

REEBOT



UniDrone E900 Traffic Inspection Application Manual

Patrol an area and respond quickly

Reebot Robotics
JUN, 2025

CONTENT

01

Product Solution

- 1. Applications P1
- 2. Product Solution P2

02

Applications

- 1. Highway Inspection P3
- 2. Road Maintenance P4
- 3. Public Safety P5
- 4. Traffic Law Enforcement P6
- 5. Traffic Dispatching P6

03

Operation Guideline

- 1. Installation - VT100R P7
- 2. Installation - YA-4 P8 - P9
- 3. Standard Operation P10 - P17

04

Purchase Index

- Parameters & Purchase Index P18 - P21

05

About us

- About Reebot Robotics P22



Highway Inspection

Real-time dispatching, Quickly response.



Road Maintenance

Quickly identify the road disease and extend the service life of roads.



Public Safety

Auto-operation along the route, identifying the illegal actions and shouting for persuasion.



Traffic Law Enforcement

Arrive at the scene quickly, take photos for filling, and transmit the information back in real time.



Traffic Dispatching

Carry out traffic guidance during the traffic flow peak hours.



No.	Name	Optional Components	
1	Drone Platform	UniDrone E900 Industrial-grade Drone Platform	
2	Installation Component (Optional)	VT100R: UniDrone E900 Dual Gimbal Mounting Component	YA-4: Gimbal Mounting Component
3	Installation Component	ZT30 Vibration-damping & Quick-release Component	
4	Gimbal Camera	ZR30 Optical Pod, ZR10 Optical Pod	
5	Drone Loudspeaker	VT100R Loudspeaker, YA-4 All-in-one Device	





Highway Inspection

Painpoints

1. Manual inspection poses a **high safety risk** and is subject to **significant limitations** in highway inspection because driving on the highway is dangerous and it's impossible to stop at any time.
2. The routes are **complex and time-consuming**, and the workload of inspection is **enormous**.
3. Because of the **low-efficiency** of manual inspection, it is difficult to deploy police forces in real time according to the changes in the traffic flow at the toll stations, and it is also difficult to quickly respond and take photos for documentation when an accident happens.
4. Manual inspection has **blind spots** in the field of vision, and it is impossible to detect problems such as scouring of bridge foundations, small-scale landslides of slopes, honeycombed surfaces, and cracks on the surface of concrete.
5. In terms of issues such as **supervision of expressway construction**, **accident emergency response**, and **maintenance inspections**, manual inspection is complicated and cost too much.

Solutions

1. **Inspection from a high-altitude** with the drone, doesn't occupy the lanes, more convenient and safer.
2. **Quickly identify** road risks and illegal behaviors through the wide-angle / zoom camera, rapidly calculate the traffic flow and provide information for the police deployment.
3. Quickly respond when an accident happens, hover, **shout to calm the scene with the loudspeaker**, and take photos for documentation.
4. Set the flight route in advance with UniGCS and **operate automatically with just one click**.



Road Maintenance

Painpoints

1. If a bridge with a length of 700 meters and a height of 70 meters is manually inspected, operations at heights above 50 meters must be carried out by bridge inspection vehicles. For the inspection work, equipment needs to be set up, two lanes need to be closed, and it usually takes at least 4 days per inspection. This **affects traffic and incurs high costs**.
2. The inspector needs to walk or drive slowly in the emergency lane, with long-term exposure to traffic while working on the road. In dangerous areas such as tunnels and slopes, this poses **high safety risks**.
3. Manual inspection usually has an **over 30% missed inspection rate**, and in some complex terrains, it is difficult to identify hidden cracks, water seepage, and water accumulation points due to blind spots. It is also difficult to compare and predict the development of road diseases.
4. Usually need large-scale and long-term operations, **labor-intensive, and extremely high costs**.
5. Manual inspection has the problems of dense personnel deployment, subjective and crude inspection methods, scattered information, which makes it difficult to accumulate daily data for routine maintenance. **Difficult management and hard resource scheduling**.

Solutions

1. **Automated smart flight patrol**, set the inspection area and route in advance with UniGCS.
2. Routine patrol of road signs and markings, quickly **quick aerial patrol**, capture **HD videos & photos**, identify issues such as damaged warning pillars, blurred road signs and markings, culvert blockage.
3. **Road defect inspection**, with time-based analysis helping to identify defects.
4. Defect inspection in complex, hazardous, or hard-to-reach areas, such as **slope inspection**.
5. **Develop road maintenance plans** to improve resource efficiency.
6. **Preventive inspection in key periods or locations**, like pre-flood season and post-heavy rain.
7. **Maintenance operation supervision**, ensure the safety and track project progress.
8. **Emergency response** when an accident occurs.



Public Safety

Painpoints

1. The inspection route is too long and leads to [high work intensity](#).
2. Problems such as construction site dust and illegal buildings are widespread in urban areas, leading to an enormous workload and [low efficiency in urban management inspections](#).
3. The urban environment is [too complex to allow for a quick response](#) when an accident occurs, making it difficult to [obtain evidence](#) of illegal activities.

Solutions

1. [Inspect from a high altitude](#), quickly identify illegal behaviors, fly to the site, take photos for documentation, and announce through a loudspeaker to persuade.
2. Set the route in advance with UniGCS, and the drone will [operate automatically](#).



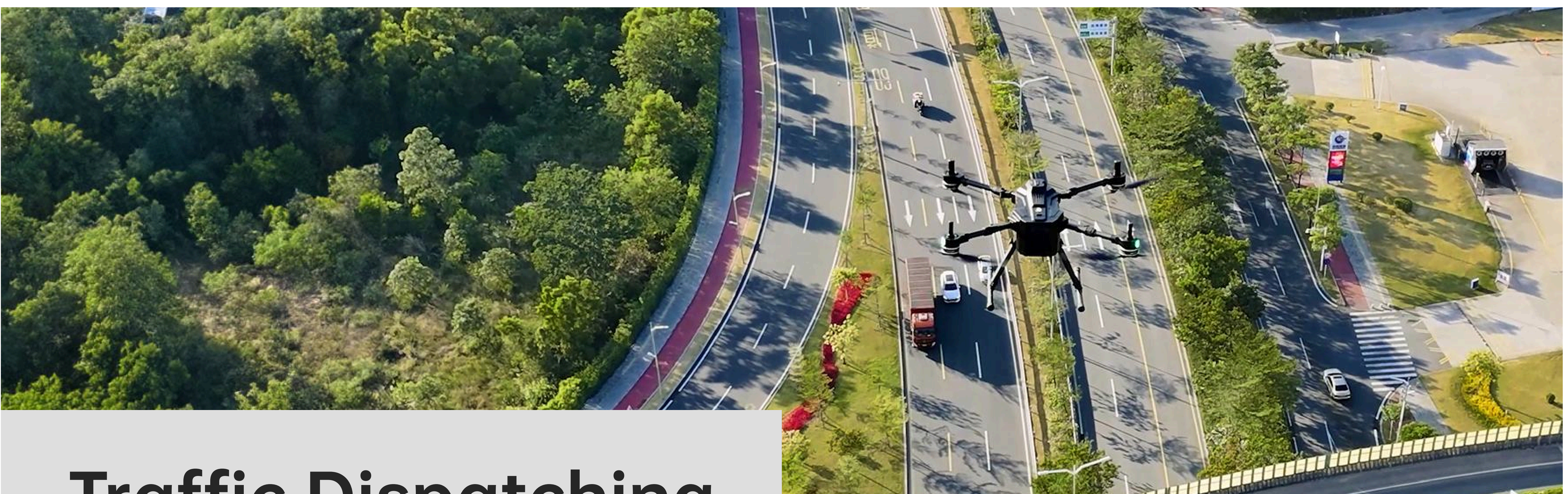
Traffic Law Enforcement

Painpoints

1. The complexity of the urban environment makes it difficult to respond quickly when an accident occurs, **making it hard to obtain evidence of illegal behaviors.**
2. **Problems** such as construction site dust and illegal buildings are **widespread in the urban area.**

Solutions

1. **Inspect from a high altitude**, quickly identify illegal behaviors, fly to the site, take photos for documentation, and use a loudspeaker to guide the scene.
2. Supports a **35 km transmission range** for real-time information transmission.



Traffic Dispatching

Painpoints

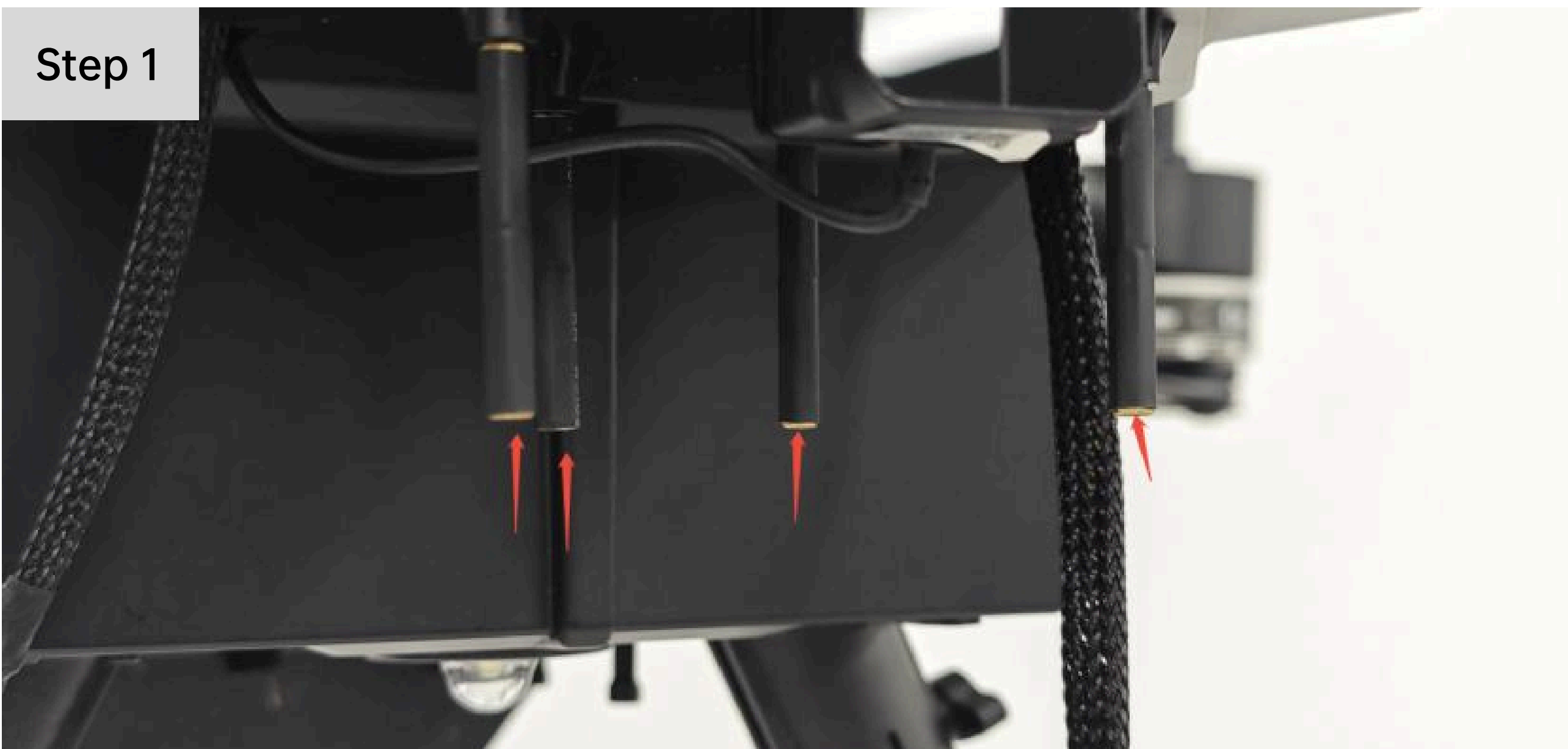
When traffic jams occur due to dense traffic flow during the morning and evening rush hours or an accident happens, the police often are unable to quickly respond to handle the situation at the scene, conduct traffic guidance and collect evidence.

Solutions

Quickly respond with a drone, take photos for documentation, announce to provide traffic guidance, and transmit the information back to the headquarters for dispatching police forces.

Hardware Installation

Step 1



Install the "M3X35+6" strut to the fixed gimbal point of the UniDrone E900.

Step 2



Install the ZT30 vibration-damping & quick-release component to the UniDrone E900 dual gimbal mounting component with "M3*6 screw".

Step 3



Fix the dual gimbal mounting component to the fuselage of the UniDrone E900 with the "M3*6 screw".

Step 4



Connect the power cable and the network port communication cable.

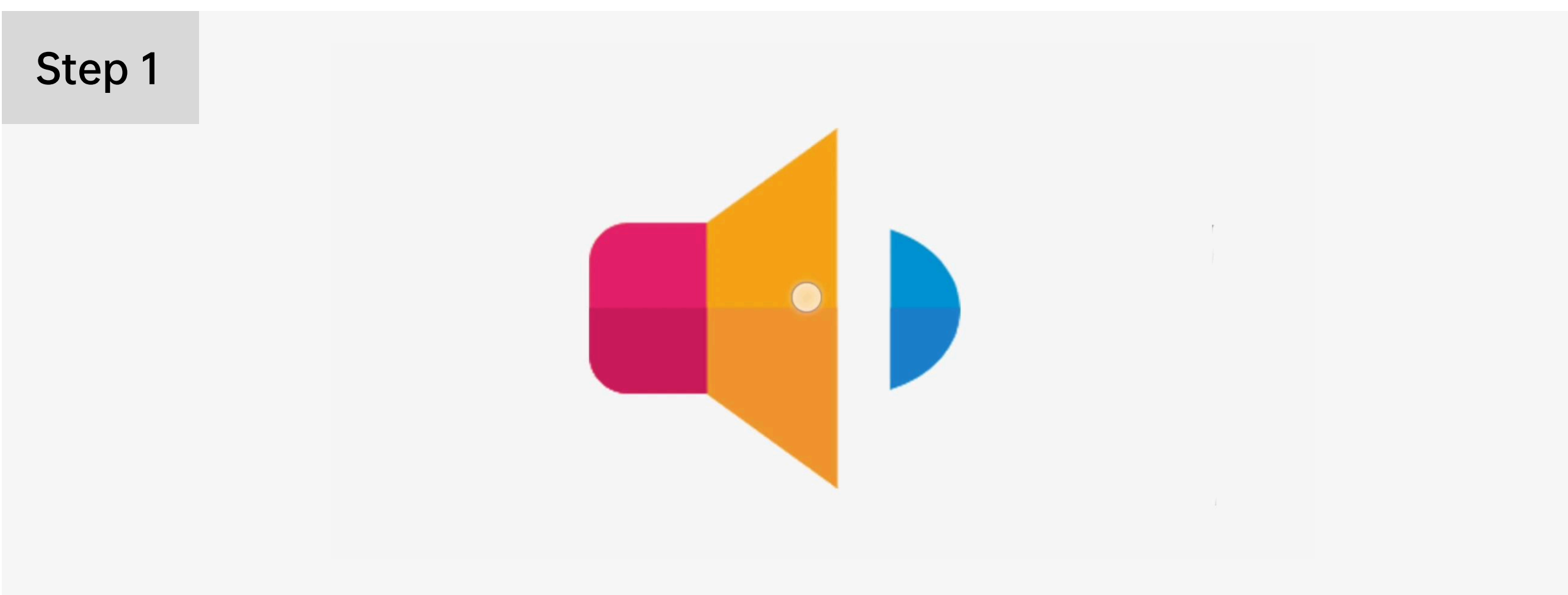
Step 5



Install the loudspeaker and the gimbal camera.

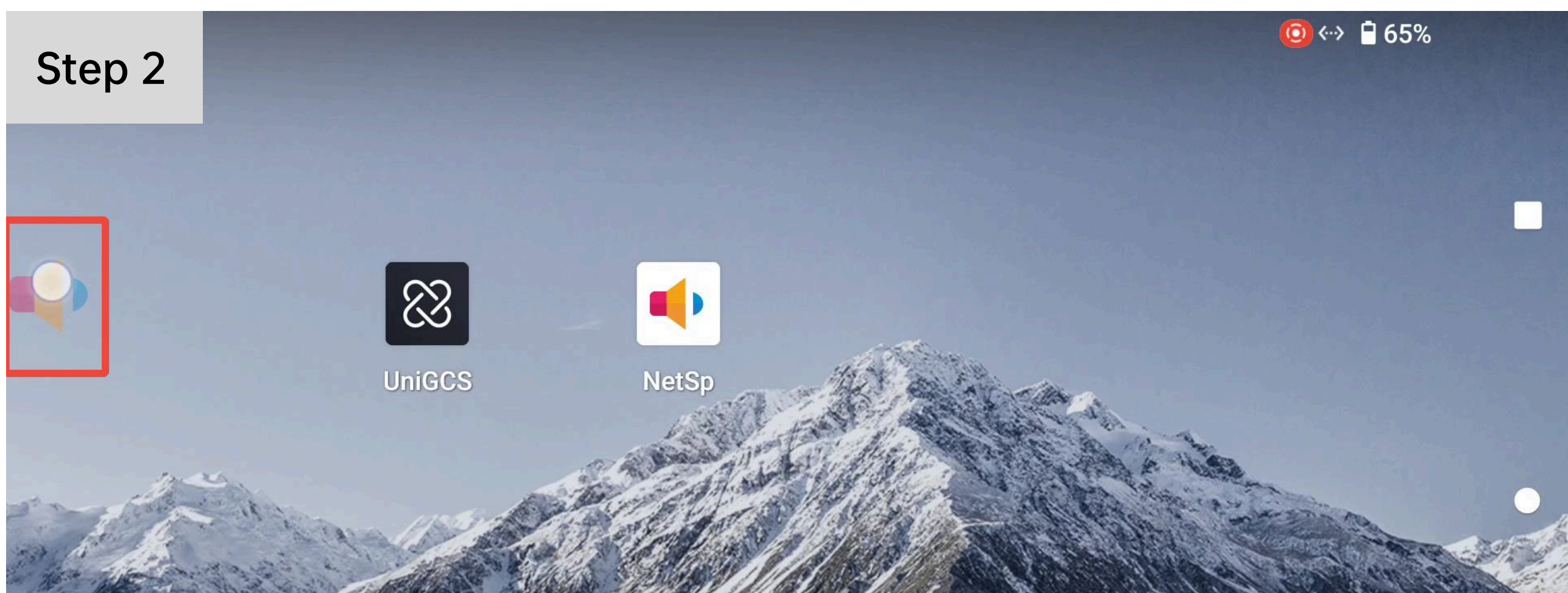
Software Installation

Step 1



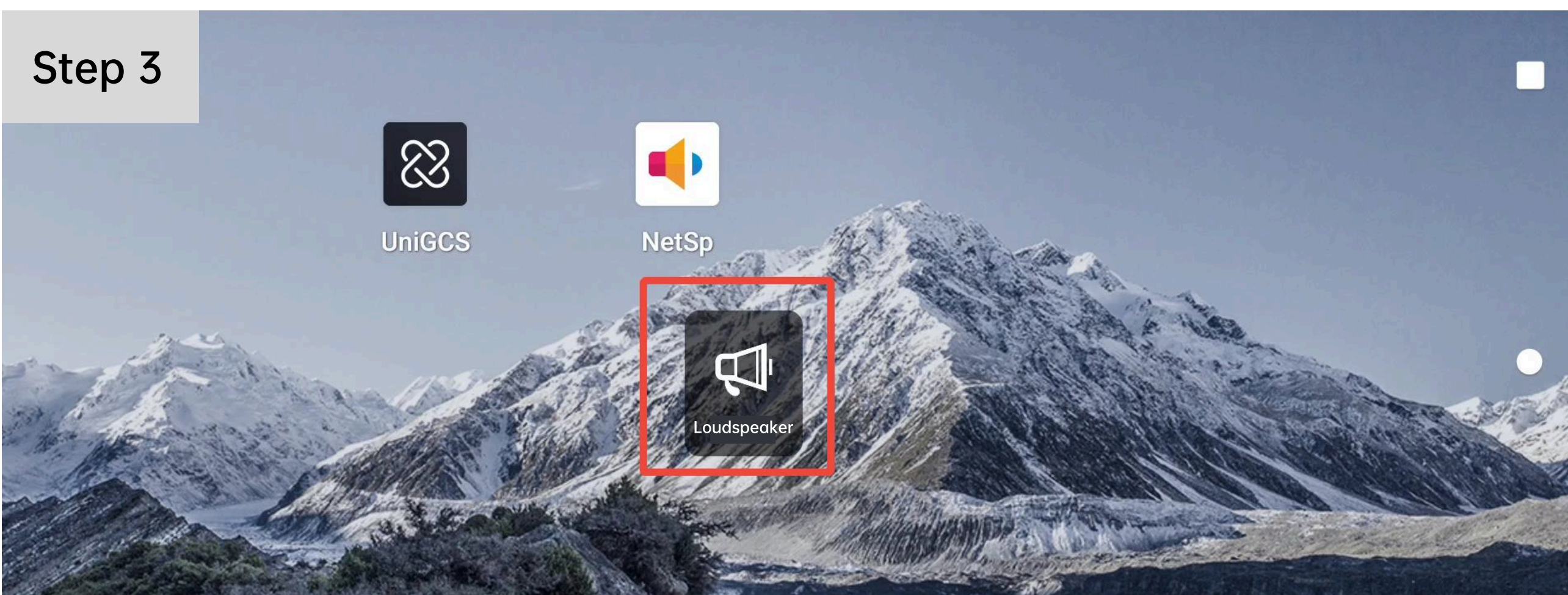
Install the "NetSp" App from the app store

