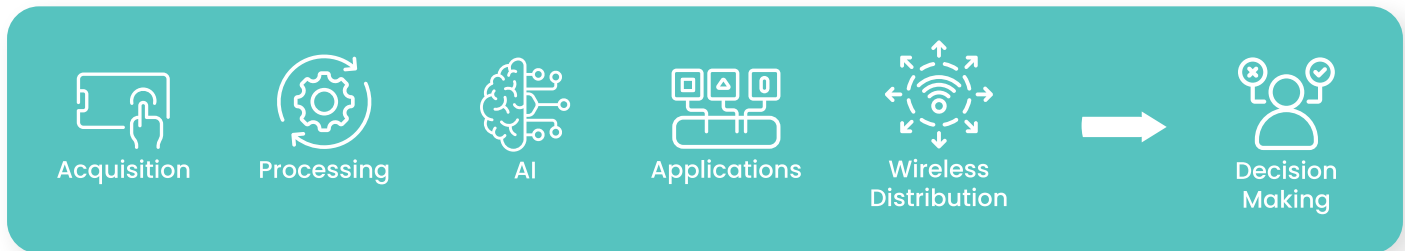
- Multi-sensor video ingestion (EO, thermal, IR)
- Real-time encoding and compression
- AI-based detection, classification, and tracking
- Low latency streaming
- Adaptive streaming over constrained networks
- Local recording and data capture
- Compact, low SWaP hardware
- Integration with flight systems (without replacing them)
- Support for third-party applications





Mastering the Video & AI Pipeline at the Edge

Maris delivers a complete AI video pipeline directly onboard the drone.



- **Acquisition:** Multi-sensor video and data capture (HD, thermal, infrared, RF)
- **Processing:** Compression, encoding (H.264/H.265), and optimization under bandwidth constraints
- **AI:** Onboard analytics for object detection, classification, tracking, and behavior inference
- **Applications:** Dynamic user interfaces for situational awareness, threat alerts, and control
- **Wireless distribution:** Secure, real-time streaming across narrowband or satellite networks

About Maris-Tech

Maris-Tech is a leading provider of edge AI video intelligence solutions for defense and security applications. Trusted by leading defense organizations, Maris focuses on delivering real-time situational awareness where it matters most -- at the tactical edge. We develop complete edge AI video solutions for mission-critical operations, deployed on UAVs, AFVs, tactical kits, and observation systems.

Intelligence at the Edge Anywhere, Anytime, Under Any Conditions

Situational Awareness

Intelligence Gathering

Drones

Surveillance

Terrain Dominance

Our comprehensive portfolio of video & AI-based edge computing solutions range from ruggedized, ready-to-deploy platforms to board-level components for OEM integration. All of our solutions can be tailored to your mission requirements, ensuring flexibility across land, air, sea, and space domains. With a proven installed base and a technology foundation built for operational environments, Maris is a partner for drone manufacturers and unmanned systems integrators seeking to enhance real-time intelligence, mission autonomy, and decision advantage at the tactical edge.



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