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UniDrone E900

Forest & Mountain Inspection Application Manual

Smart Patrol
Clear Insight Across Miles

Reebot Robotics
Dec, 2025

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Application Scenarios

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Forest Fire Patrol

Thermal imaging for early fire & smoke detection

Pest & Disease Monitoring

Identify affected areas for targeted control

Wildlife Monitoring

Low-noise, long-range observation & tracking

Law Enforcement Patrol

Inspect illegal logging & land violations efficiently

方案产品一览

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UniDrone E900 Industrial Drone

+

SIYI ZR10 Optical Pod

SIYI ZR30 Optical Pod

Reebot UniPod MT11 Mini Quad-Sensor AI Optical Pod

+

Loudspeaker

/

Multi-Function Module (Loudspeaker + Red/Blue Beacons + Spotlight)

+

UniGCS

Solution A

UniDrone E900 Industrial Drone

+

Reebot UniPod MT11 Mini Quad-Sensor AI Optical Pod

+

Multi-Function Module (Loudspeaker + Red/Blue Beacons + Spotlight)

+

UniGCS

Solution B

UniDrone E900 Industrial Drone

+

SIYI ZR30 Optical Pod (30x Optical Zoom)

+

Multi-Function Module (Loudspeaker + Red/Blue Beacons + Spotlight)

+

UniGCS

Solution C

UniDrone E900 Industrial Drone

+

SIYI ZR10 Optical Pod (10x Optical Zoom)

+

Loudspeaker

+

UniGCS

Forest Fire Patrol (Hotspot Detection)

Painpoints

1. Large, complex terrain increases patrol workload and safety risks
2. Manual inspections are slow; fire detection is often delayed and less accurate
3. Watchtowers have blind spots, missing residual or scattered fires
4. Satellite imagery has low resolution and poor timeliness
5. Nighttime visibility is limited; core fire sources are hard to detect

Solutions

1. UniDrone E900 supports 35 km long-range transmission for real-time HD data
2. UniPod MT11 optical pod provides high-altitude overview, switchable wide/zoom lenses, 165x hybrid zoom, 360° unlimited pan for full coverage
3. Infrared + visible dual view enables detection through smoke and canopy; thermal imaging with AI super-resolution up to 2560 × 2048 px identifies fire sources and transmits coordinates in real time
4. 11.5 m/s wind resistance and IPX4 protection ensure stable flight in complex forest terrain
5. Pre-plan patrol routes in UniGCS; one-click automated missions greatly improve inspection efficiency

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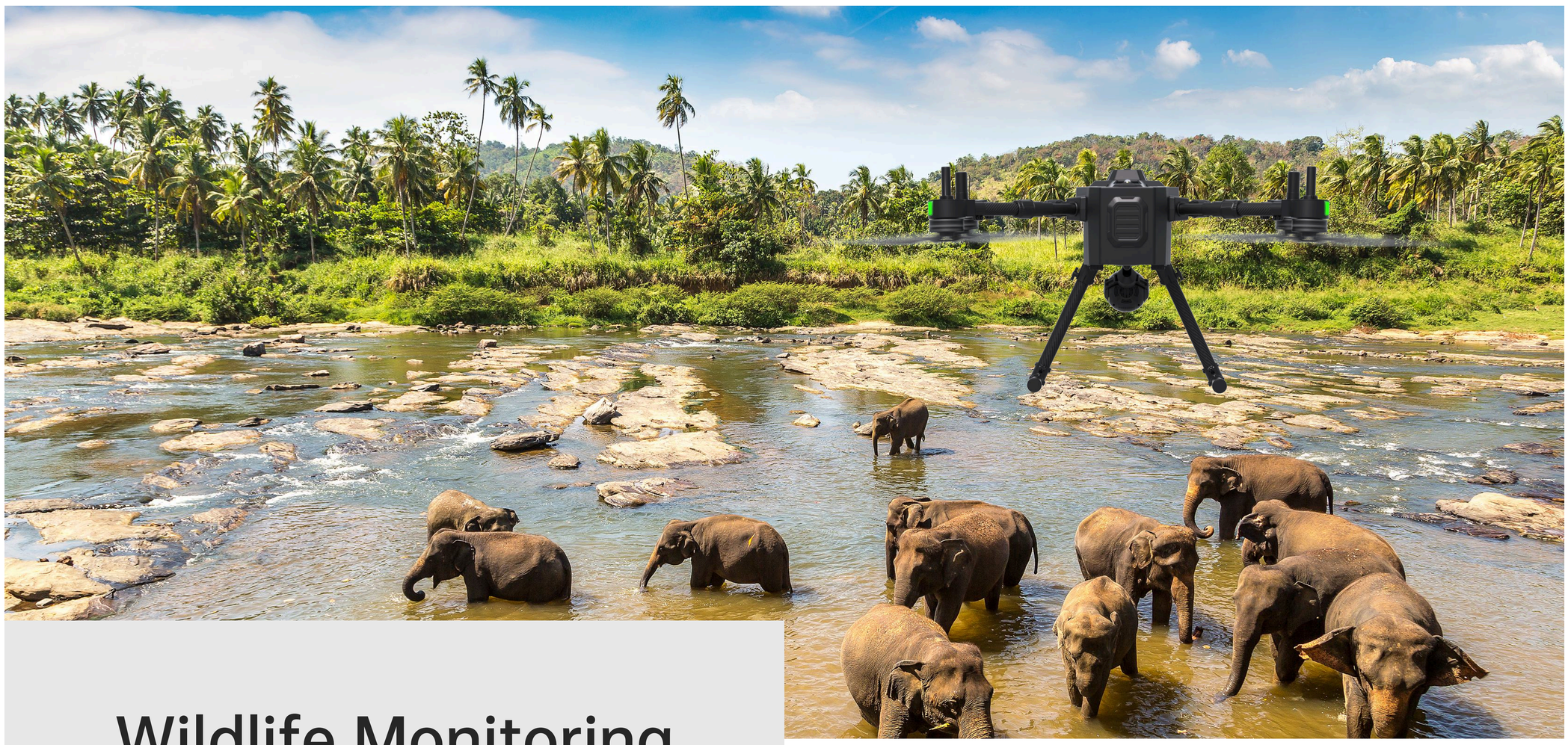