Step 2



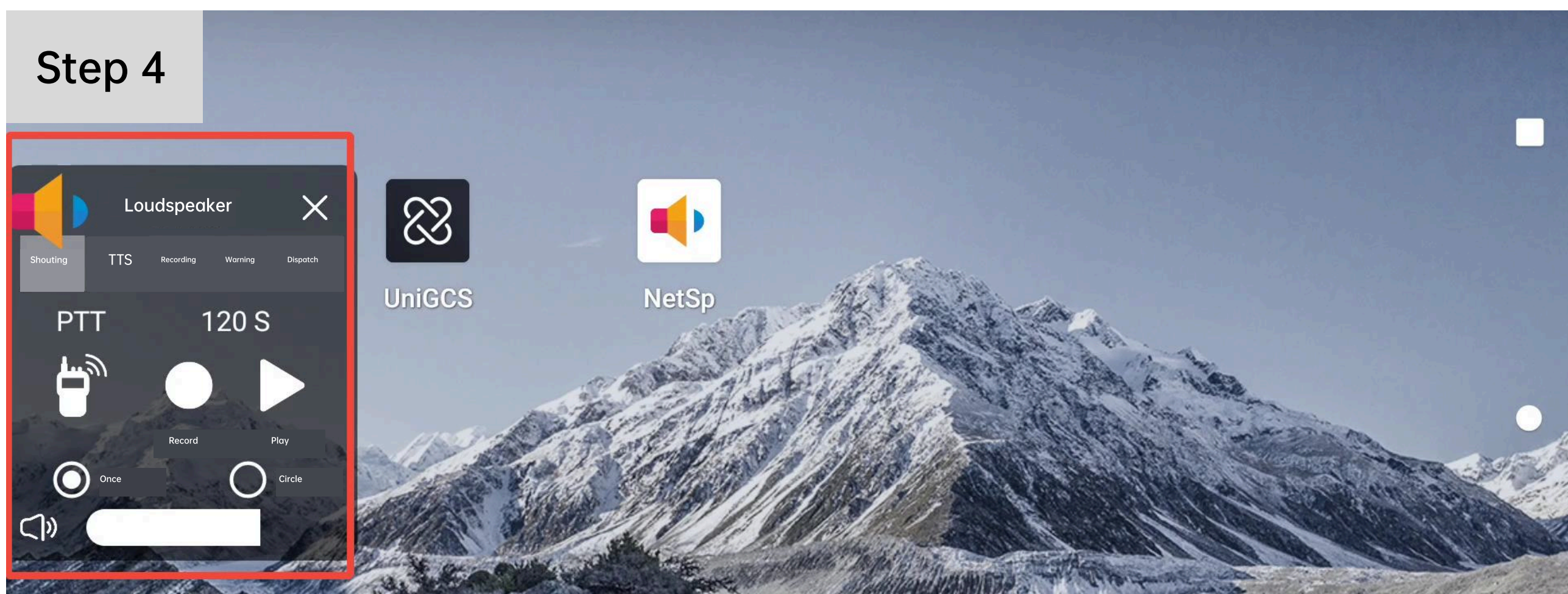
Open the App and click on the loudspeaker icon

Step 3



Click on the new icon

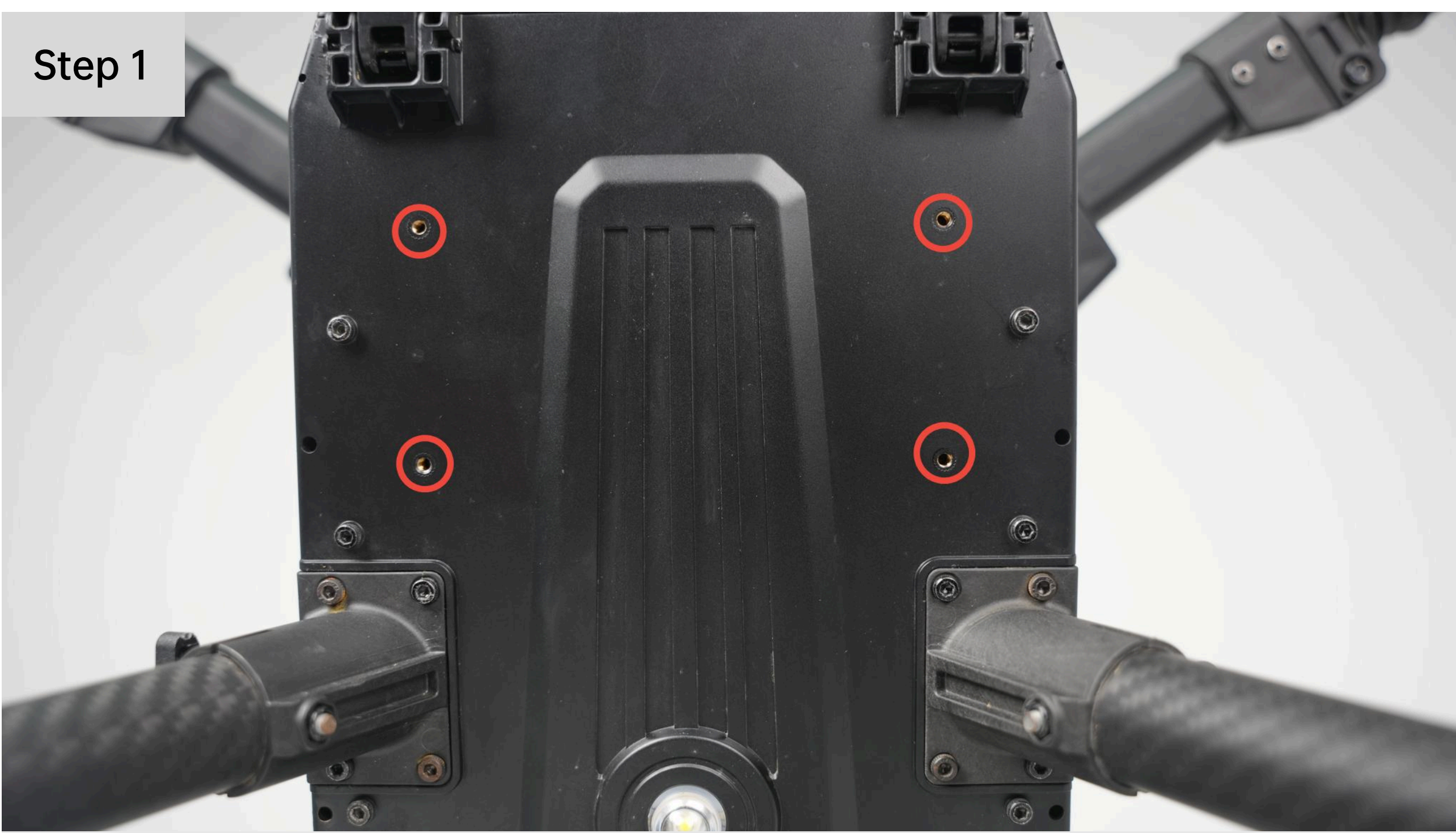
Step 4



Turn on the folating window of the function

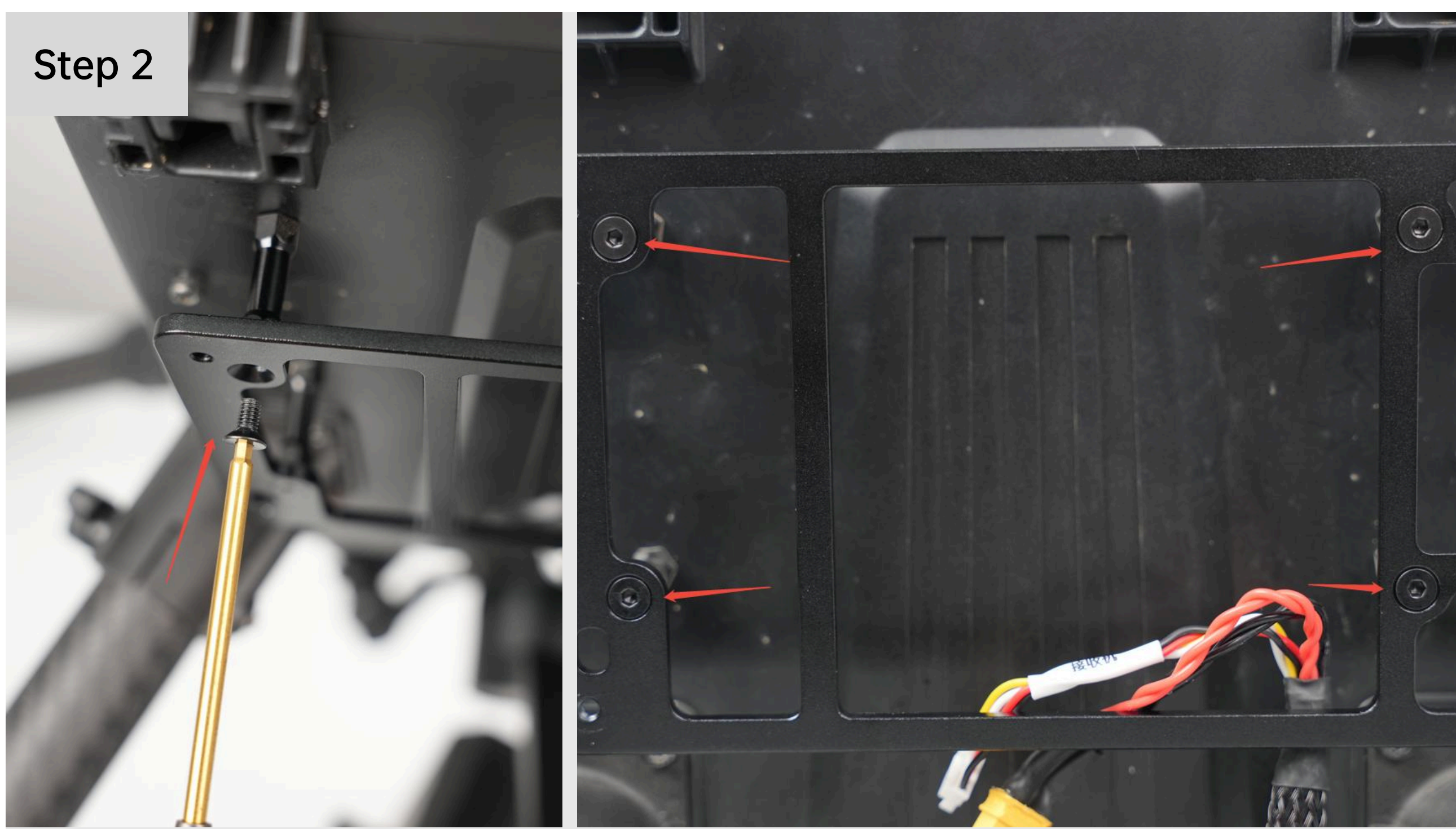
Hardware Installation

Step 1



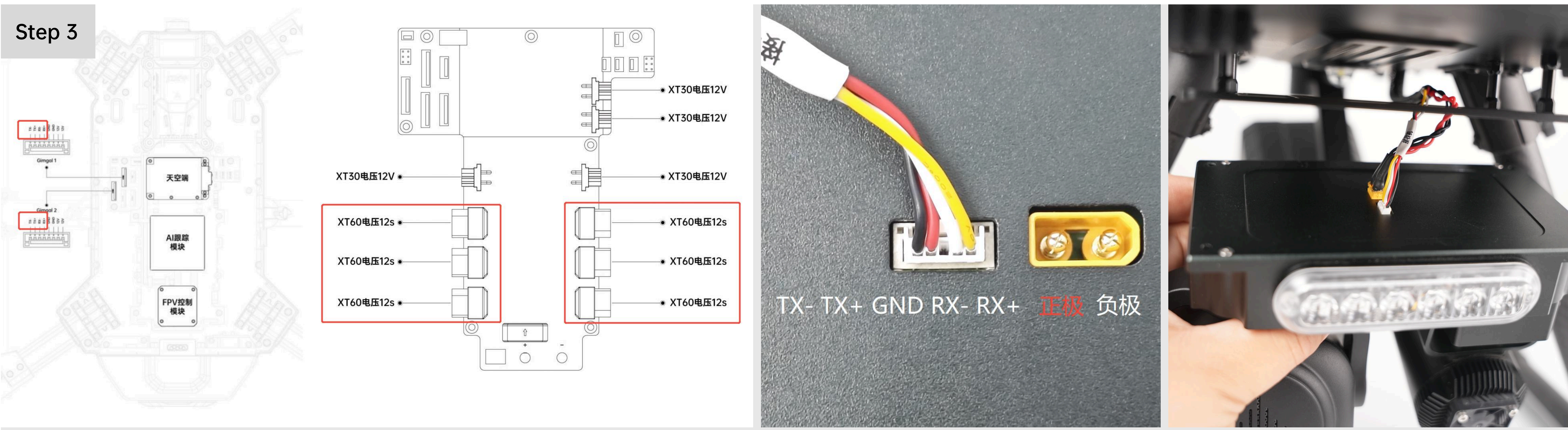
Fix the aluminum column under the fuselage of UniDrone E900.

Step 2



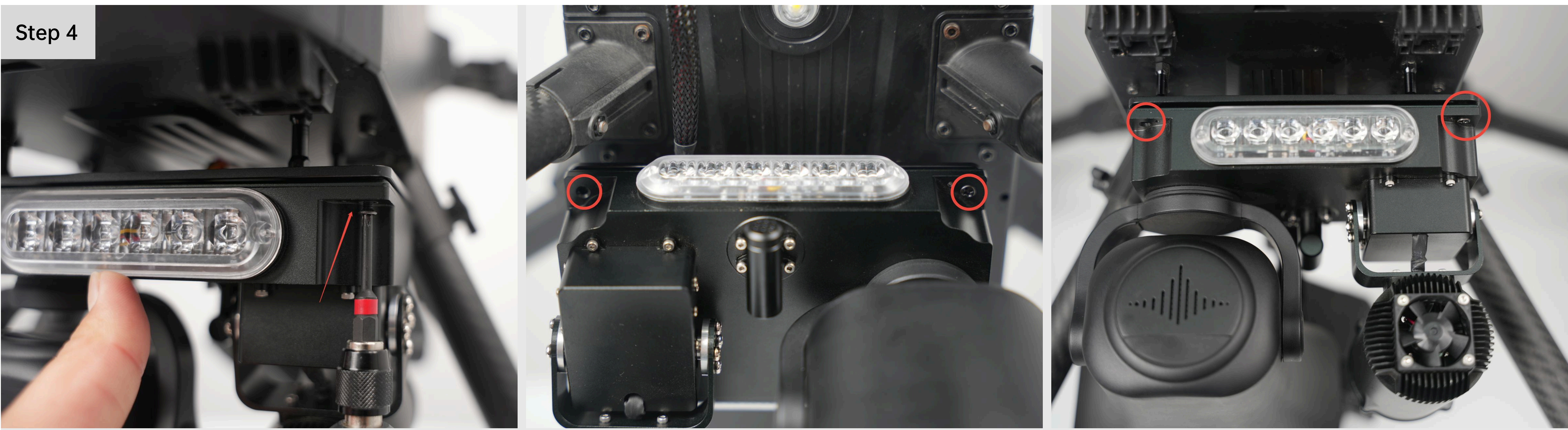
Fix the gimbal mounting component to the aluminum column with the "M3*6 screw".

Step 3



Connect the power cable and the network port communication cable.

Step 4



Fix the YA-4 All-in-one device to the gimbal mounting component with the "M3*10 screw", complete the installation and check the device.

