MOVIA™ Air & MAVIN® Air

Solid-state mapping solutions for most advanced UAVs

Designed for demanding commercial and defense applications, MicroVision's mapping solutions MOVIA™ Air and MAVIN® Air support situational awareness and environmental understanding through precise 3D mapping, even in darkness, urban clutter, and contested environments. Streamed to the ground in real time - either for visualization or to autonomously explore unknown environments - the mapping solutions redefine how UAVs and connected units see the world: faster, more capable, and with a new level of precision - even in GNSS-denied areas.

Applications

Navigation in GNSS-Denied Environments
Enabling precise navigation in unknown environments and communicating with operators or other units, MicroVision's mapping solutions support missions such as area surveillance, environmental navigation, and autonomous ISR (Intelligence, Surveillance and Reconnaissance) exploration. They ensure reliable path planning, and safe operation even in closed sky and GNSS-denied environments.

3D Mapping for ISR Missions
MicroVision's mapping solutions provide accurate 3D mapping for ISR missions, even in unknown terrain. They capture vegetation density, elevation models, and hidden site features with centimeter accuracy. The near-range and the long-range solution, both are perfect for locating hidden structures and mapping remote border areas with fast, reliable geodata.

Live-Data Delivery to Ground Vehicles
In defense operations, MAVs and ground vehicles form a tightly integrated team, especially when MAVs are equipped with MicroVision's mapping solutions. Delivering high-resolution 3D mapping and rapid threat detection from above, even in complex or GNSS-denied environments, ground vehicles can use this real-time intelligence to navigate safely, plan routes, and respond more effectively to changing conditions. Together, they enhance situational awareness, increase operational precision, and improve mission safety.

Real-Time Mapping on the Edge
Drones equipped with MicroVision's mapping modules are redefining on-the-edge data processing by generating dense 3D point clouds in real-time. With software onboard, and real-time data delivery to the ground, these systems avoid cloud delays and provide immediate spatial awareness. The reduced latency supports rapid decision-making. From terrain modeling to precise obstacle detection, the mapping solutions enable accurate, continuously updated maps exactly when they are needed.

Mapping Solutions

Custom UAV Hardware Package:

- Near-range: MOVIA™ Sensor
- Long-range: MAVIN® Sensor
- Processor
- RGB Low-Light Camera

Custom UAV Software Package:

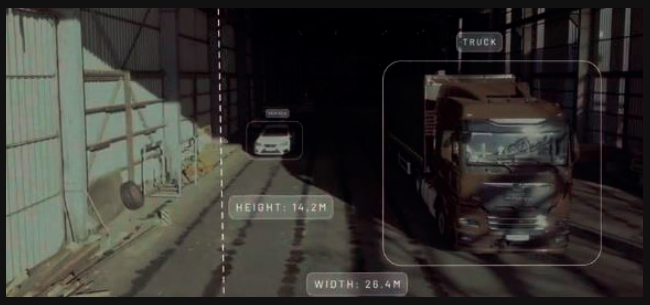
- VOXEL Map
- Object ID / Classification & Scene Segmentation
- GNSS-Denied Localization

MicroVision®

Technical Data

Feature	MOVIA™ Air Mapping Solution	MAVIN® Air Mapping Solution
Typical Power Consumption	Full system: < 10 W	Full system: < 15 W
System Field of View	60° x 37.5°	3° x 30°
Map Resolution	Configurable, 5-100 cm cubes	Configurable, 5-100 cm cubes
Range	50 m	~260 m
Weight	400 g	< 600 g

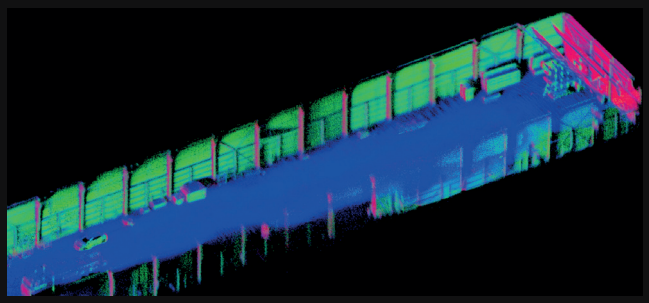
3D Mapping and Measurement



Front Camera View into a Storage Facility Building

By utilizing 3D measurements - shown here using the example of a storage facility - the mapping solution transforms unknown areas into detailed representations of the environment, including paths (drivable and non-drivable), textures, surfaces, ground changes, and irregularities, even in areas where GNSS is unavailable.

Total View: 3D Map in GNSS-Denied Environment, Colored by Camera RGB Values



Total View: 3D Map of a GNSS-Denied Environment, Colored by Surface Inclination

Technology & Innovation

Key Features

Real-Time 3D Mapping

Indoor & Closed Sky Operations

Autonomous Exploration in all Altitudes

ATAK Compatible

Sensor Modes

GNSS-Denied Usage

Passive Mode

Photon Energy Mode

Multi Echo Detection

MicroVision®