Wildlife Monitoring

Painpoints

1. Wildlife habitats are remote and rugged; field surveys are high-risk
2. Fixed cameras are inflexible, with limited coverage; hard to track migrations or group activity
3. Canopy and low light hinder visible-light observation; hidden animals are easily missed
4. Wildlife alertness can be disturbed by humans or equipment, affecting data accuracy

Solutions

1. UniDrone E900 enables aerial surveys, reducing personnel risk
2. Fast flight above canopy (cruise 8–12 m/s, max 20 m/s) with wide-angle and zoom cameras provides full-area coverage, tracking animal numbers and activity efficiently
3. Infrared + visible dual-view penetrates canopy and low-light areas, detecting hidden animals day and night
4. High-definition zoom optical pod captures detailed behavior from a safe distance
5. 35 km transmission with 4K real-time video and dual-antenna RTK allows precise mapping of habitats and migration paths

Law Enforcement Patrol

Painpoints

1. Large forest coverage with dense obstacles limits manual patrol efficiency and increases safety risks
2. Complex terrain prevents personnel from reaching incidents quickly
3. Satellite imagery has low timeliness and high cost, unsuitable for routine inspections

Solutions

1. Supports 35 km patrol radius; equipped with UniPod MT11 for high-altitude visible and infrared multi-angle inspection; 165× zoom allows close and distant observation with full coverage, enabling rapid detection of violations, real-time location tracking, 8K photos, and 4K video documentation; integrated loudspeaker allows immediate on-site guidance or warnings
2. UniGCS enables pre-planned routes and one-click automated patrols; multiple consecutive sorties can be completed in a single day, covering far greater areas than manual inspections

Pest & Disease Monitoring

Painpoints

1. Large forest areas make manual inspections inefficient; dense forests and steep slopes are hard to access, causing potential oversight
2. Traditional pest monitoring methods are slow and reactive

Solutions

1. High-altitude wide-angle and zoom multi-view observation allows detailed inspection without approaching targets, overcoming complex terrain and improving efficiency
2. Suspected affected trees can be identified remotely; equipped with UniPod MT11, drones capture 8K photos and record coordinates, enabling rangers to verify and remove infected trees on-site

01
Pre-Flight Check & Setup

Power on the remote controller, install the drone battery, and configure the payload via UniGCS APP

02
Inspection Flight Planning

Set waypoints and search radius based on historical fire points and high-risk areas to define forest inspection routes

03
One-Tap Takeoff

Power on the drone and take off with one tap, quickly reaching the inspection area

04
Fire Detection & Dual-View Capture

Enable optical pod thermal imaging and visible light zoom to identify temperature anomalies and lock precise fire coordinates

05
Real-Time Fire Reporting & Response

Stream high-definition images and coordinates in real time to monitor fire location, spread, and trigger emergency response

06
Automated Patrol & One-Click Landing

After inspection, the drone returns automatically; export and archive inspection data

Pre-Flight Inspection

Step 1

Arrive on site, deploy the UniDrone E900, unfold and lock the arms, and deploy the propellers.