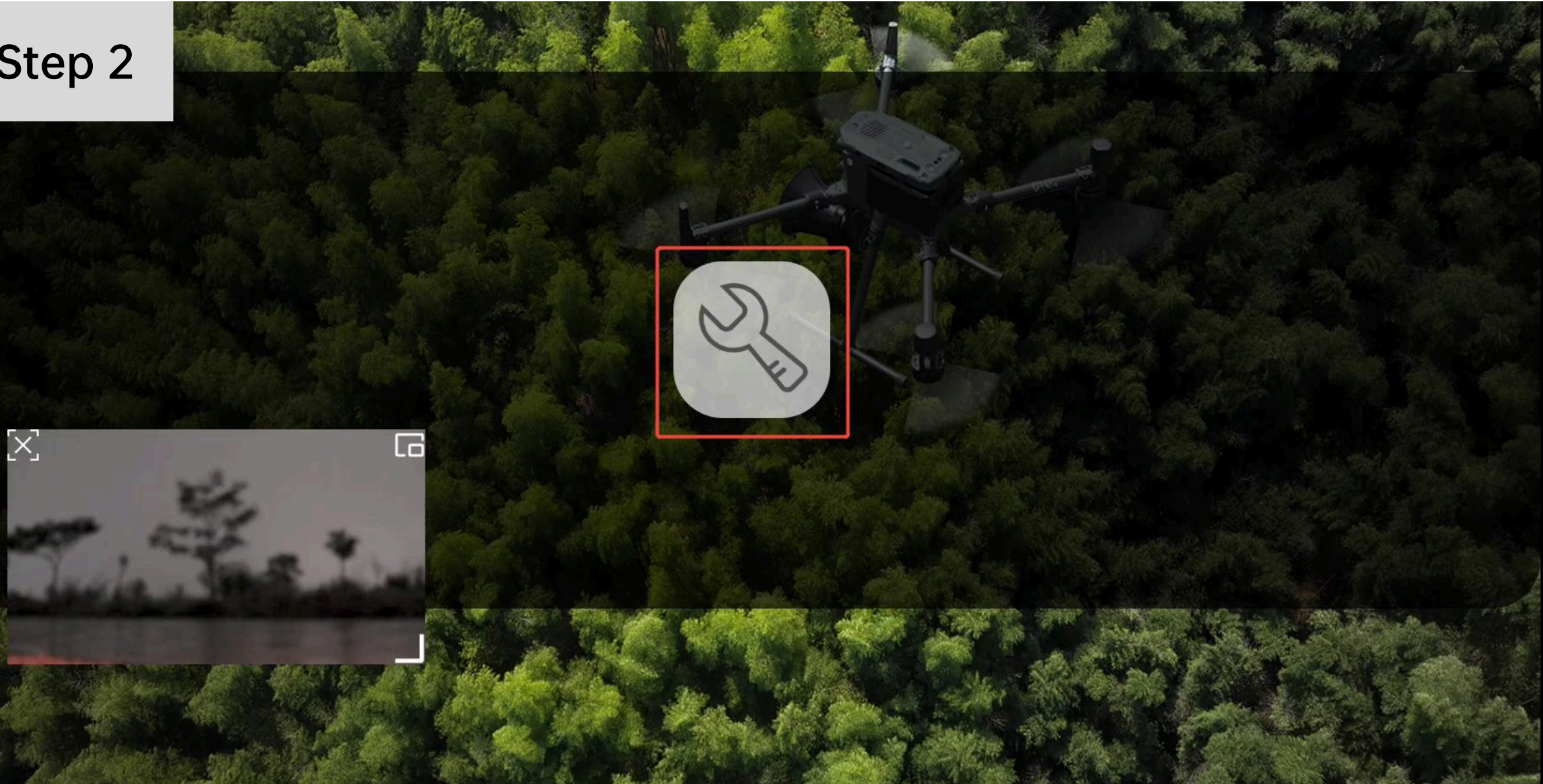
Hardware Installation

Step 1

The image shows a smartphone screen with a mountain background. A red box highlights the 'Smart Load' app icon, which features a drone and a gear. To its right is the 'UniGCS' icon. Further right is a large QR code. The status bar at the top shows 100% battery.

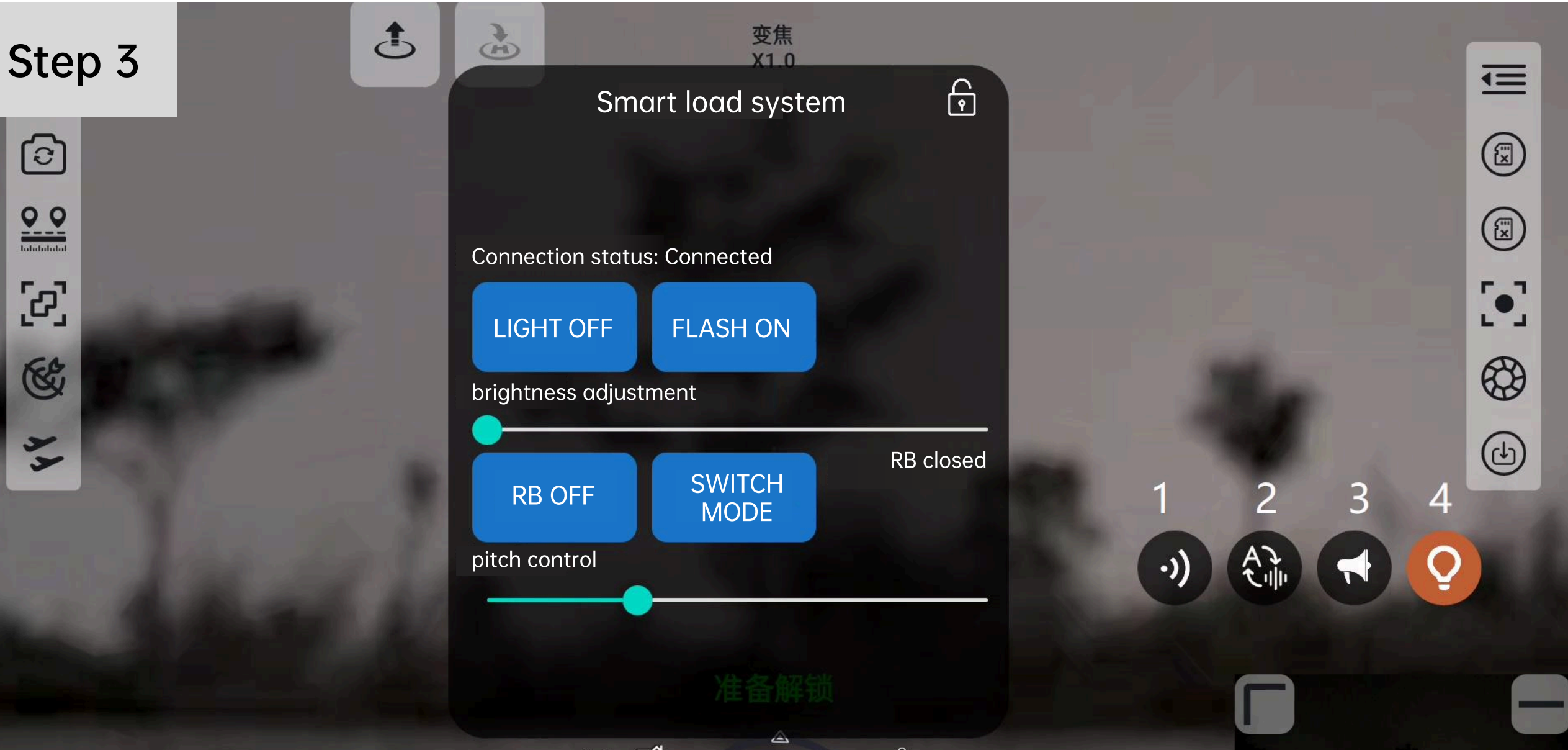
Scan the QR code and download the "Smart Load" App. Install the App on the UniRC 7.

Step 2

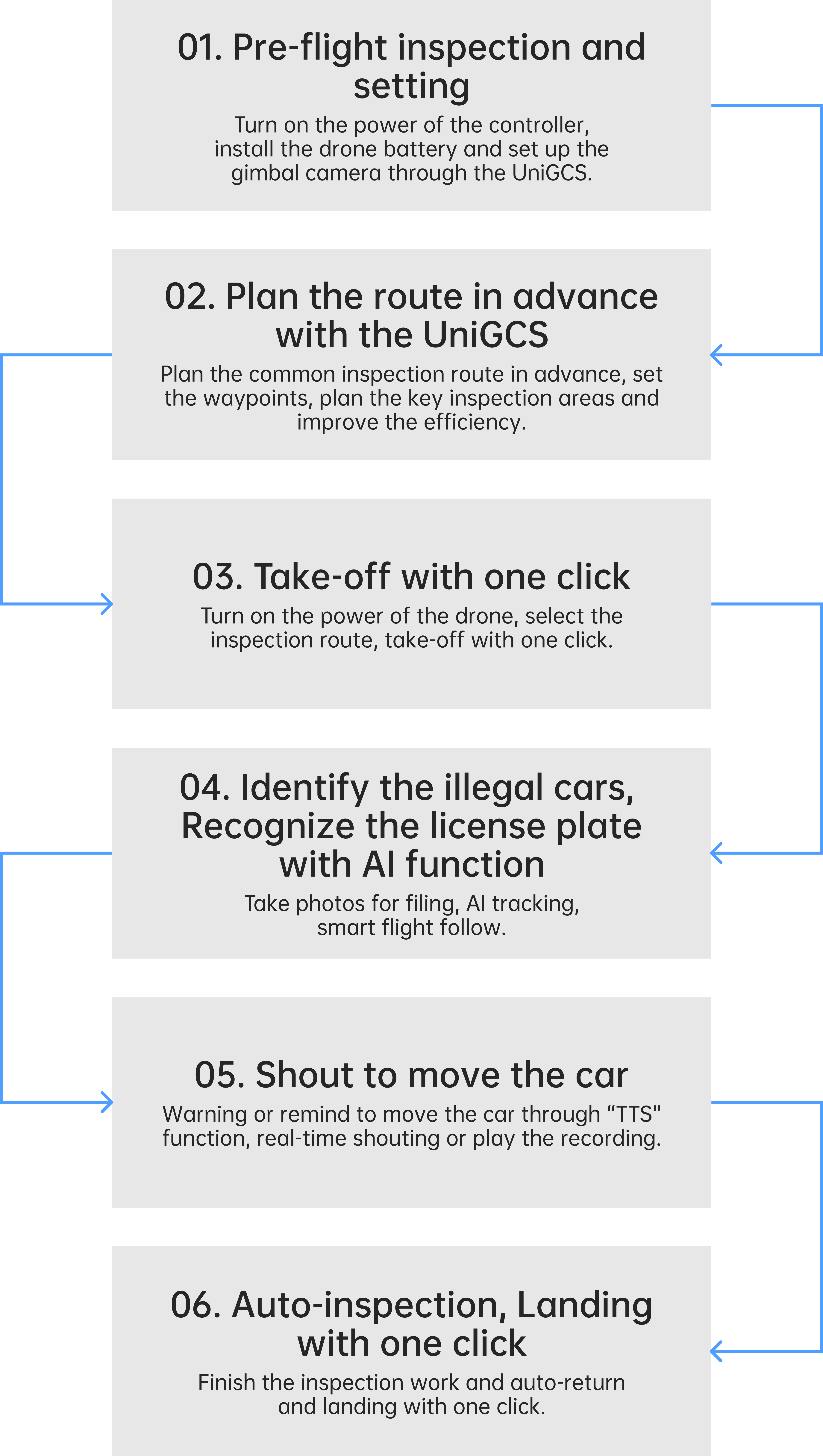
The image shows a drone flying over a forest. A red box highlights a 'Smart Load' app icon (a gear with a wrench) that is floating on the screen. A small inset shows a close-up of the icon.

Open the App and tap the icon to enable the floating function bar.

Step 3

The image shows the 'Smart load system' control interface on a smartphone. It includes buttons for 'LIGHT OFF', 'FLASH ON', 'RB OFF', and 'SWITCH MODE'. There are also sliders for 'brightness adjustment' and 'pitch control'. The status 'Connection status: Connected' and 'RB closed' are displayed. At the bottom, there is a green button labeled '准备解锁' (Ready to unlock).

Turn on the floating function bar of the YA-4 All-in-one device.



Pre-flight inspection

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Step 1

Arrive at the work site and take out the UniDrone E900.



Step 2

Press the power button briefly once, and then press and hold it for 2 seconds to turn on the power of the controller.



Step 3

Install the battery and lock the battery latch. Press the power button briefly once, and then press and hold it for 2 seconds to turn on the power of the drone.



Step 4

Open the UniGCS APP, set Camera A to "SIYI AI", and set Camera B to "4K FPV (PRO)"



Step 5

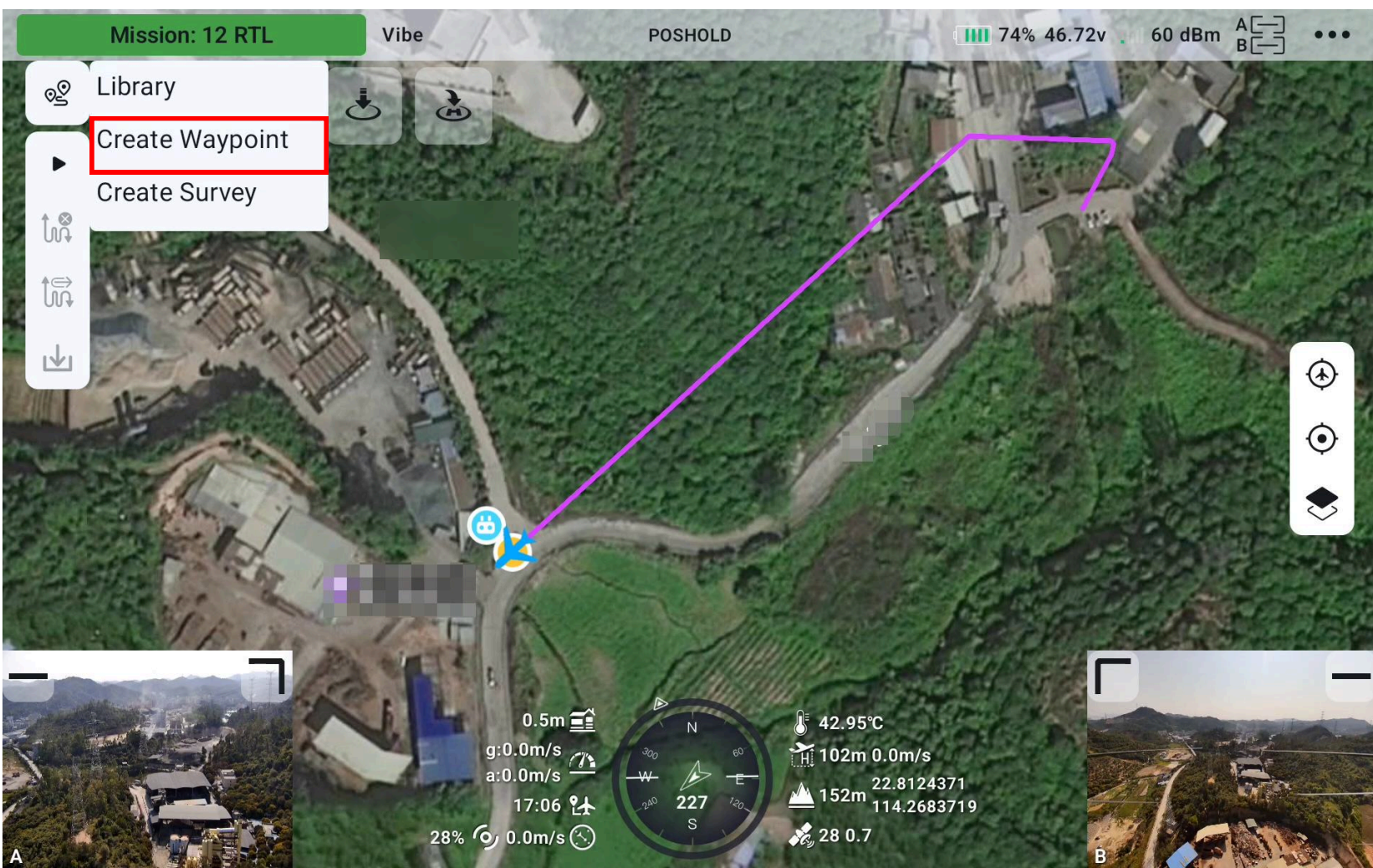
Complete the "pre-flight inspection" before taking off. Make sure that there are no human or vehicles around, and then unlock and take off the drone.



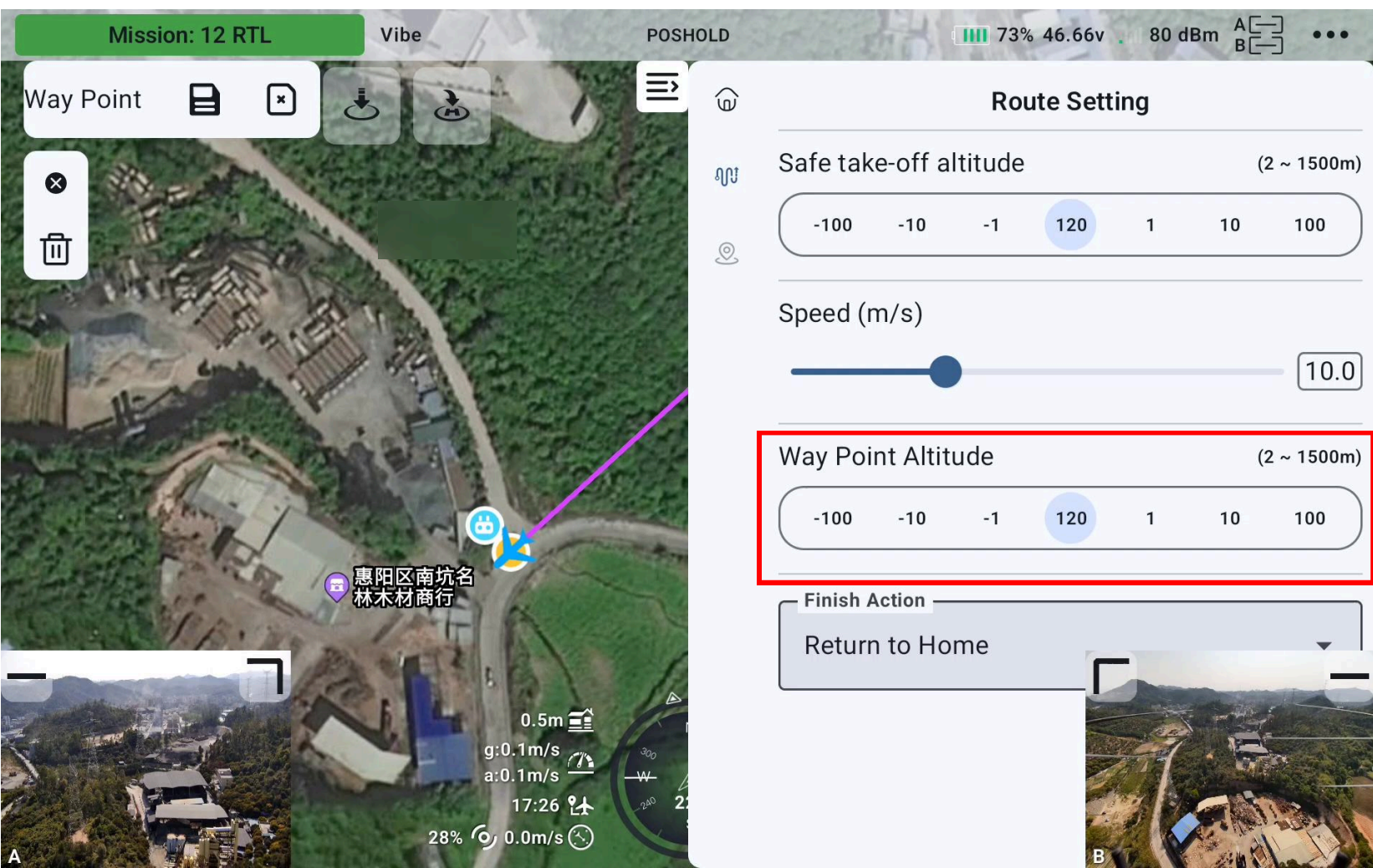
Plan the Route in Advance with the UniGCS



