Development platform

A modular quadcopter developed by Theia Robotics. Open standards let us integrate new sensors and software without depending on a closed ecosystem.



Shown with an EO camera on the gimbal.

Configuration of the development platform

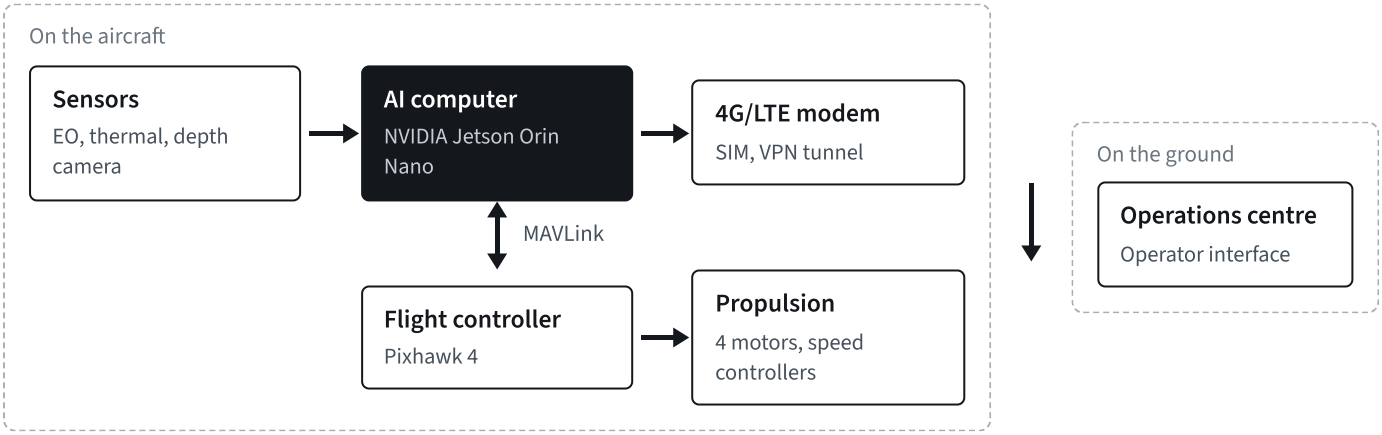
No.	Component	Specification
1	**GNSS receiver and compass**	On a raised mast, clear of interference
2	**Onboard AI computer**	NVIDIA Jetson Orin Nano
3	**Flight controller**	Pixhawk 4, MAVLink protocol
4	**Depth camera**	Intel RealSense, RGB-D
5	**Encrypted 4G/LTE link**	SIM and VPN, protected against unauthorised access
6	**Li-ion battery pack**	18650 cells, built in-house
7	**Stabilised gimbal**	3-axis, vibration-damped
8	**Carbon frame and propulsion**	4 × T-Motor MN4012 KV340, 15-inch props

Sensor payloads

Payload	What it gives	Status
 **EO / zoom camera**	Detailed visual inspection from a safe distance	Per mission
 **Thermal (IR) camera**	Heat anomalies and night operations	Per mission
 **RGB-D depth camera**	Distance and 3D perception at close range	On the platform
 **LiDAR scanner**	Point clouds and 3D terrain models	Planned
 **Multispectral camera**	Vegetation and surface analysis	Per mission
 **Gas sensor**	Leak detection	Per mission

Architecture

The aircraft has two computers with clearly separate roles. The Pixhawk 4 flight controller stabilises and flies the aircraft. The NVIDIA Jetson Orin Nano processes imagery and talks to the operator.



Secure link

- SIM card and 4G/LTE network: a link wherever there is mobile signal.
- VPN tunnel: encrypted traffic from the aircraft to the operations centre.
- Access for authorised devices only.

Where we are today

■ **Platform and flight tests**	Done
◧ **Onboard AI and computer vision**	In development
◧ **Human-machine interface**	In development
☐ **Obstacle detection and autonomy**	Planned
☐ **RTK/PPK and LiDAR mapping**	Planned

The platform is in its flight-test phase. Endurance, payload and range figures are published once confirmed by measurement. Shown with an EO camera on the gimbal. All drone operations are subject to weather conditions, site access, operational safety assessment and applicable aviation requirements.

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