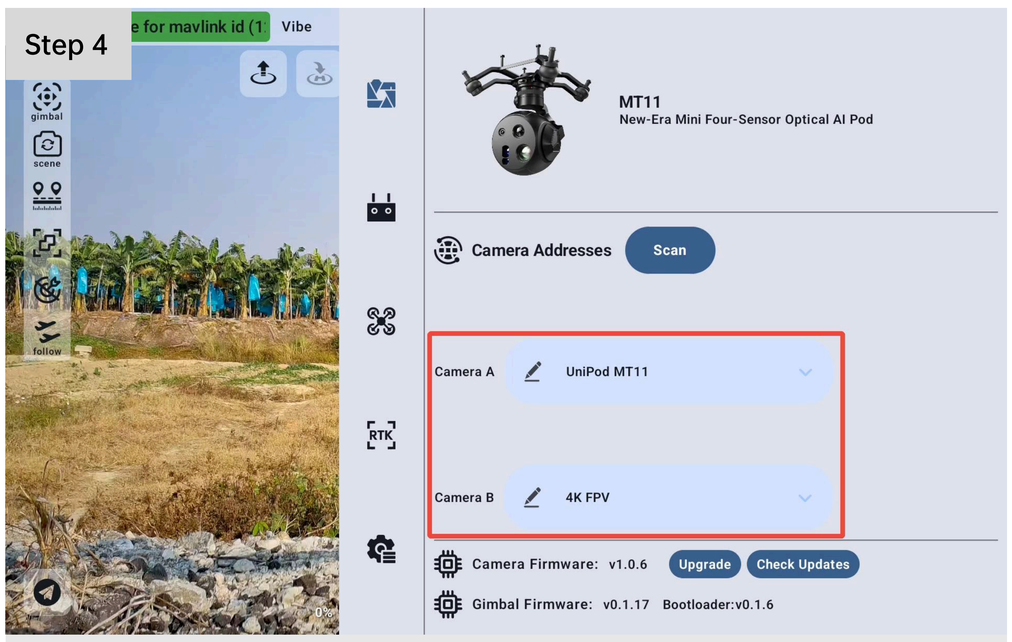
Step 2

Power on the remote controller: short press, then long press 2 s.

Step 3

Install the drone battery and power on the drone: short press, then long press 2 s.

Step 4

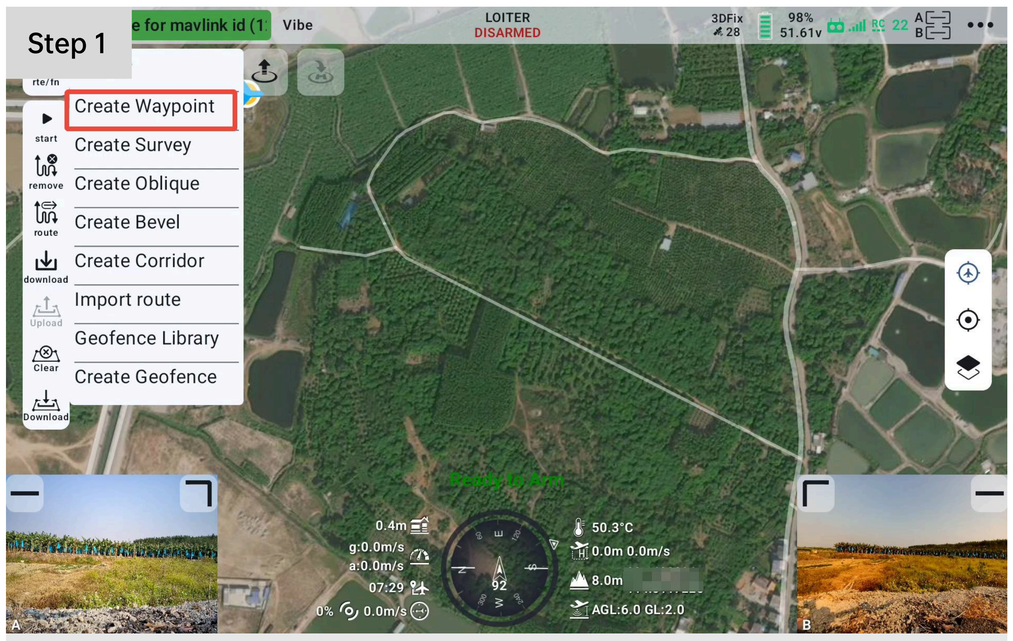


Open the UniGCS APP: select Camera A as “UniPod MT11” and Camera B as “4K FPV”.