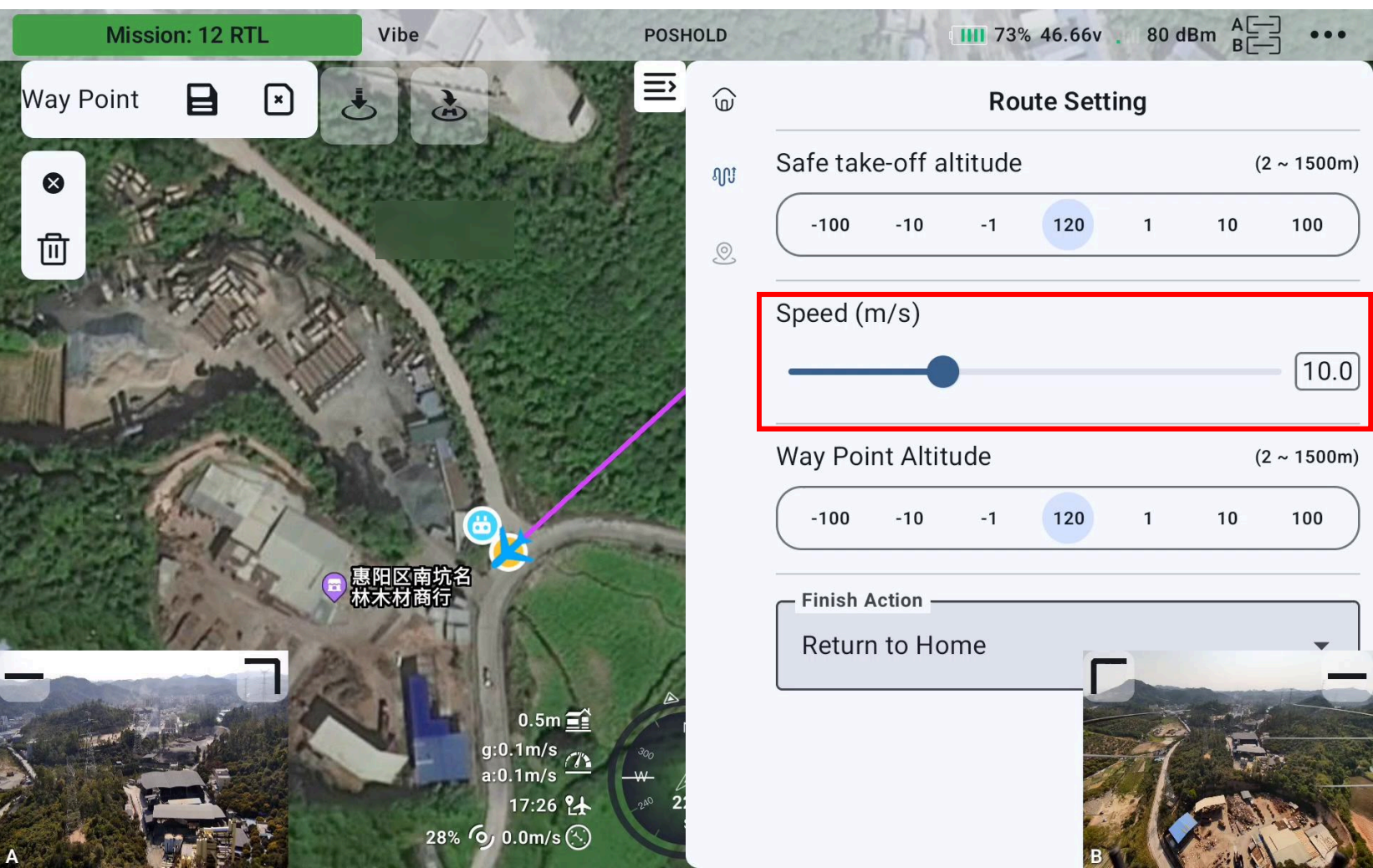
Step 1
Click "Create Waypoint"



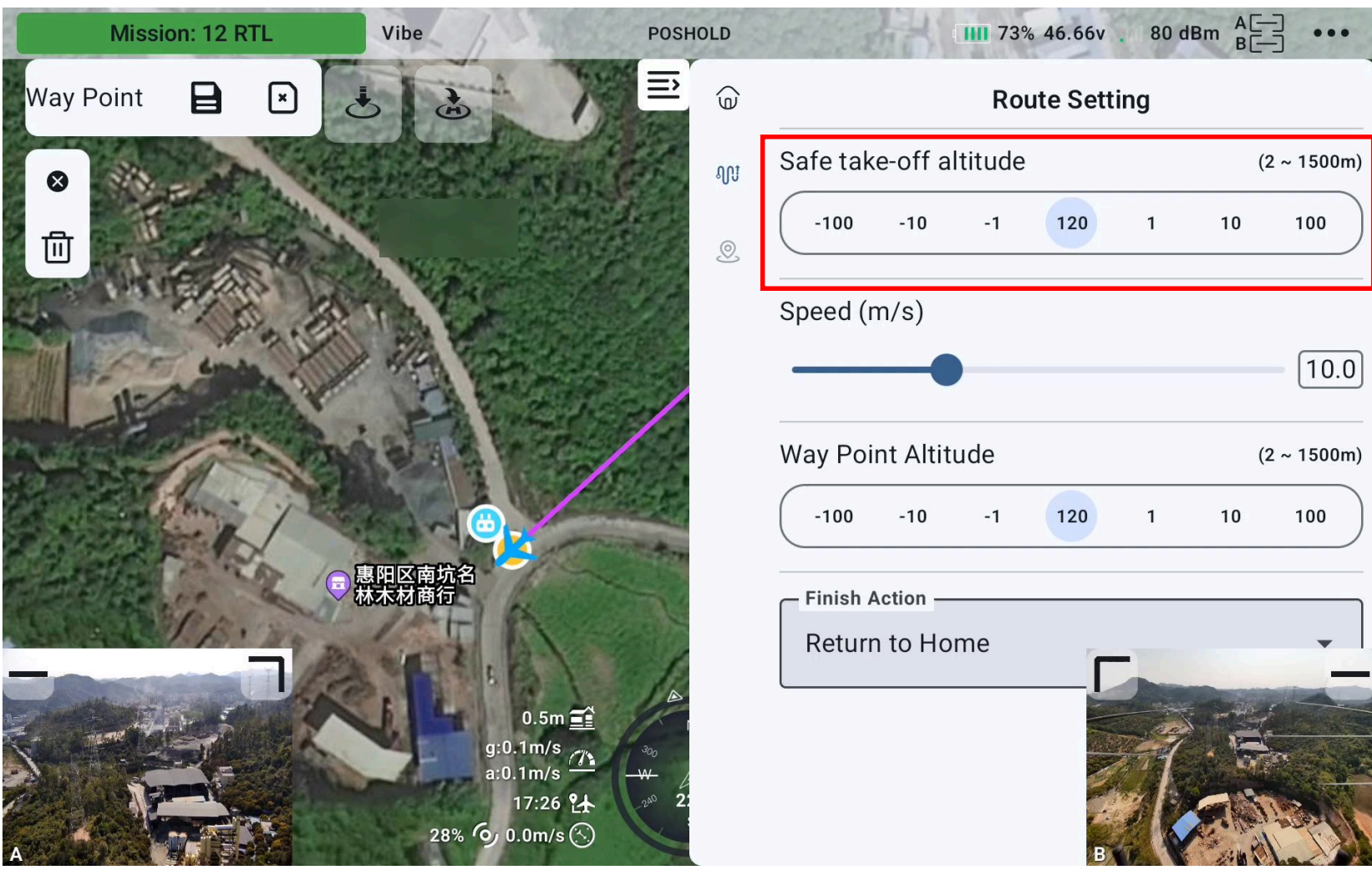
Step 2
Set the "Way Point Altitude"
(Max 120 meters)



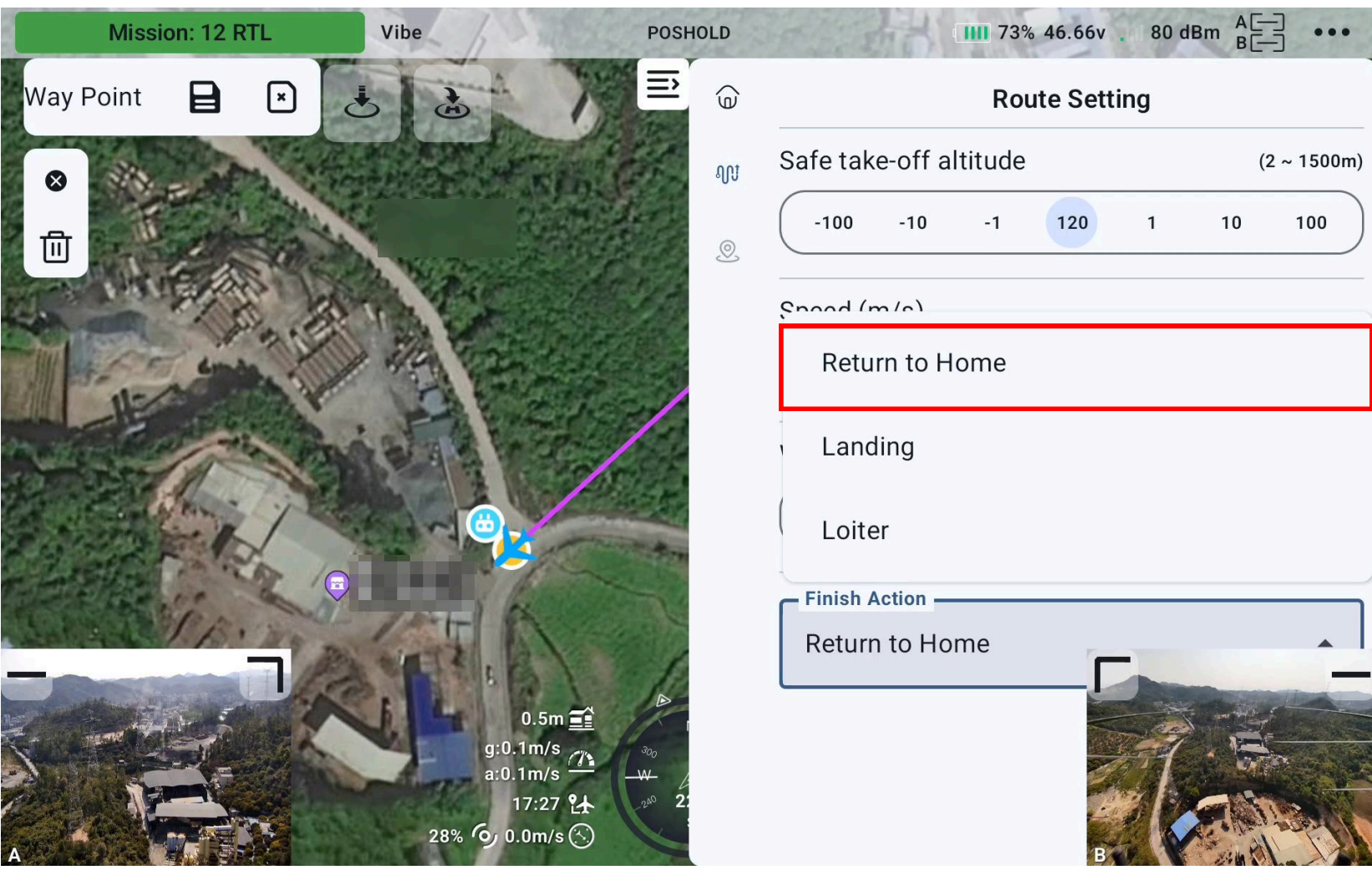
Step 3
Set the "Speed"
(Recommend 8-12 m/s)



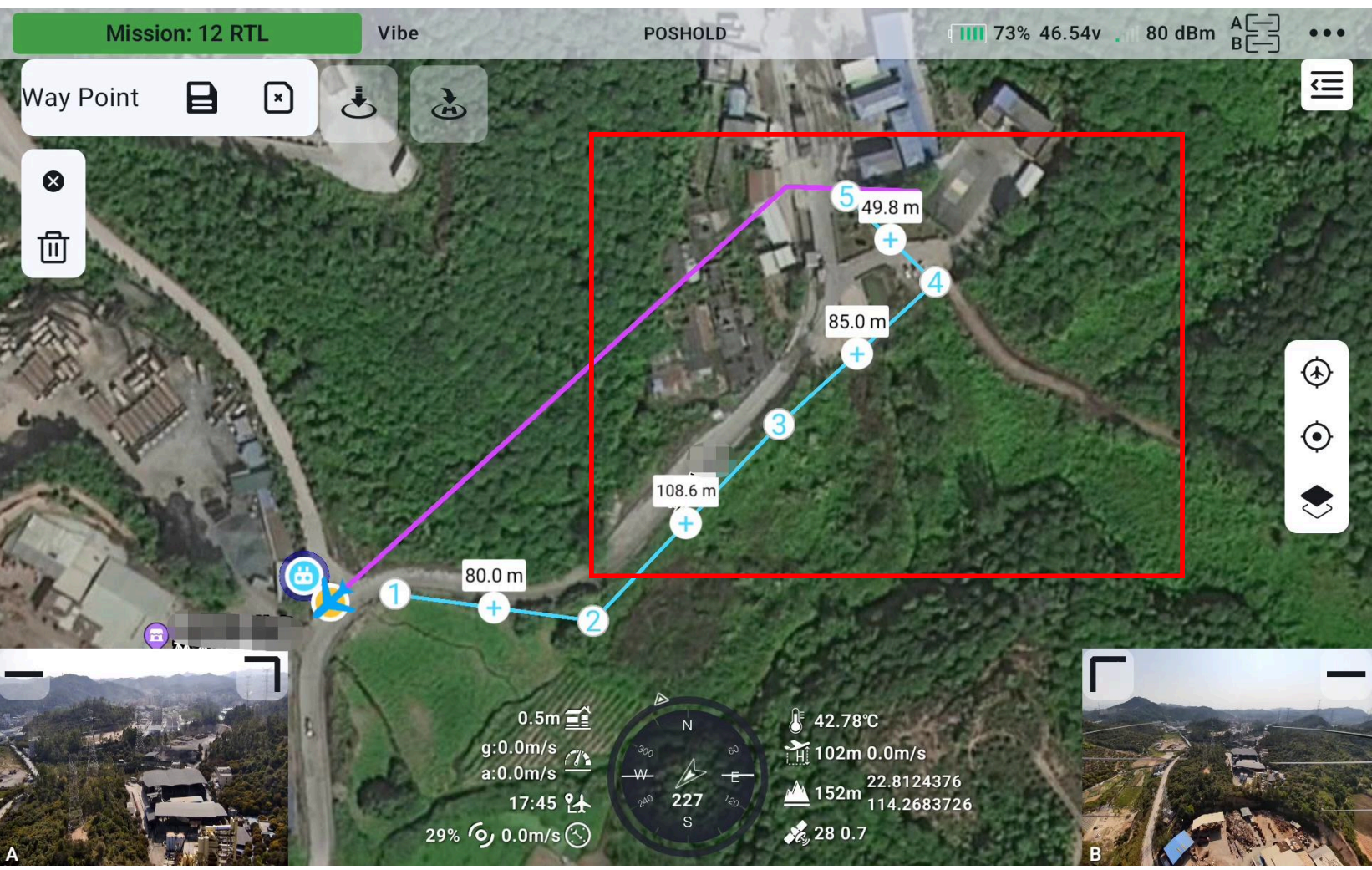
Step 4
Set the "Safe take-off altitude"
(Recommend 60 meters)



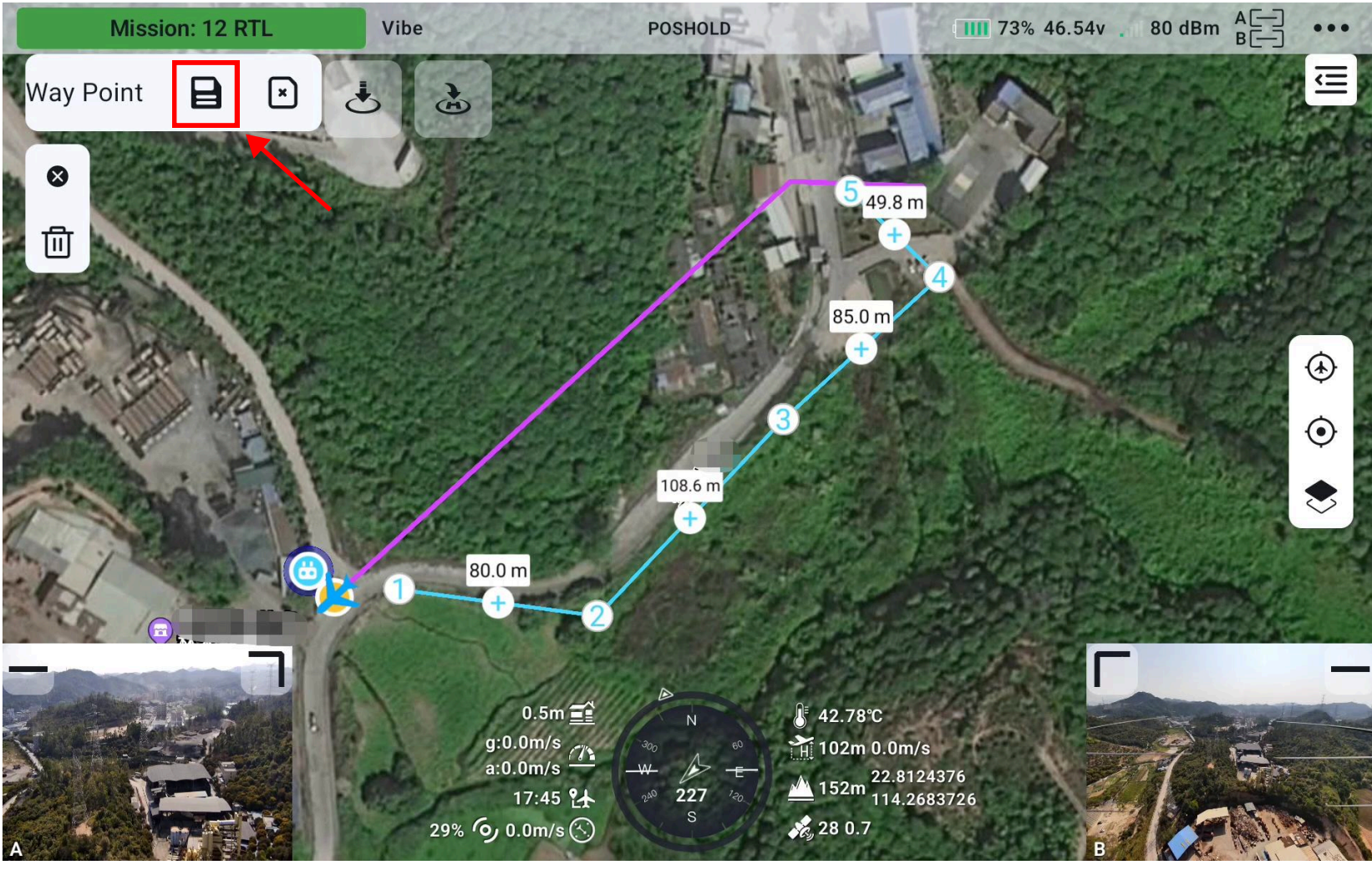
Step 5
Set the finish action as
"Return to Home"