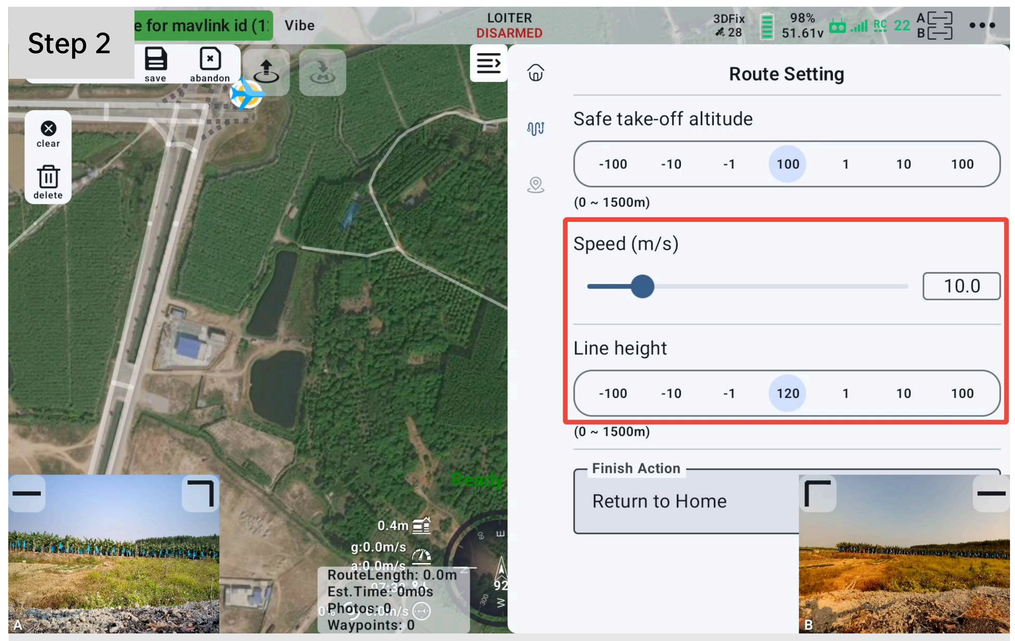
Step 5

Complete the pre-flight check, ensuring the area is clear of people and vehicles.

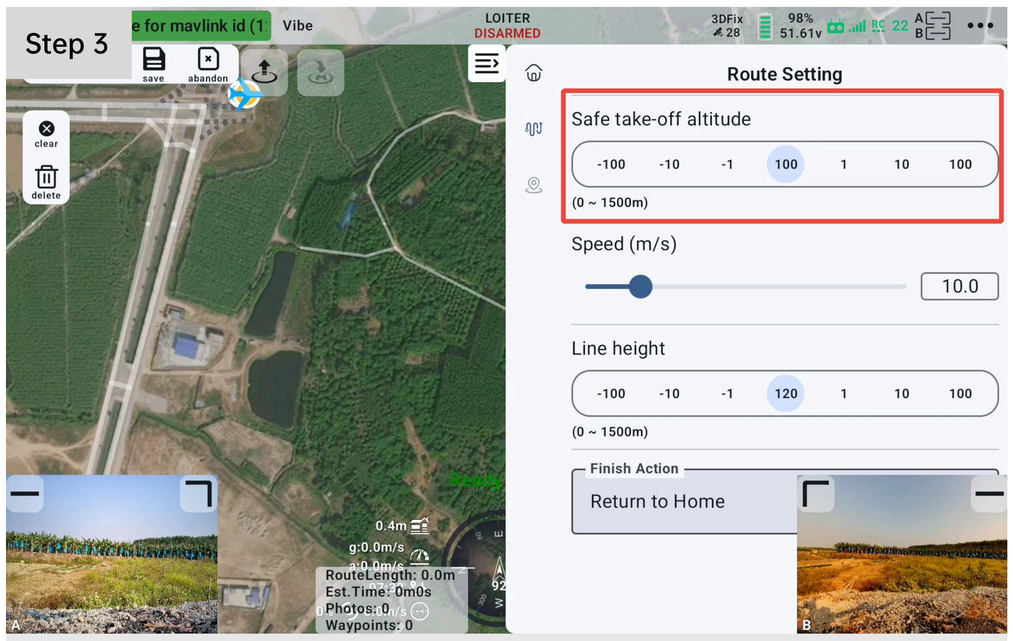
Inspection Flight Planning



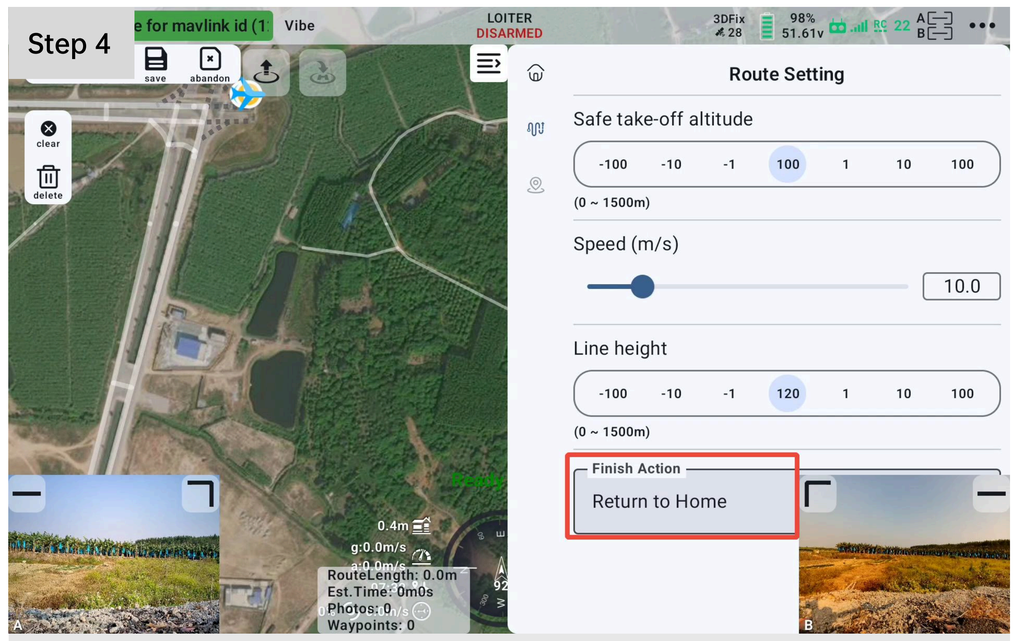
Click “Create Waypoint” and create a Waypoint Route.