Step 6
Plan the inspection area and
set the waypoints



Step 7
Save the route



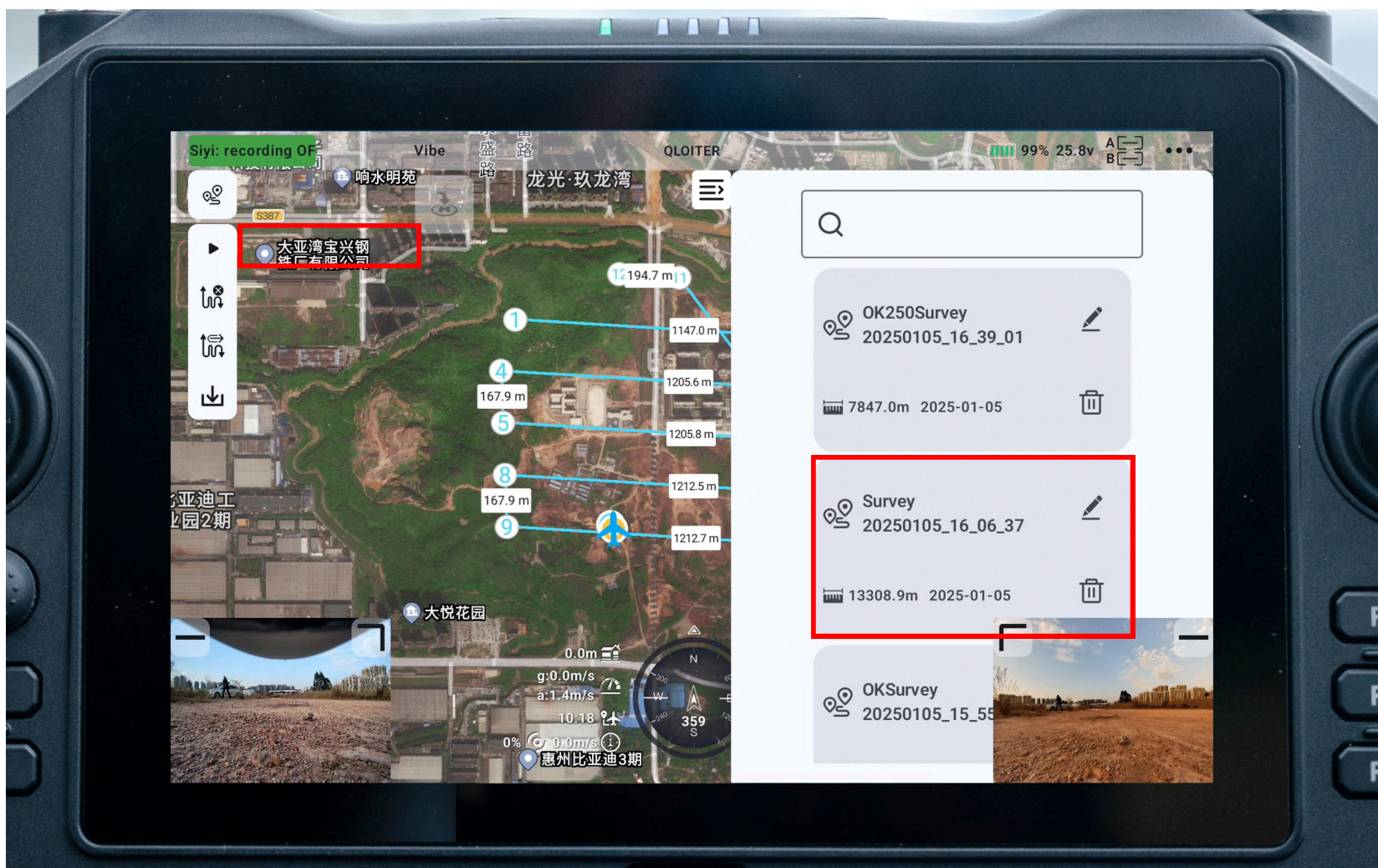
Take-off with one click

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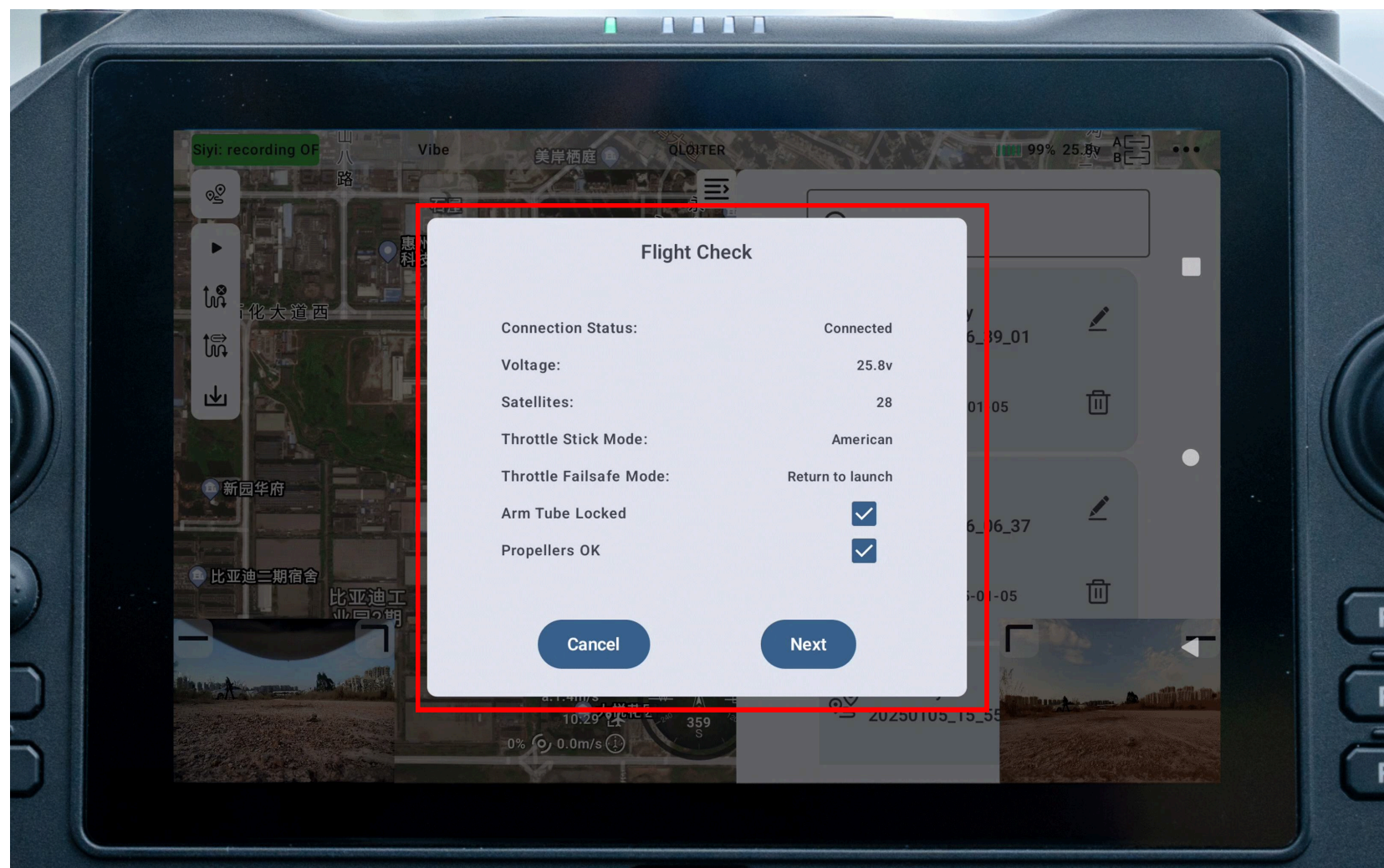
Step 1
Select "Library"



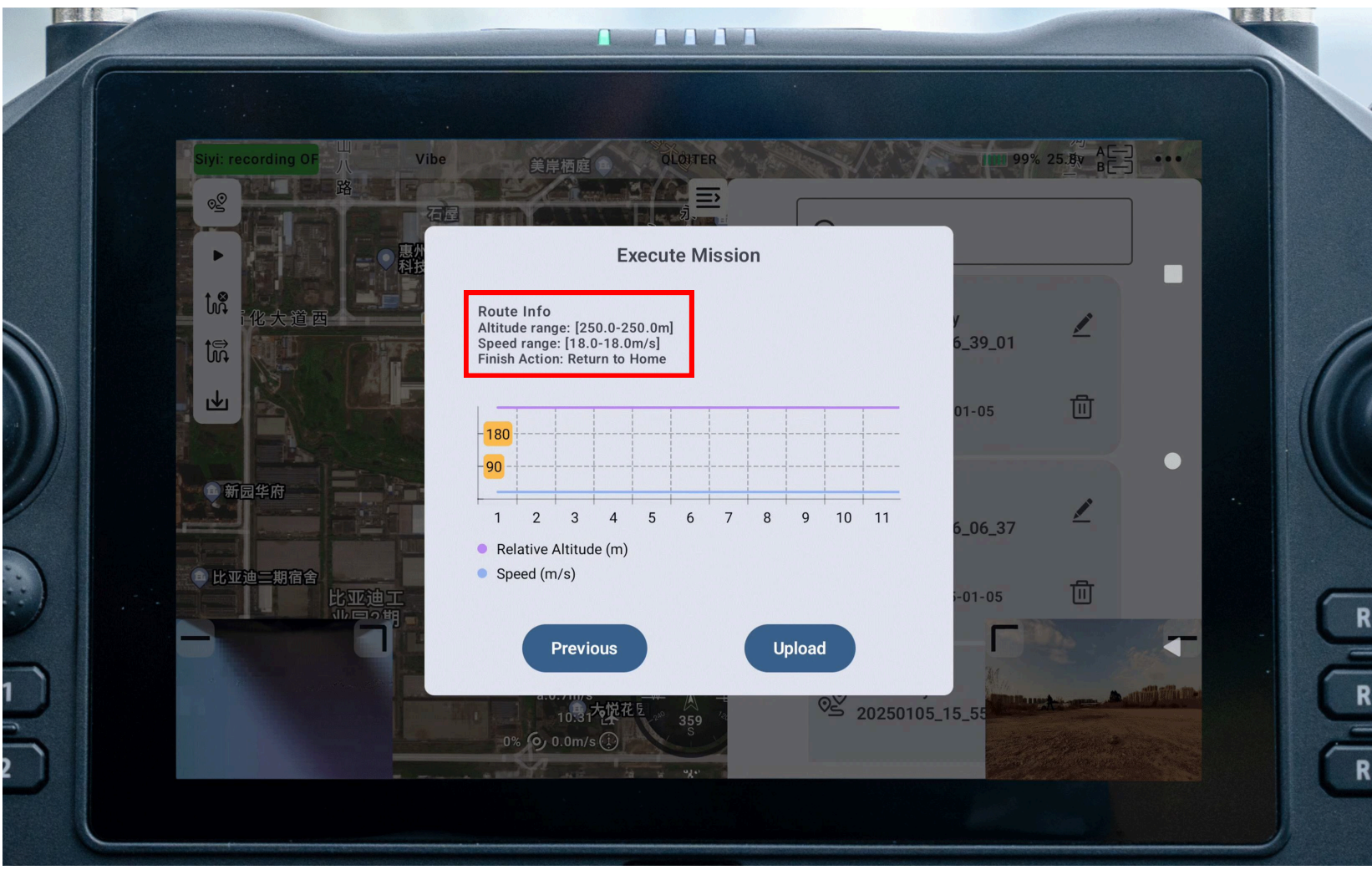
Step 2
Select the route



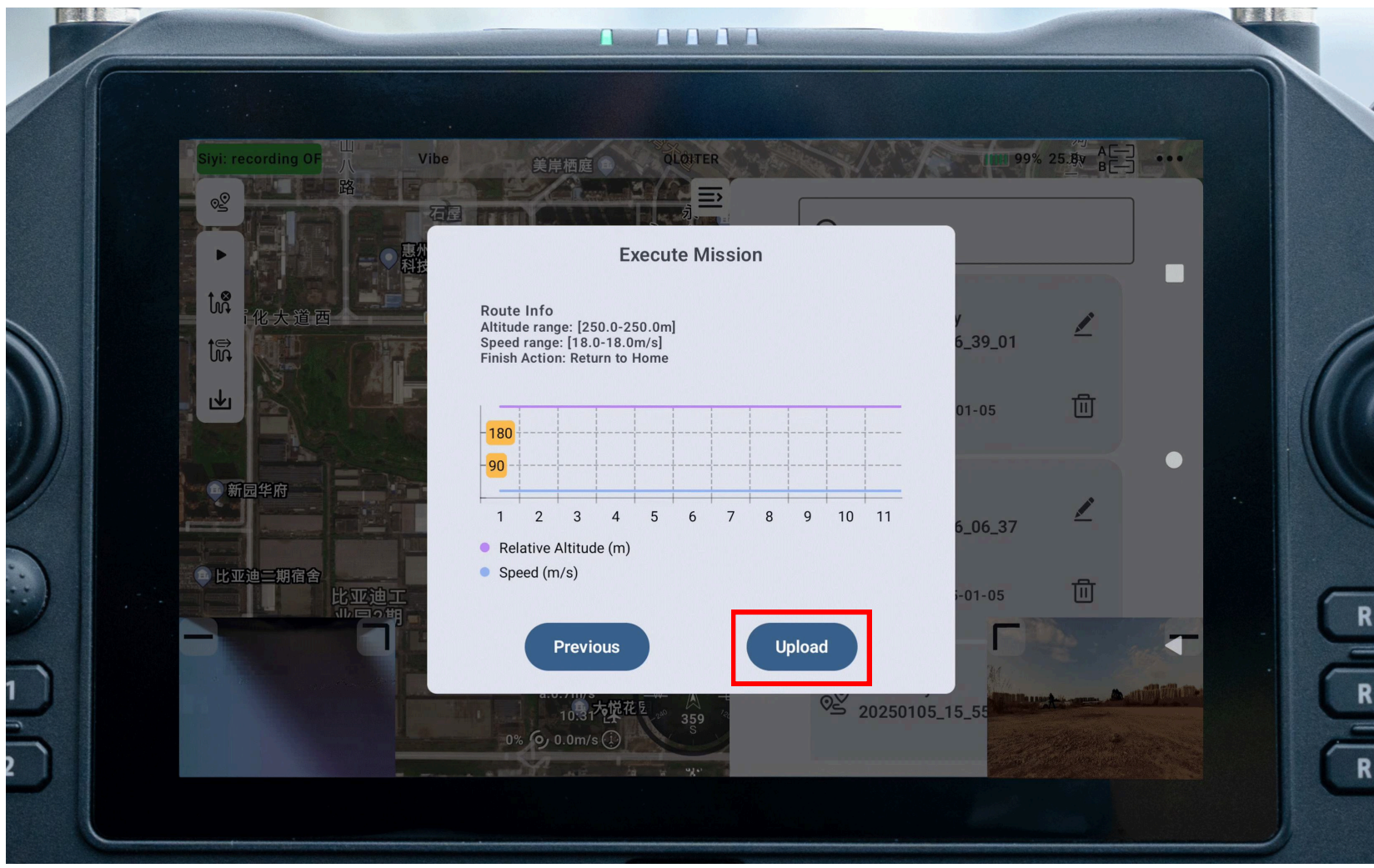
Step 3
Open the task, check the preparations



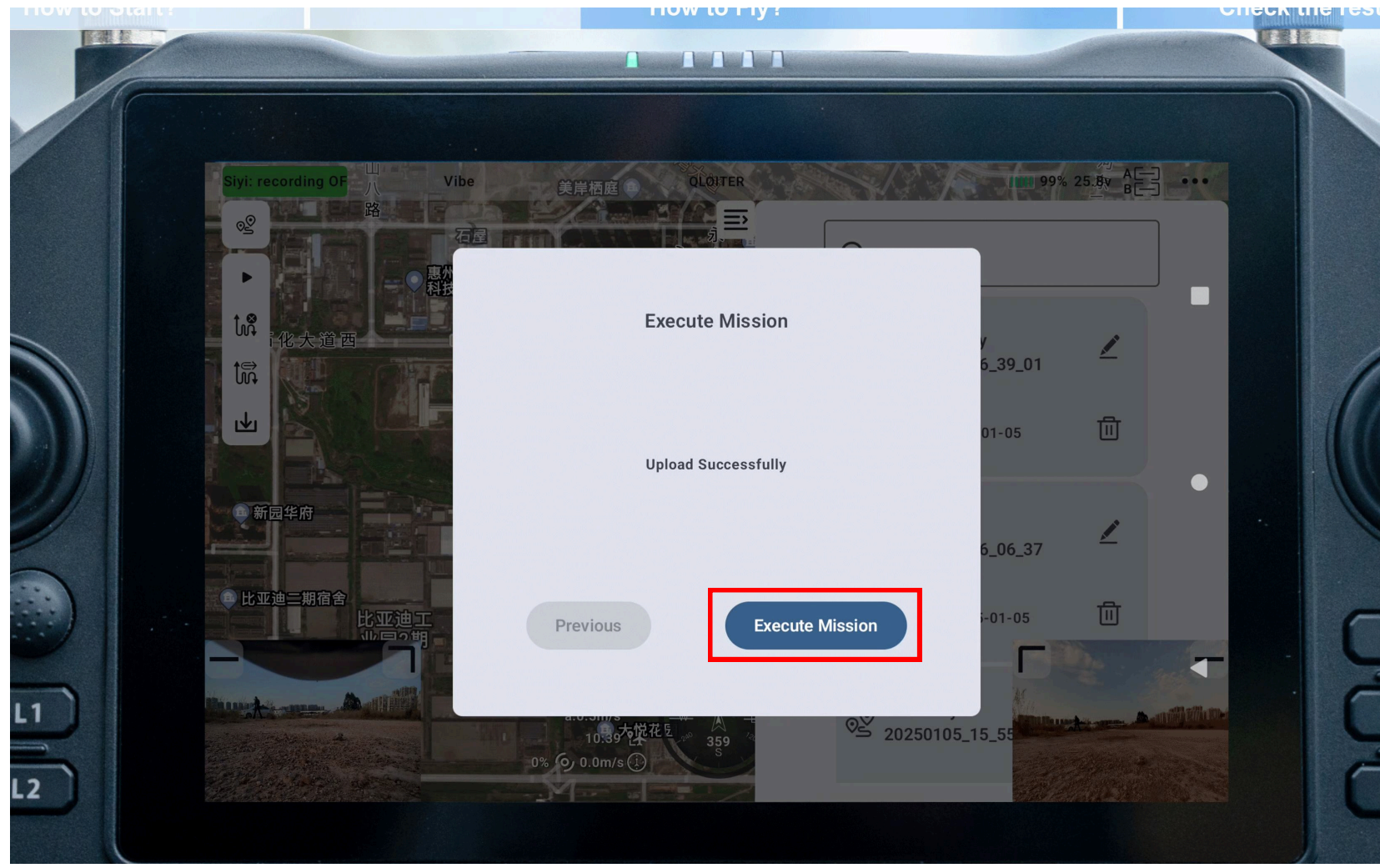
Step 4
Check the relative altitude and the speed, finish the next operations



Step 5
Upload the route



Step 6
Execute mission with one click

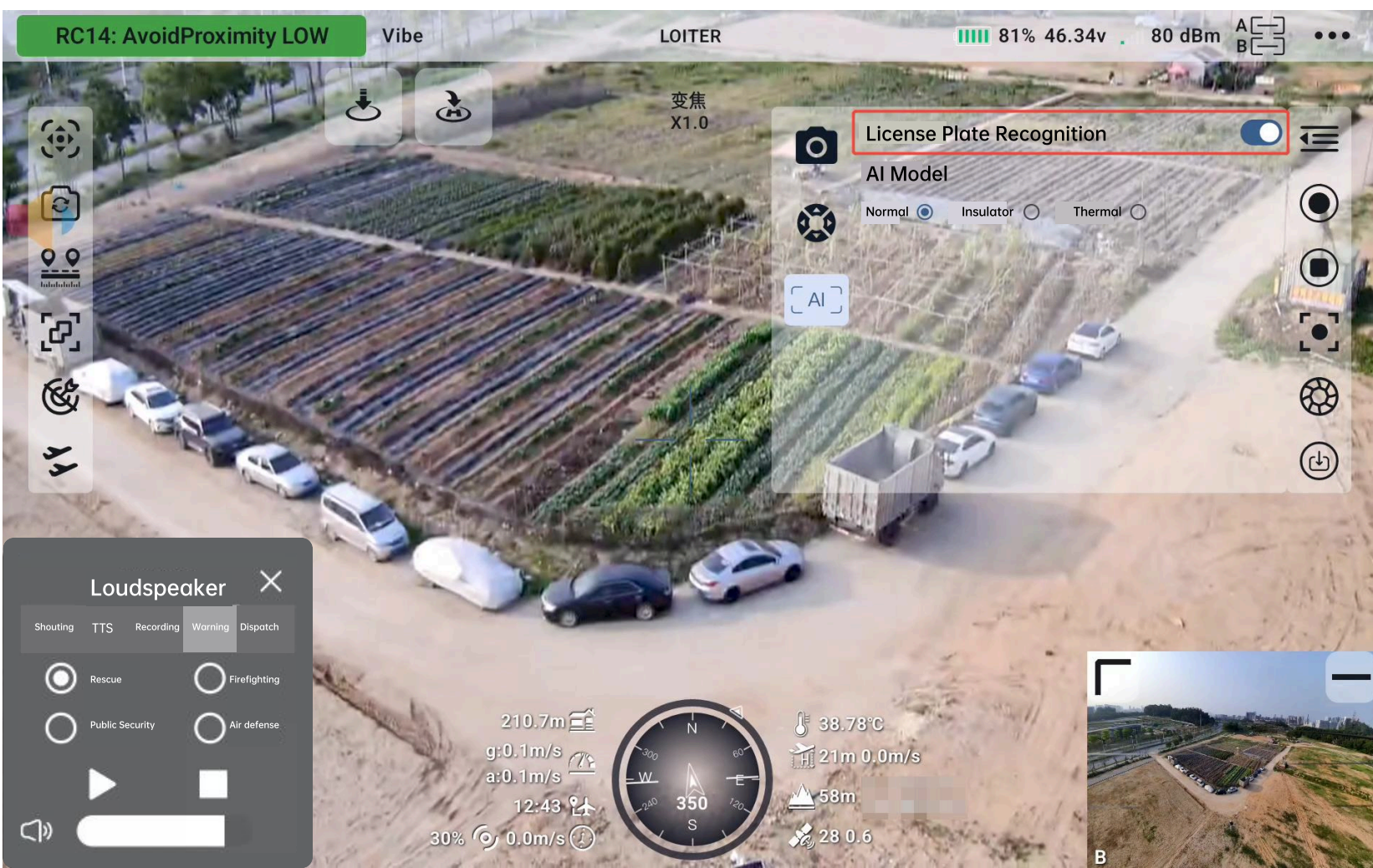


Recognize the license plate with AI function

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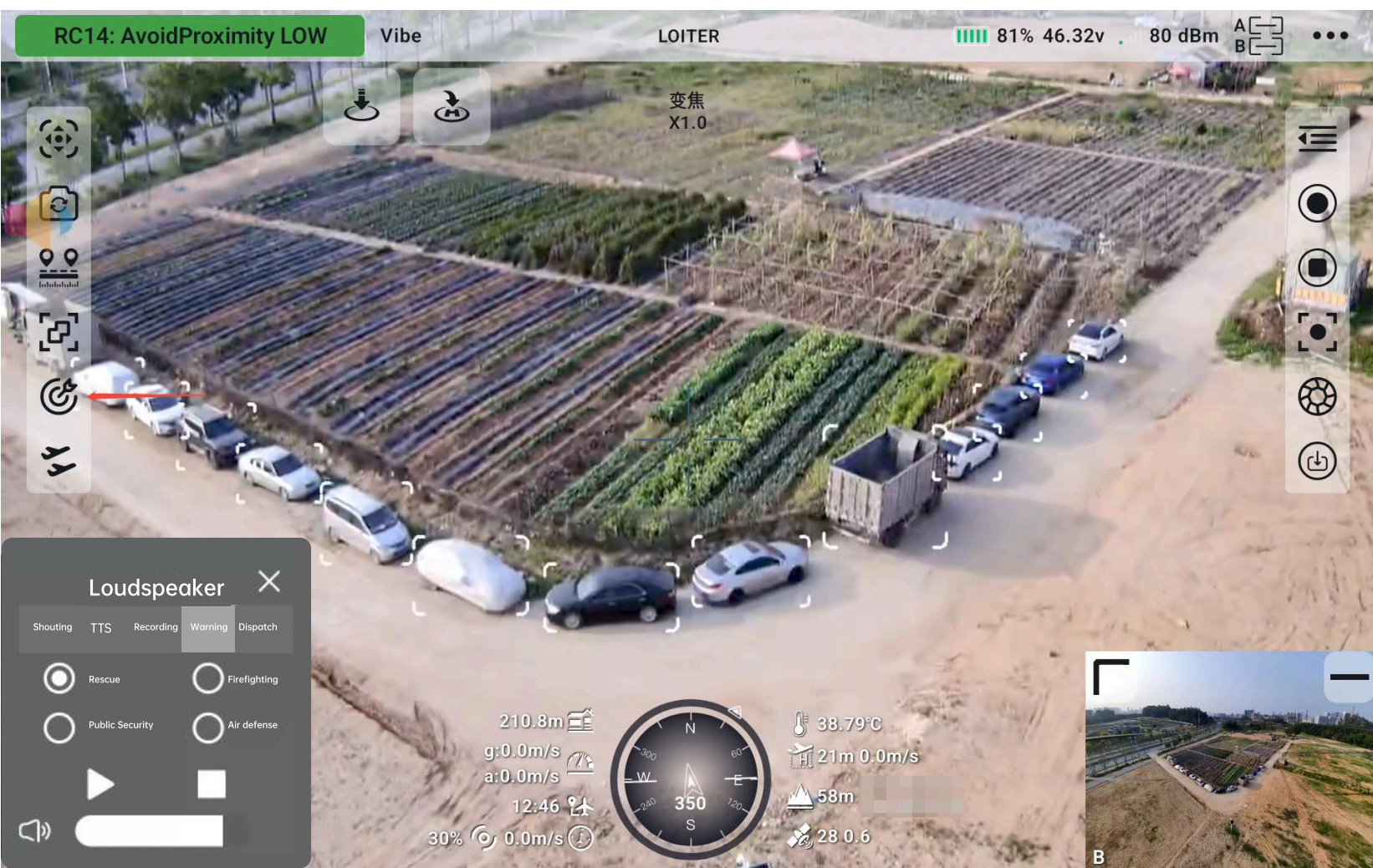
Step 1

Enter the AI function interface and enable the "License Plate Recognition" function.



Step 2

Turn on the AI recognition function, and the system will automatically identify vehicles on the screen.



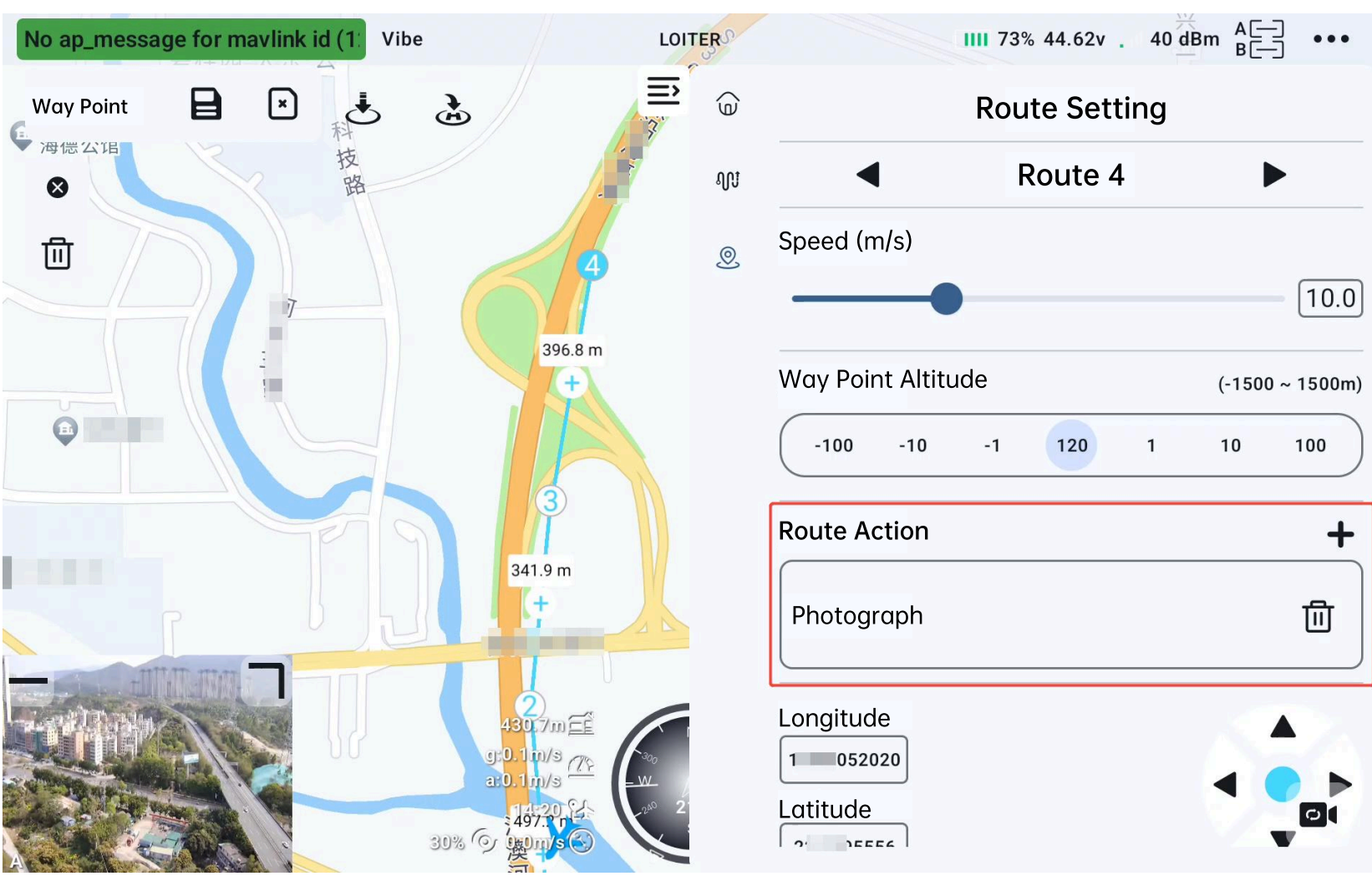
Step 3

Choose the target vehicle, then the system will lock onto it automatically and show its "license plate number".



Step 4

Set the route and flight altitude in advance, and the waypoint action as "photograph".



Step 5

Automatically execute tasks.



(1) It is necessary to use the SIYI Tracking Module II

Announce to move the car (VT100R)

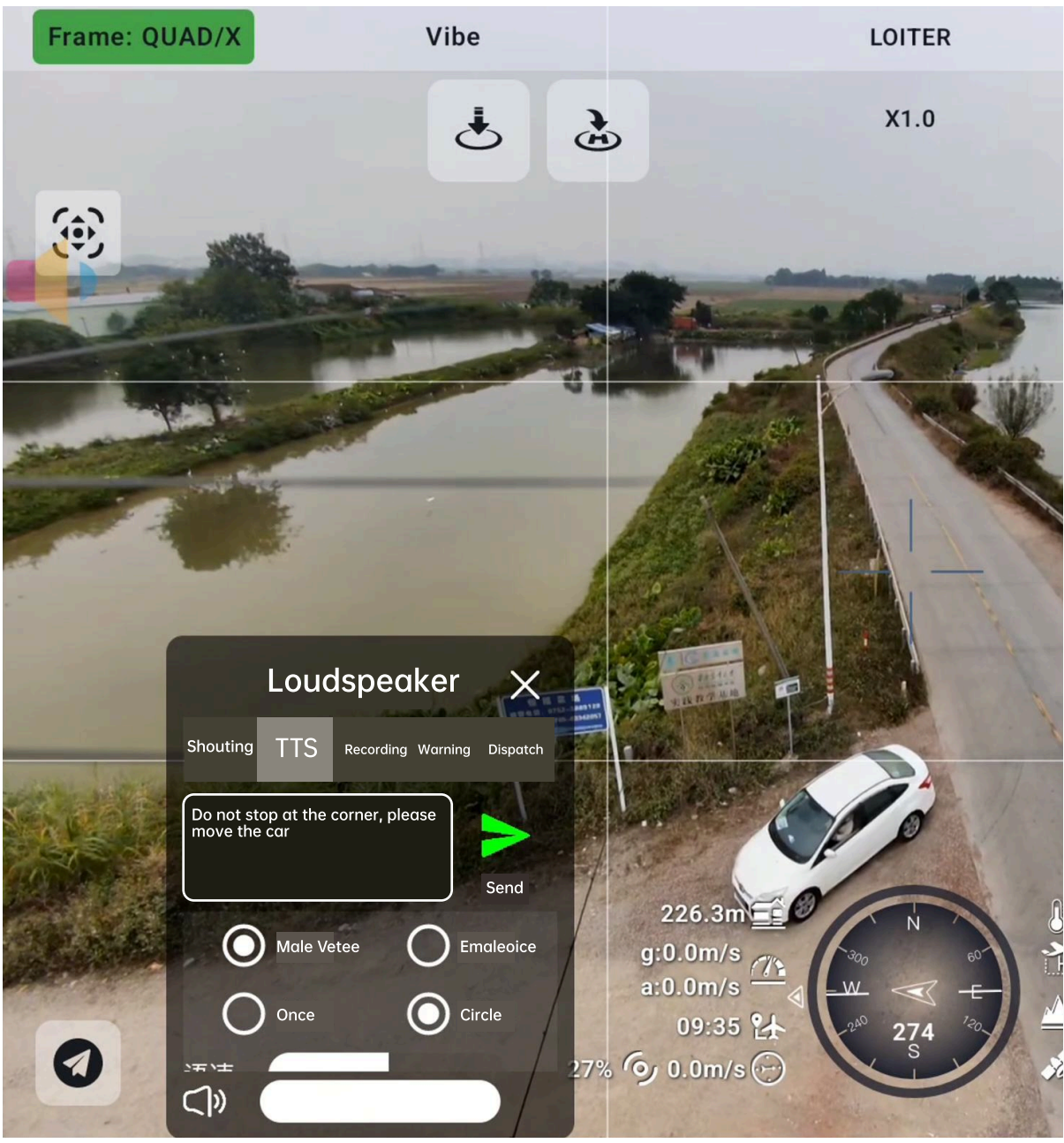


Step 1 Choose one of the four voice modes



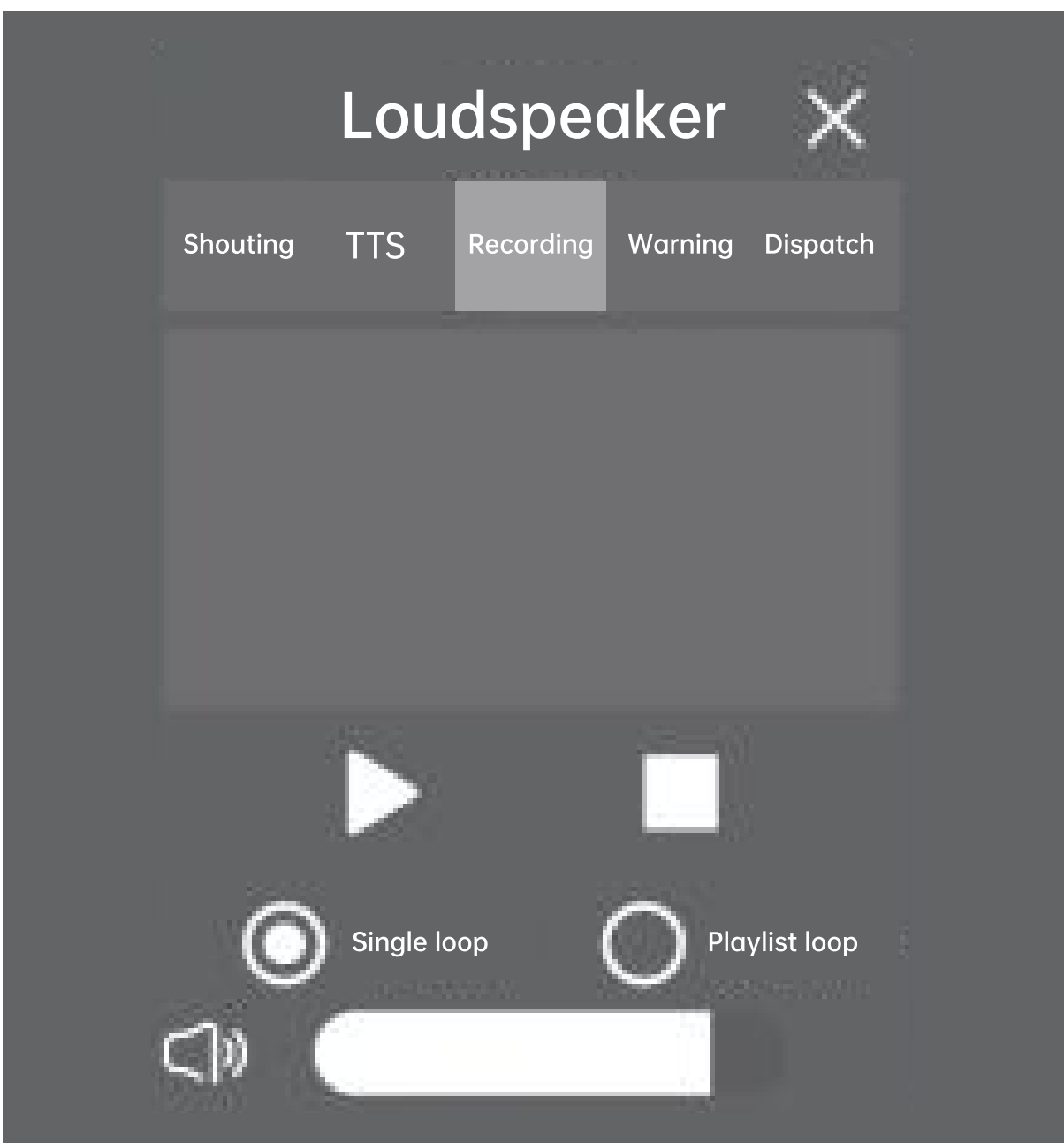
1.Microphone

Connect the USB microphone to the "A-Bus" interface of the UniRC 7, click "Record" in the APP to start speaking and then click "Play".