Set “Speed” and “Line height” as required.

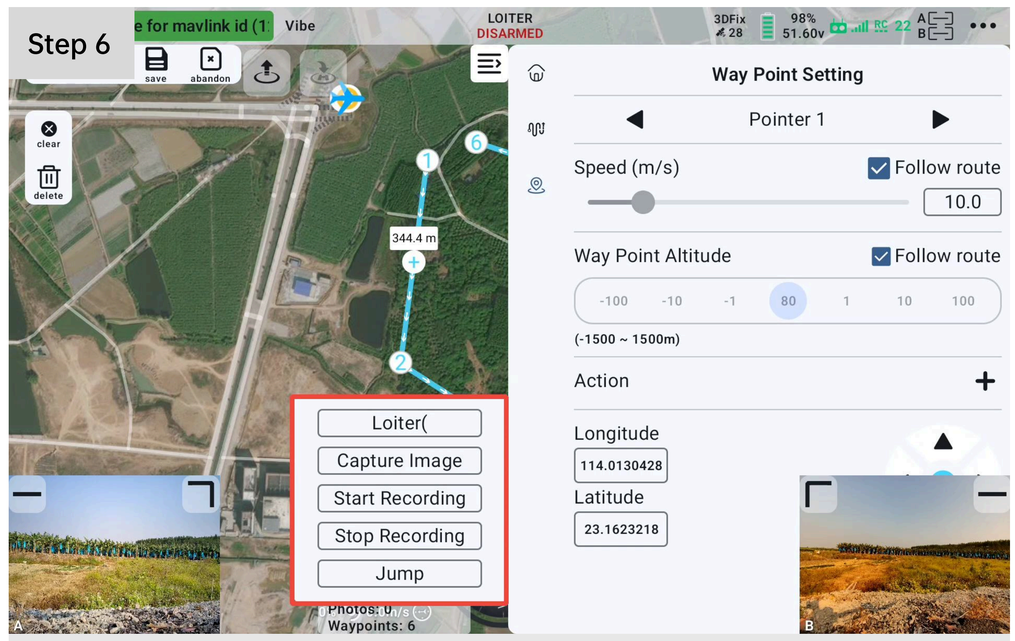


Configure “Safe take-off altitude”.



Set Finish Action to Return to Home (RTH).

Define the inspection area on the map.



Add required waypoint actions and save the flight path.