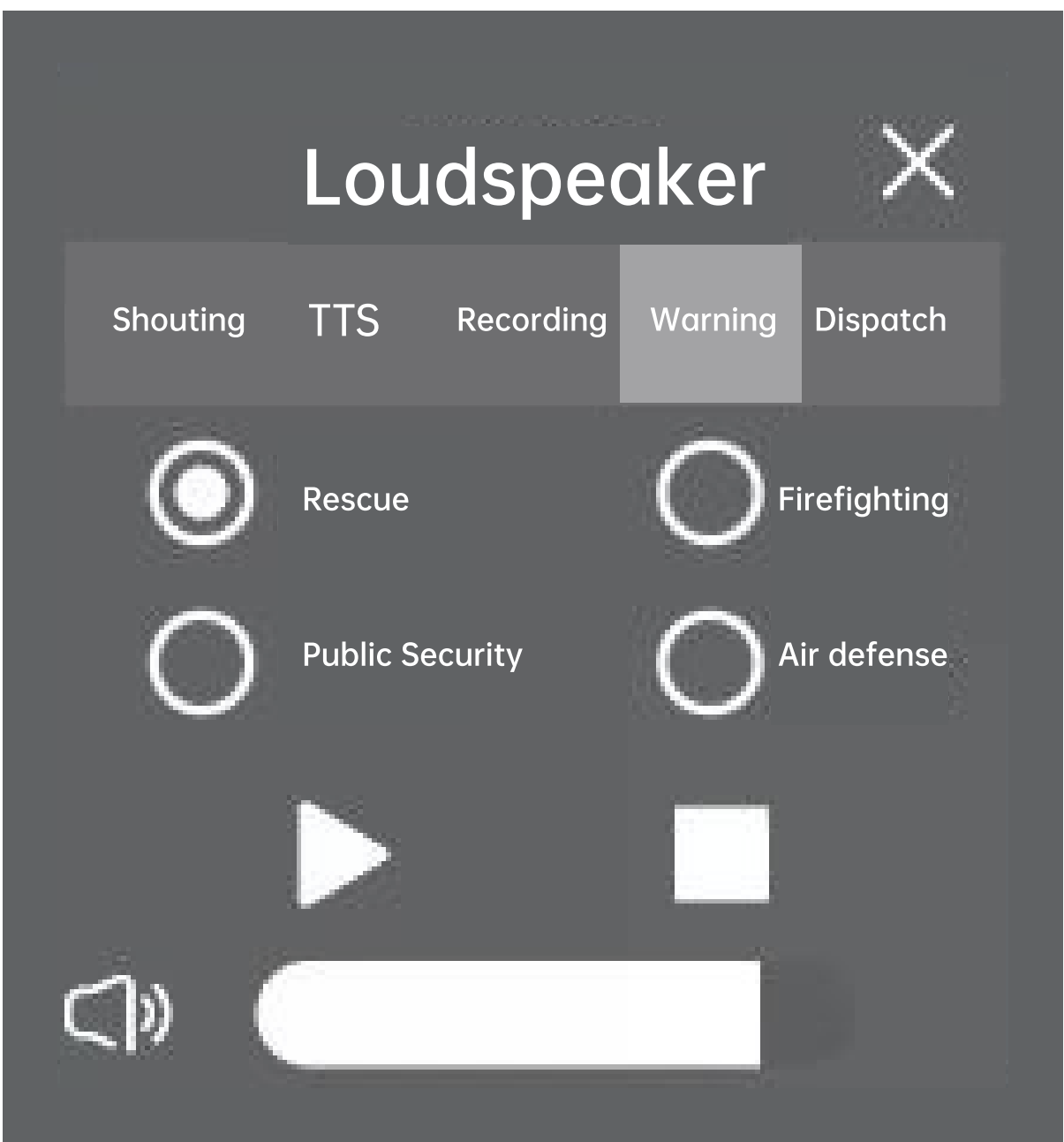
2.TTS (Text-to-Speech)

Enter the text content you want to play, select the desired timbre, action and speaking speed, then click "Send" to play the content.



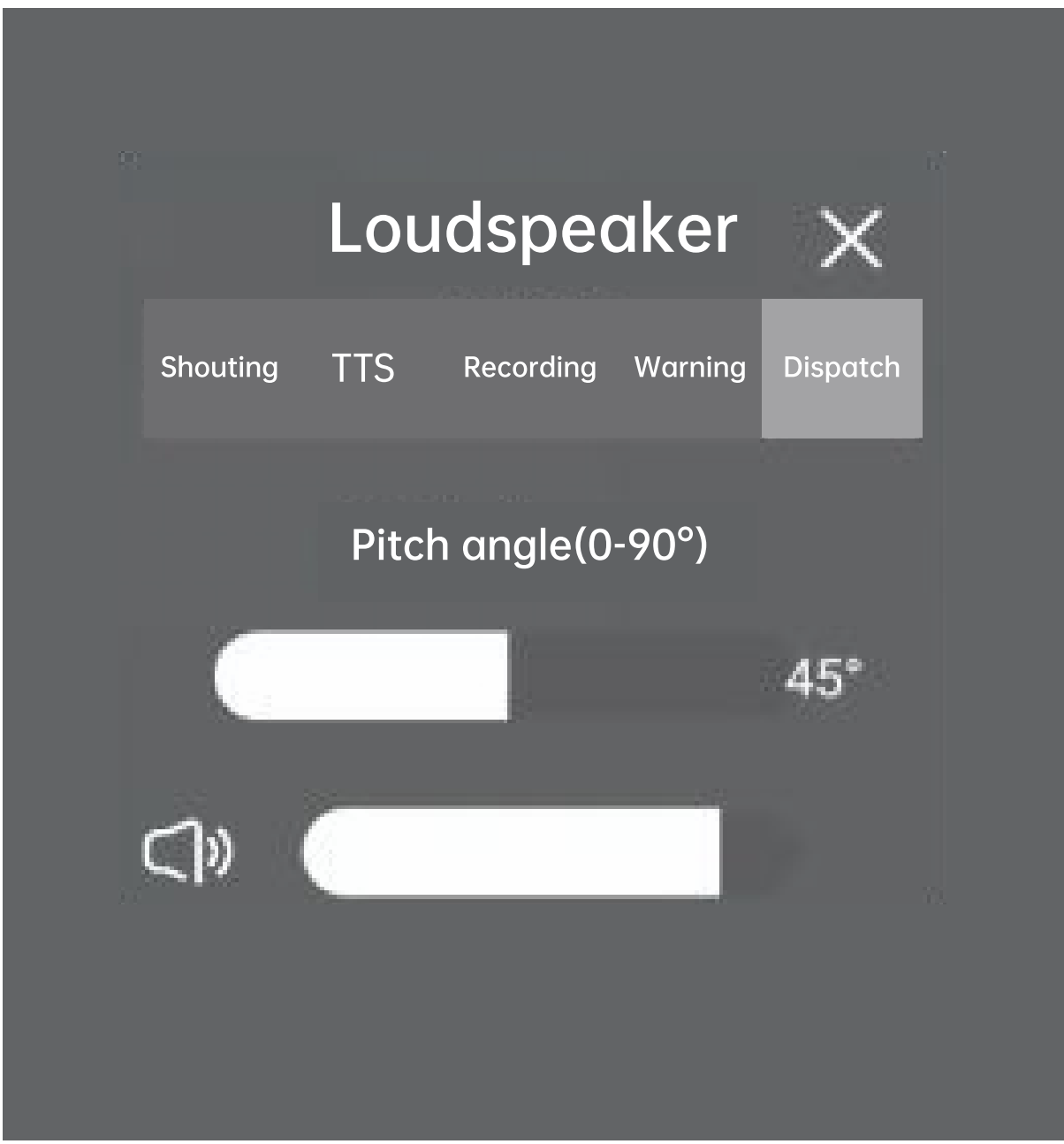
3.Play the recording

Store the playback files in the memory card (support MP3, WMA, FLAC, AAC and WAV). Insert the memory card into the "TF card slot" of the loudspeaker, then select the file in the floating window and click "Send".



4.Warning

The NetSp APP has 4 commonly used alarms built-in. After making a selection, click "Play".

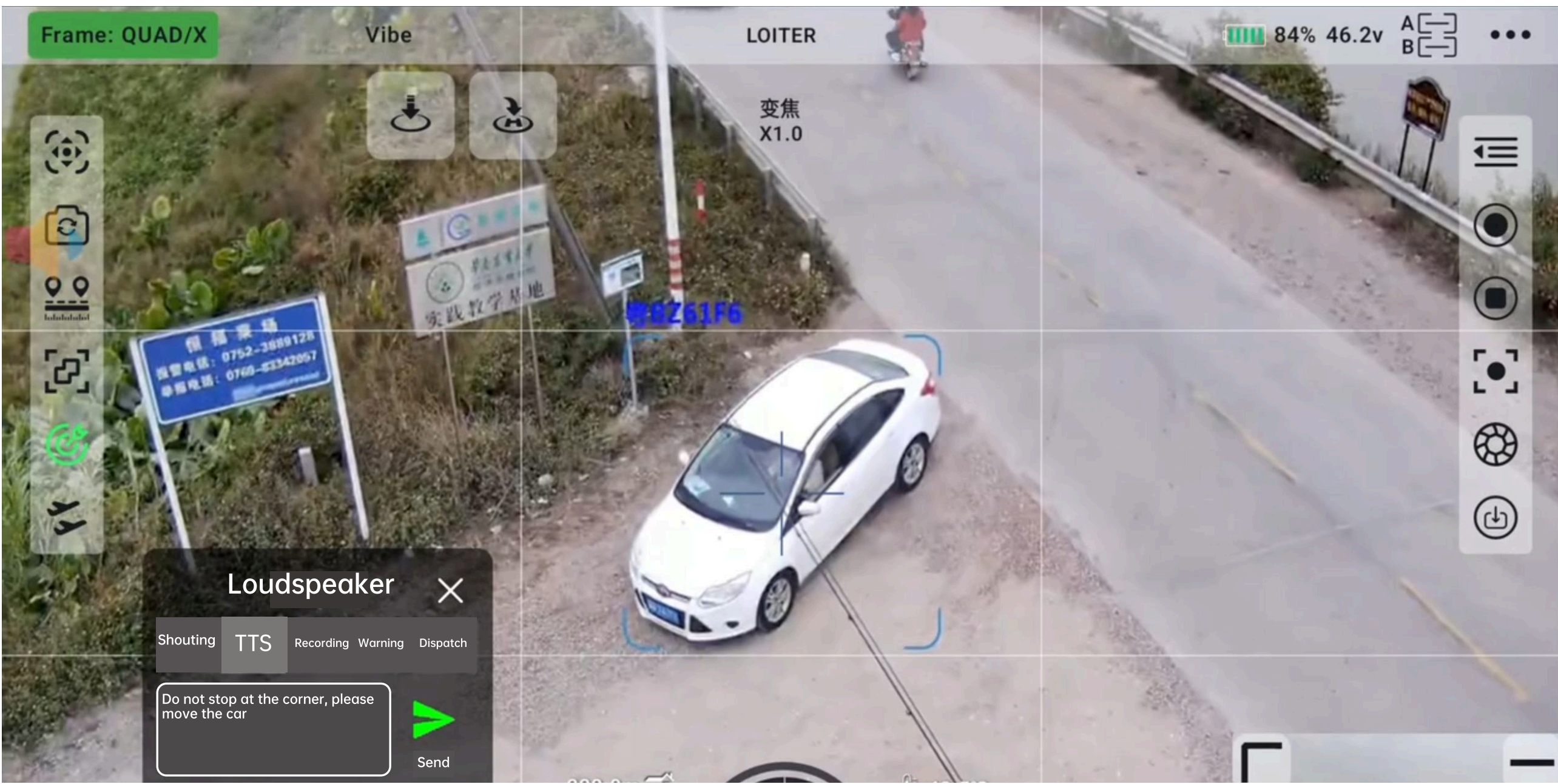


Additional Function

Pitch adjustment of the loudspeaker.

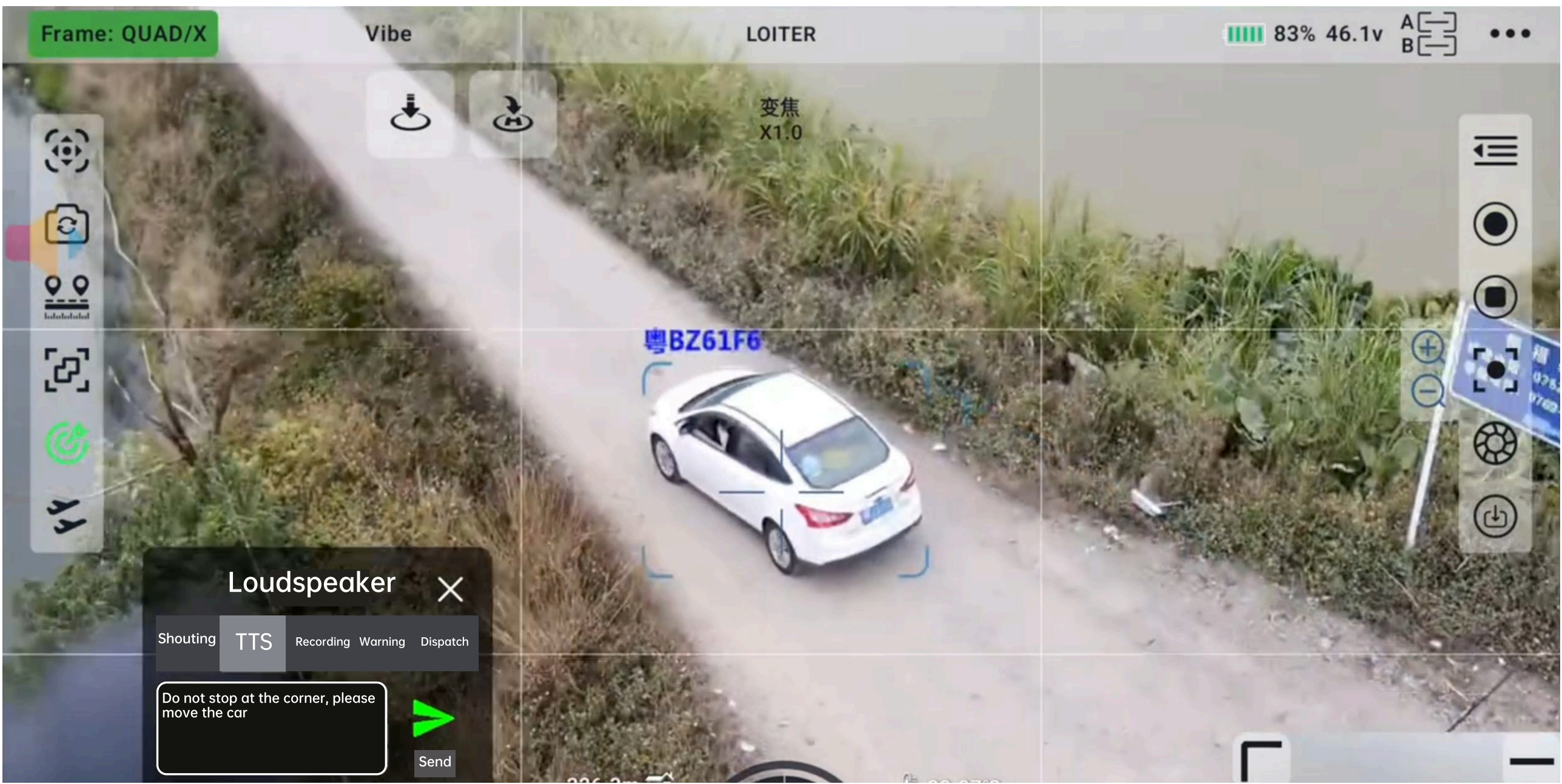
Step 2

The target vehicle receives the warning and moves the car.