One-Tap Takeoff · Mission Execution

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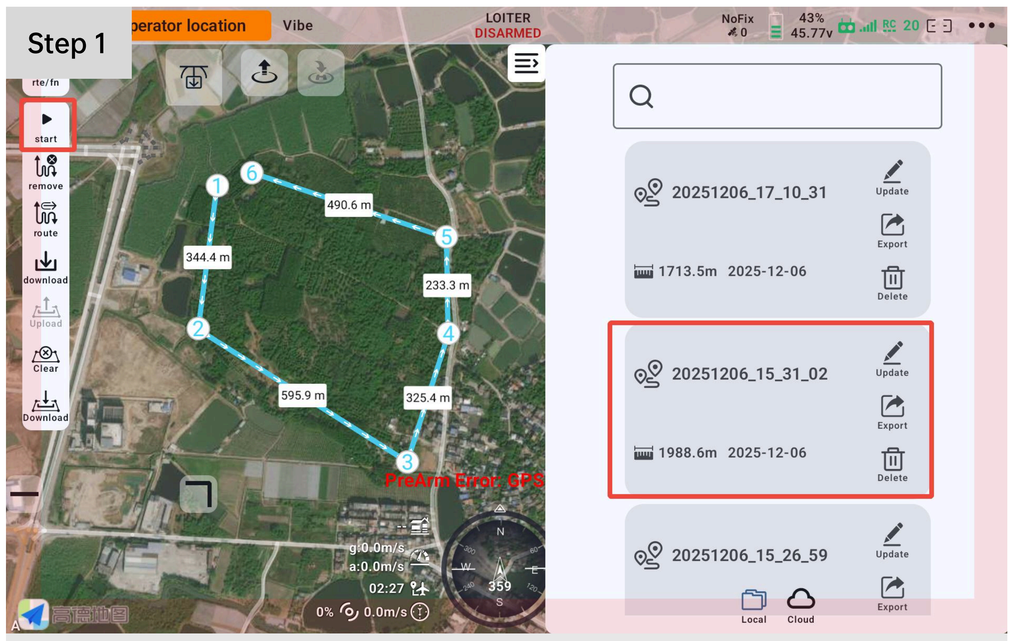
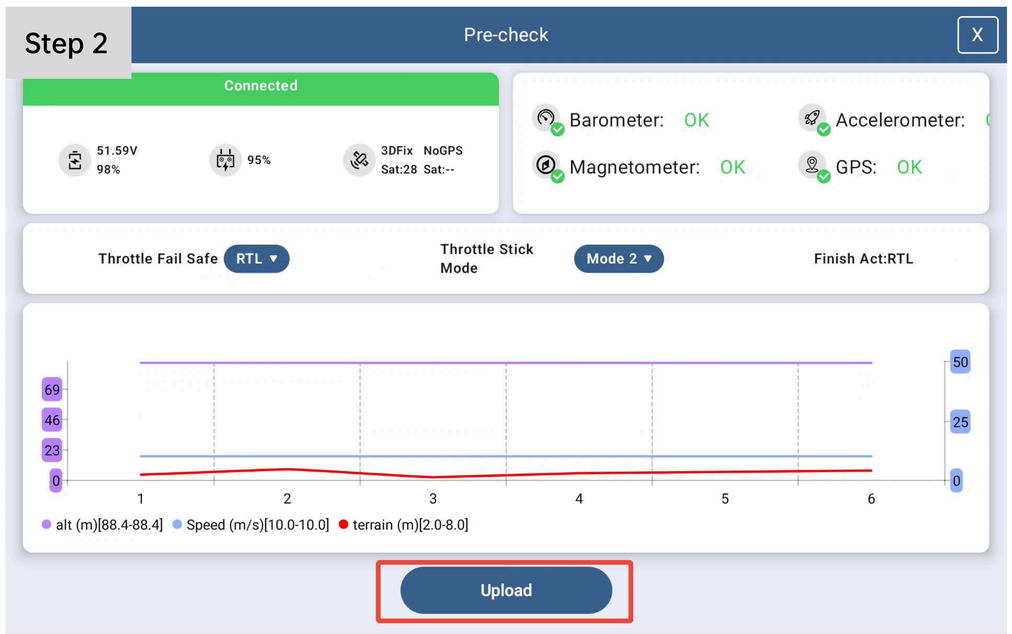


Select the required mission from the route library and tap Start to check mission parameters and drone status.



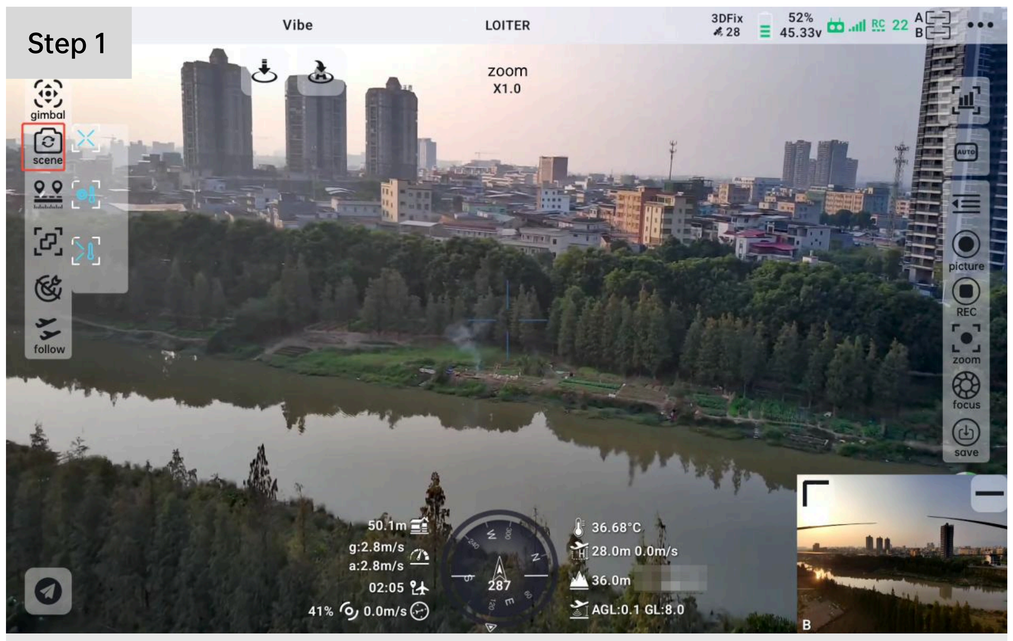
Upload the flight route.

Perform a final pre-takeoff check (arm locks, propellers, overall status).

Arm the drone and tap Start to launch the mission.

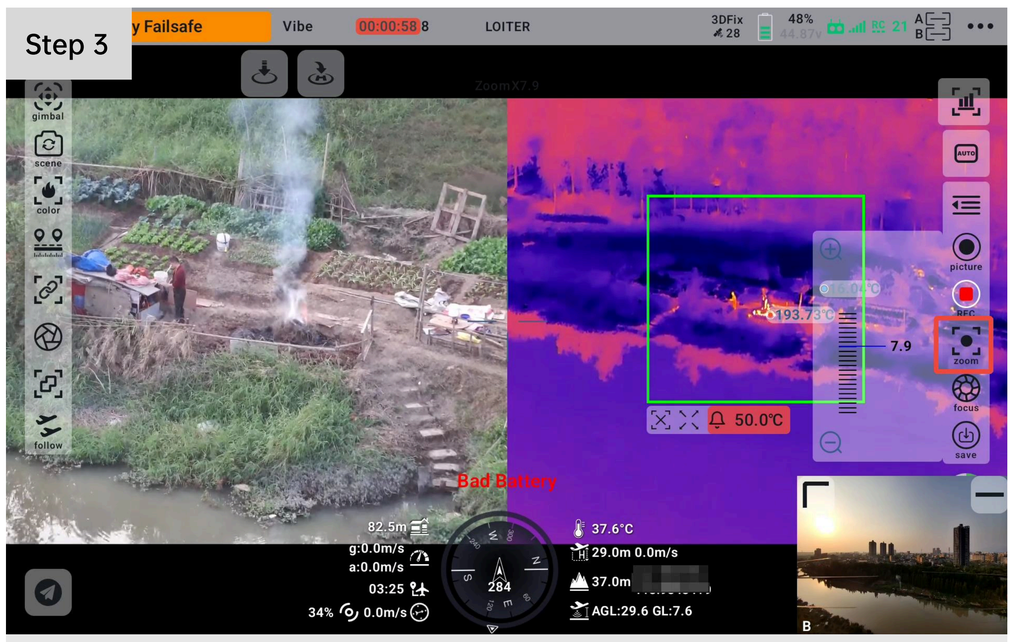
The drone takes off vertically to the preset safe altitude, then proceeds to the first waypoint to execute the task.

Fire Detection – Dual-View Capture



Tap "Camera" in the toolbar to switch between visible light, thermal, or dual-view.

During routine patrols, use dual-view: visible light for real-time situational awareness, thermal for precise hot-spot detection.



Zoom in to inspect anomalies clearly.

Select an area in the thermal view for localized temperature measurement; the display shows current max and min temperatures. Enable global temperature scanning to search for heat sources; set alarm thresholds to receive alerts for high-temperature points.

	No.	Name	Optional Components
Solution B	1	Drone Platform	UniDrone E900 Industrial Drone
	2	Gimbal Camera	Reebot UniPod MT11 Mini Quad-Sensor AI Optical Pod
	3	Other Payload	Multi-Function Module (Loudspeaker + Red/Blue Beacons + Spotlight)
	4	Software	UniGCS

	No.	Name	Optional Components
Solution B	1	Drone Platform	UniDrone E900 Industrial Drone
	2	Gimbal Camera	SIYI ZR30 Optical Pod (30x Optical Zoom)
	3	Other Payload	Multi-Function Module (Loudspeaker + Red/Blue Beacons + Spotlight)
	4	Software	UniGCS

	No.	Name	Optional Components
Solution C	1	Drone Platform	UniDrone E900 Industrial Drone
	2	Gimbal Camera	SIYI ZR10 Optical Pod (10x Optical Zoom)
	3	Other Payload	Loudspeaker
	4	Software	UniGCS

UniDrone E900
Industrial-grade
Drone Platform

Purchase Index

Name	Parameter	Name	Parameter
Wheelbase	900 mm	Payload Capacity	10.5 kg (maximum takeoff weight) 2.1 kg (maximum payload weight)
Tramsmission Range	35 km	Positioning and Orientation Accuracy	RTK Centimeter-level Precision
FPV Mode	Pitch Follow Mode + FPV Mode	Frequency	2.4G & 5G
Ground Station Display	7 inch 1080P	AI Function	Any Object Recognition AI Tracking Smart Flight Follow
Max Horizontal Flight Speed	20 m/s	Battery Type	Smart Battery Softpack Battery
Max Flight Altitude	5000 m	Maximum Wind Resistance Speed	11.5 m/s
Flight Time	55 min (no payload) / 43 min (full payload) / 50 min (搭载 UniPod MT11)		
Aircraft Dimensions	Full Dimensions (Unfolded): L738 x W673 x H425 mm Folded Dimensions: L428 x W412 x H425 mm		
Features	AI Tracking & Smart Flight Follow, Forward-facing LiDAR Obstacle Avoidance, 4K Ultra-wide FPV Camera, Dual-antenna centimeter-level positioning and orientation, Supporting third-party payloads, Dual IMU redundancy, FOC ESC, Auto RTH, Quick Release, Open Source Ardupilot...		

REEBOT UniPod MT11
Basic Mapping Camera

Purchase Index

Zoom Camera	Focal Distance: 15-50 mm (Effective focal distance: 81-270 mm) Image Sensor: 1/2" CMOS, effective resolution 48 MP FOV: 28.98°(D) 23.48(H) 17.81(V) Video Resolution: 3840 x 2160，2560 x 1440，1920 x 1080，1280 x 720 Photo Resolution: 3840 x 2160，8000 x 6000	**Quick-Release Structure**	Supported
		Controllable Yaw Angle	Pitch：-90° ~ 20°
		Laser Rangefinder	5-1200 m
		Video Output Interface	Ethernet Port
Infrared Camera	Focal Distance: 18 mm FOV: DFOV: 31° Digital Zoom: 8x Video Resolution: 640 x 512, 1280 x 1024@AI Photo Resolution: 640 x 512, 1280 x 1024@AI, 2560 x 2048@AI Wavelength: 8 ~ 14 μm Temperature Measurement Range: -20℃ ~ 60℃ ambient temperature Color Palette: 11 selectable palettes	**Control Signal Input Methods**	S.BUS, UART, Ethernet (TCP, UDP)
		Product Dimensions (With the Quick Release Anti-Vibration Board)	141.5 x 141.5 x 169 mm
		Product Weight (With the Quick Release Anti-Vibration Board)	533.5 g

SIYI ZR30 Optical Pod

Purchase Index

Zoom Camera	30X Optical Zoom (180X Hybrid Zoom) 4K 1/2.7-Inch CMOS 8 MP Effective Resolution	Quick-Release Structure	Supported
		Controllable Yaw Angle	-270° to +270°
		Video Output	Ethernet, Micro-HDMI
		Control Signal Input	S.Bus, UART, Ethernet UDP
		Product Dimensions (Including the Quick Release Anti-Vibration Board)	132 x 100 x 159 mm
		Product Weight (Including the Quick Release Anti-Vibration Board)	628 g

SIYI ZR10 Optical Pod

Purchase Index

Zoom Camera	10X Optical Zoom (30X Hybrid Zoom) 2K 1/2.7-Inch CMOS 4 MP Effective Resolution	Controllable Yaw Angle	-160° to +160°
		Video Output	Ethernet
		Control Signal Input	S.Bus, UART, Network UDP
Product Weight	381g	Product Dimensions	121 x 101 x 78 mm

VT100R Drone Loudspeaker

Dimensions	125*135*145mm	**Sound Pressure Level**	130dB
Weight	430 g	**Supported Format**	MP3/WMA/FLAC/ AAC/WAV
Power	40 W	**Mode**	Real-time shouting, TTS, Recording, Warning
Control Interface	Network port	**TTS**	Male voice, Female voice, Speech rate, Intonation, Cycle
Operating Voltage	12 - 24 V	**Pitch Adjustment**	90°
Sound Projection Distance	500 m	**Operating Temperature**	-20℃ to 60℃

Multi-Function Module (Loudspeaker + Red/Blue Beacons + Spotlight)

Dimensions	200 x 155 x 132 mm (±2 mm)	**Sound Projection Distance**	500 m
Weight	970g (±10g)	**Max Sound Transmission Distance**	800 m
Operating Voltage	12-48 V	**Max Brightness**	3000 lm
Red & Blue Indicator Light Mode	16 Operating Modes	**Loudspeaker Angle**	0 - 90°
Operating Temperature	-10℃ ~ 40℃	**Spotlight Angle**	+30° to 70°
Sound Pressure Level	130 dB	**Light Beam Angle**	15°
Supported Format	MP3/Wav/Flac/AAC		
Power	Total≤58 W, Light: 25 W, oudspeaker: 30 W, Red/Blue Beacons: 3 W		
Function	Real-time Talk, Recording Upload, Audio File Playback, Text-to-Speech (TTS), One-touch Brightness Adjustment, Strobe Lighting, Red & Blue Strobe, Red & Blue Mode Switching, Remote Audio Capture		

UniGCS Software

Product Introduction:

UniGCS is a professional software for drone pilots and missions. The abundant features of UniGCS such as intelligent route planning, low-latency HD video display, precise camera control, AI recognition and tracking, RC / autopilot configuration, etc. provides drone operators unparalleled efficiency and intuitive operating experience.

Purchase Index

Empower Global Intelligent Robotics & Drone Industries

Business Area

Industrial-grade
Multirotor UAV Platform

Industrial-grade
VTOL Drone Platform

Support Third-party
Various Drone Payloads

Electric Inspection | Traffic Inspection | Search & Rescue |
Surveying & Mapping | River Inspection Oil, Gas, Pipelines and Mines Inspection |
Tethered | Security | Firefighting

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