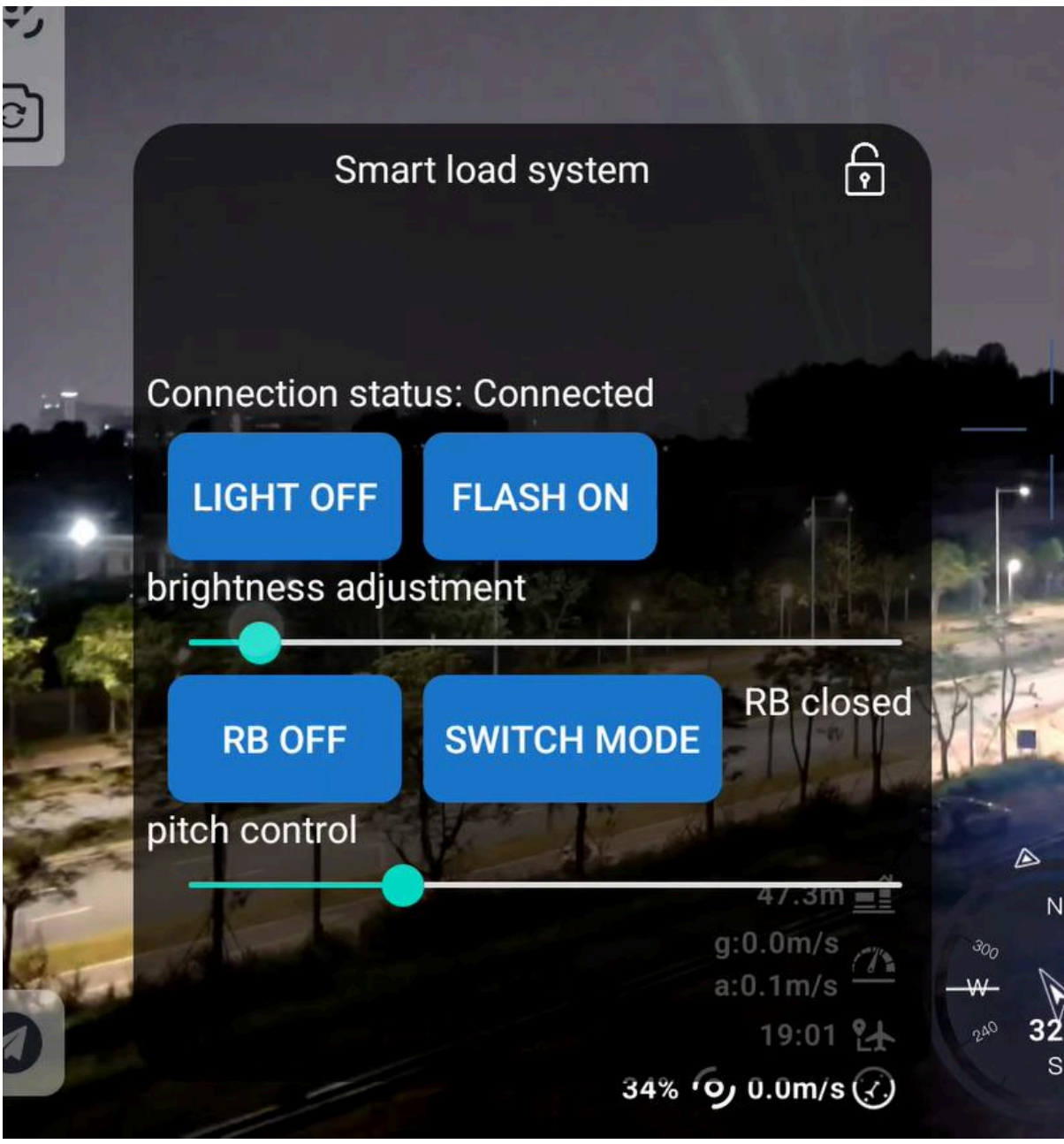


Step 3

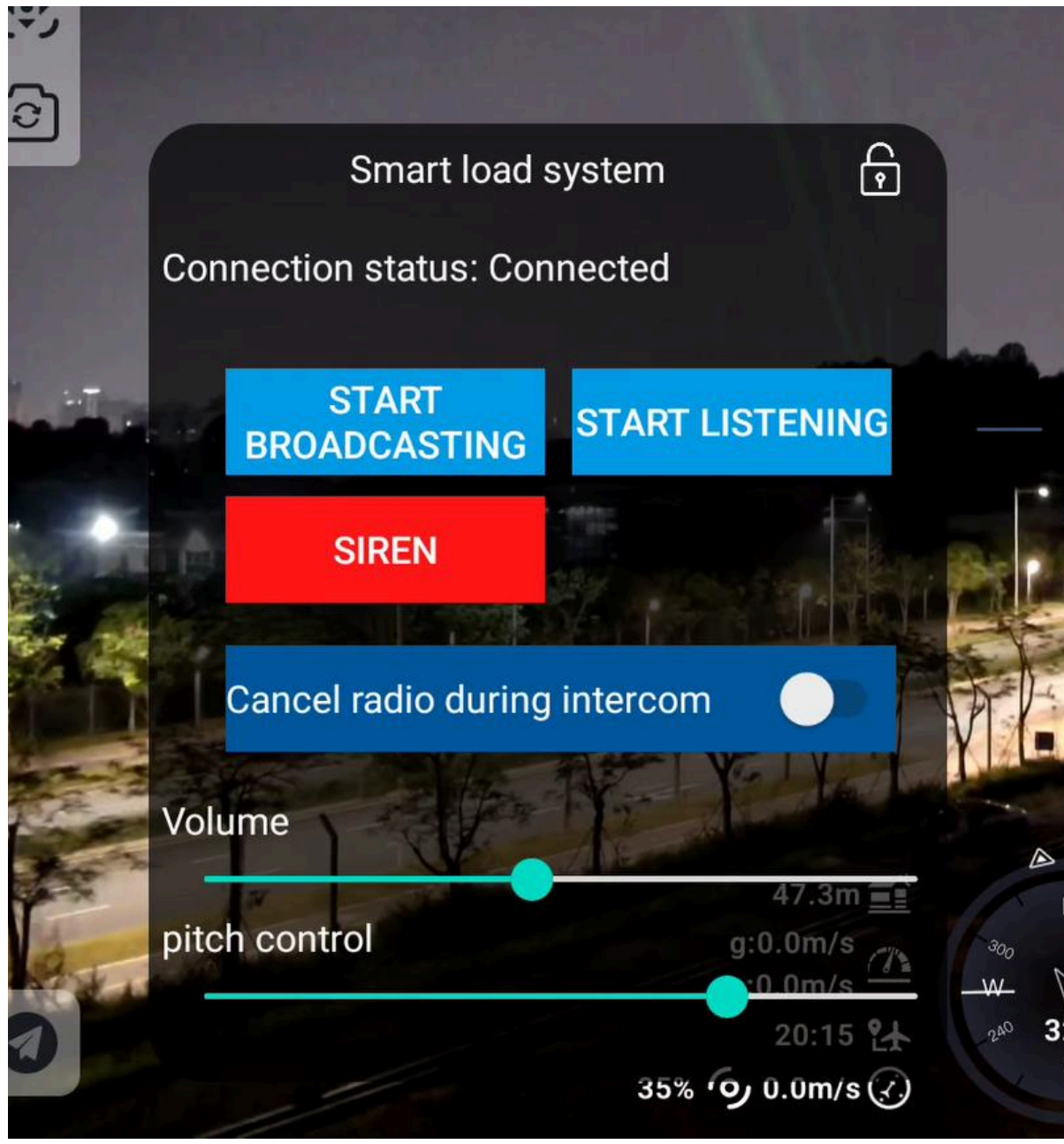
Smart flight follow, ensure that the vehicle is moved correctly.



Step 1: Set the functions of YA-4 All-in-one Device

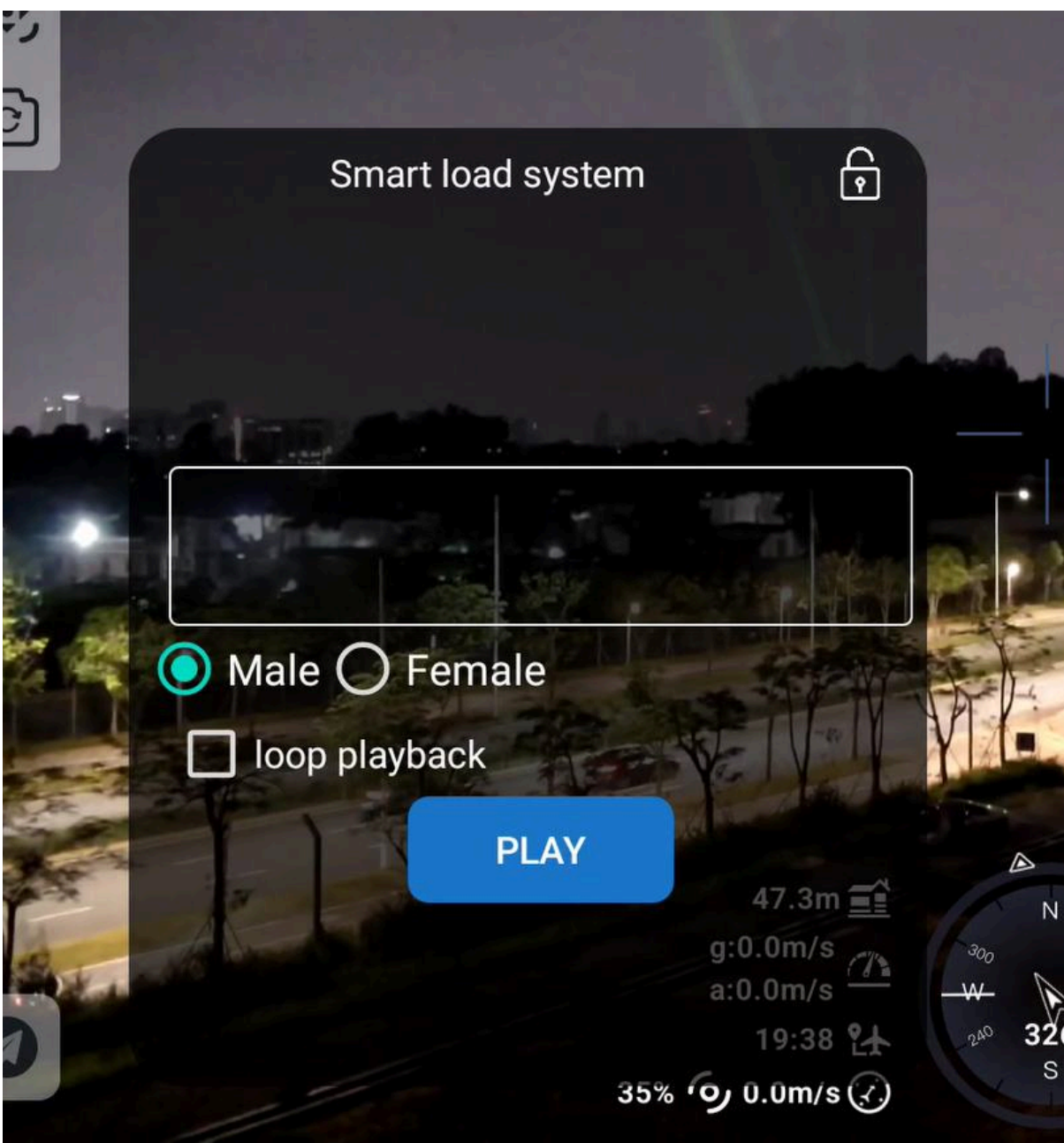


- Funtions
- 1. Loudspeaker
 - 2. TTS (Text-to-Speech)
 - 3. Play the recording
 - 4. Lighting control



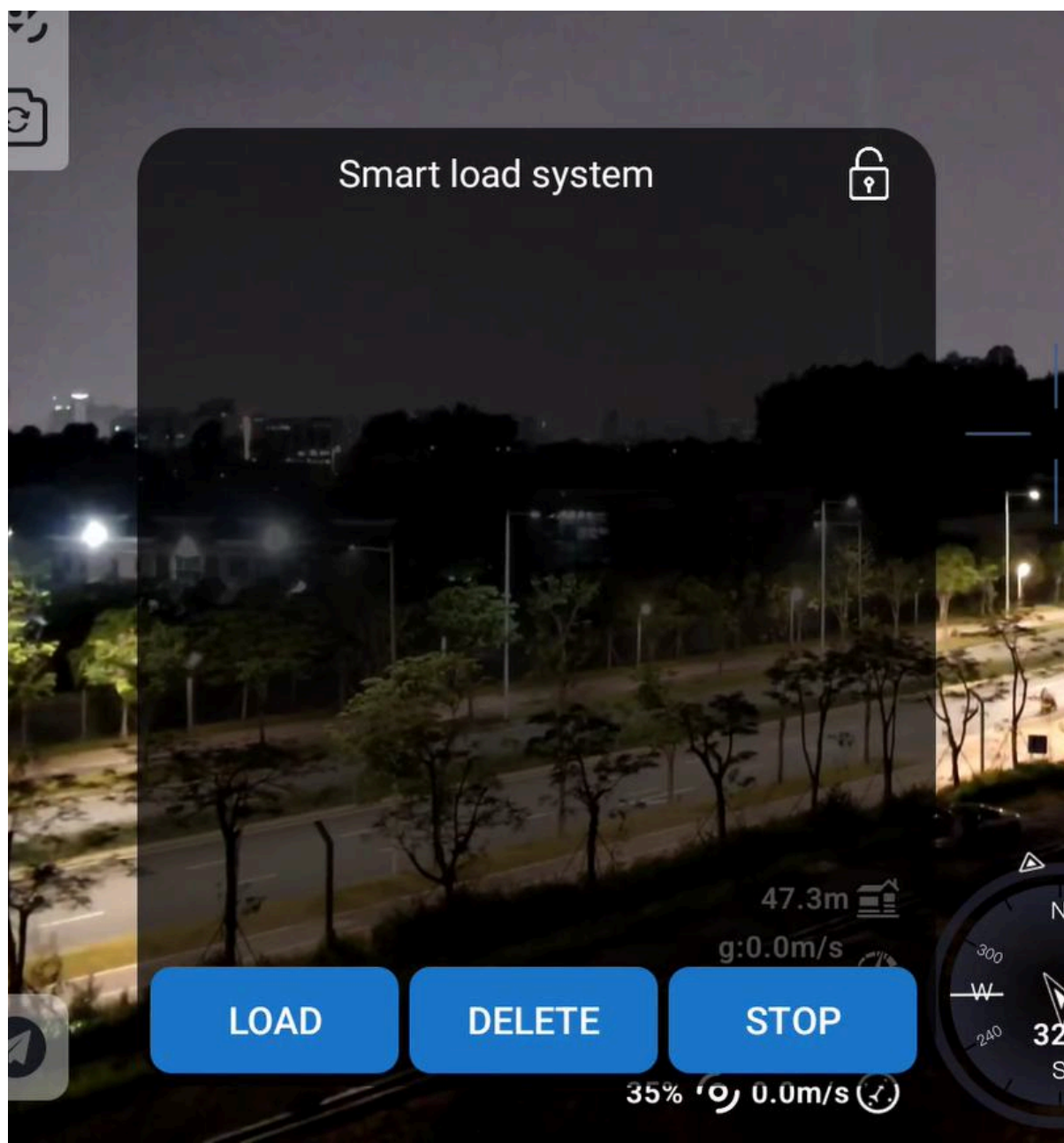
Loudspeaker

Connect the microphone via USB and start shouting. Adjust the volume level and speaker angle using the slider below.



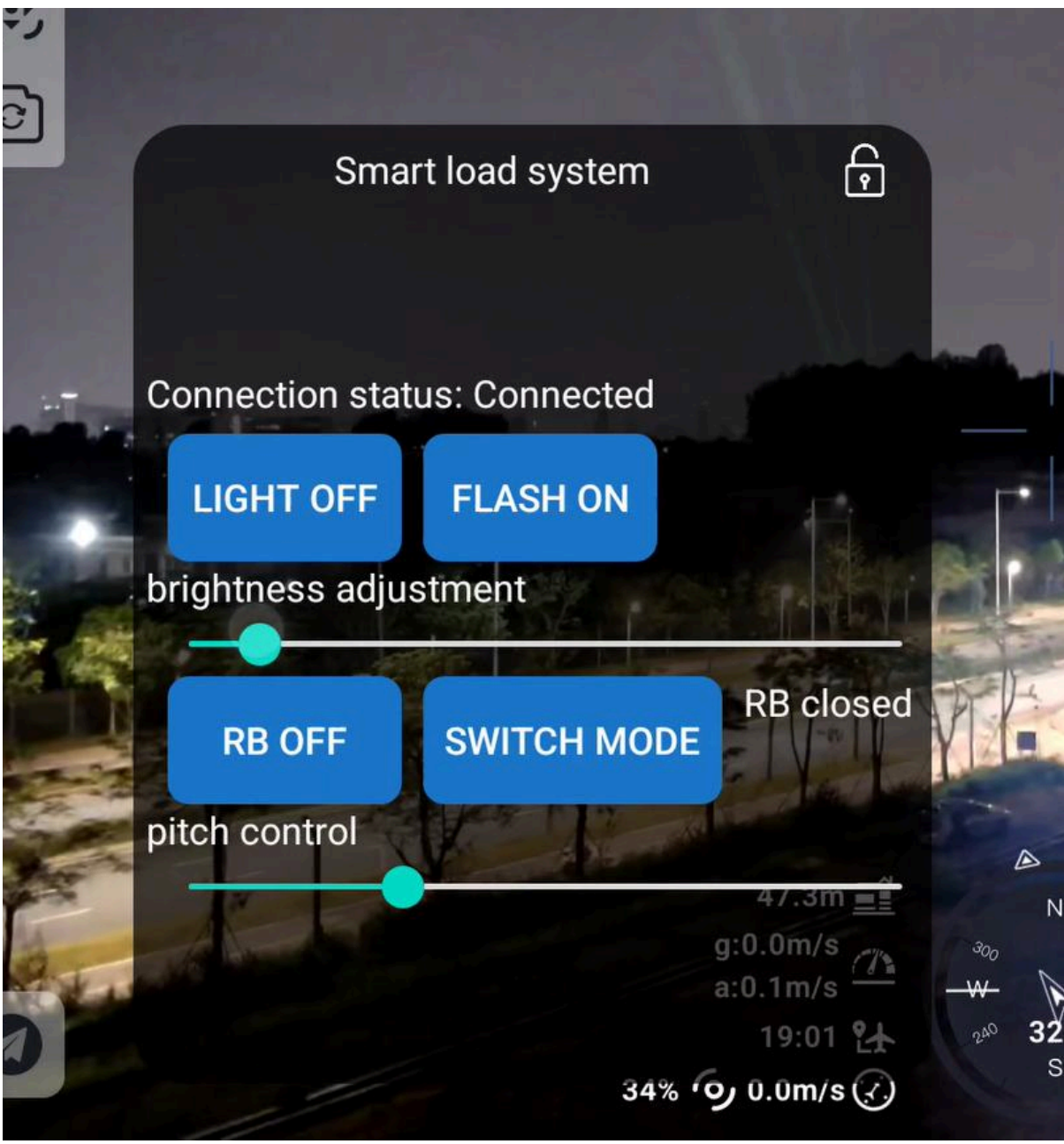
TTS (Text-to-Speech)

Enter the text content you want to play, select the desired timbre, then click "Send" to play the content.



Play the recording

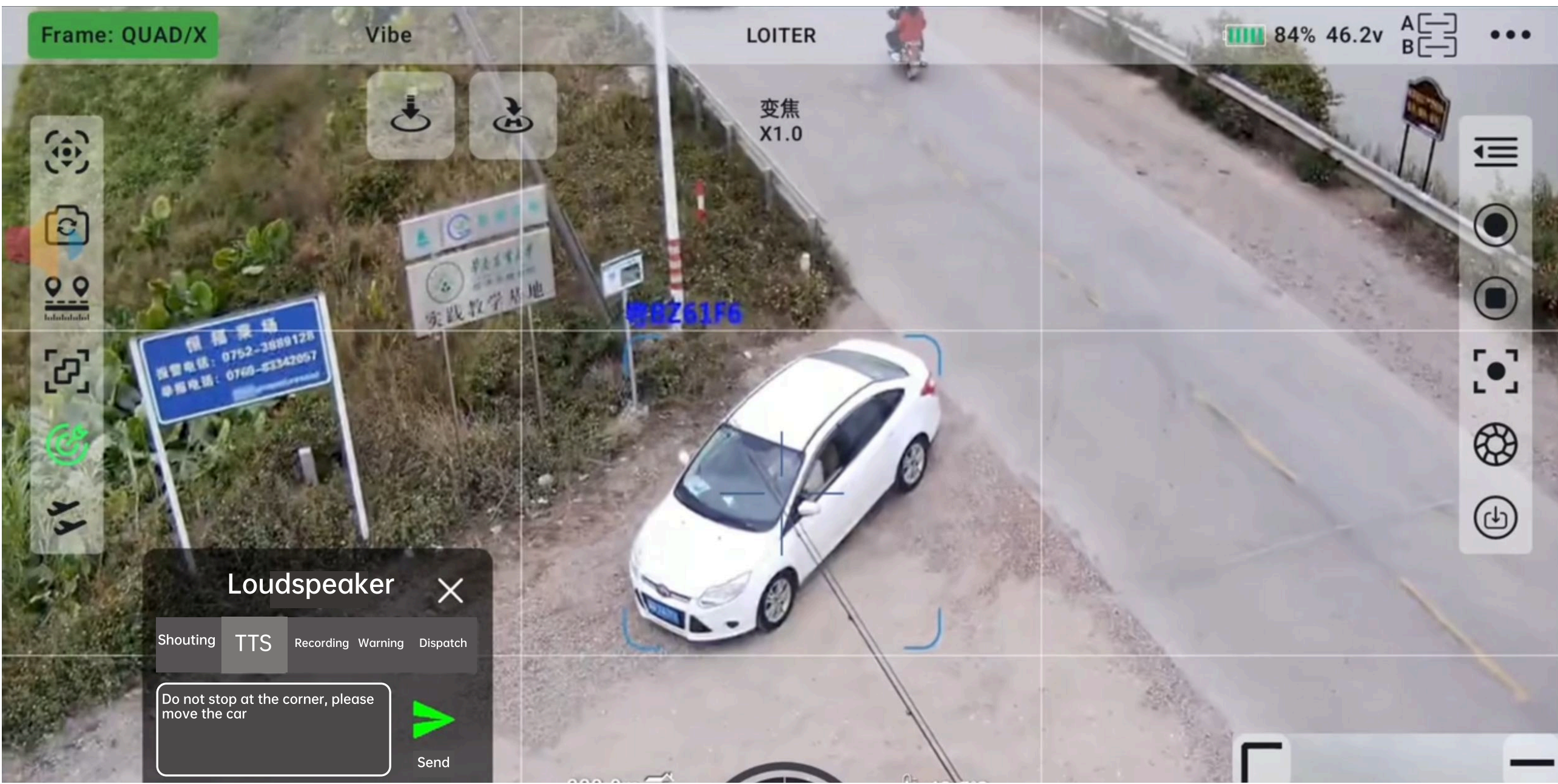
Store the playback files in the TF card. Insert the memory card into the "TF card slot" of the loudspeaker, then select the file in the floating window and click "Send".



- Lighting control
- 1. Click "turn on" to open the searchlight, adjust the btightness through the slider below.
 - 2. Click "Turn on the strobe mode", then the searchlight will flash at high frequency.
 - 3. Click "Switch the mode"to turn on the red and blue lights. Then click "Switch the mode" again to switch the red and blue lights to flashing mode.

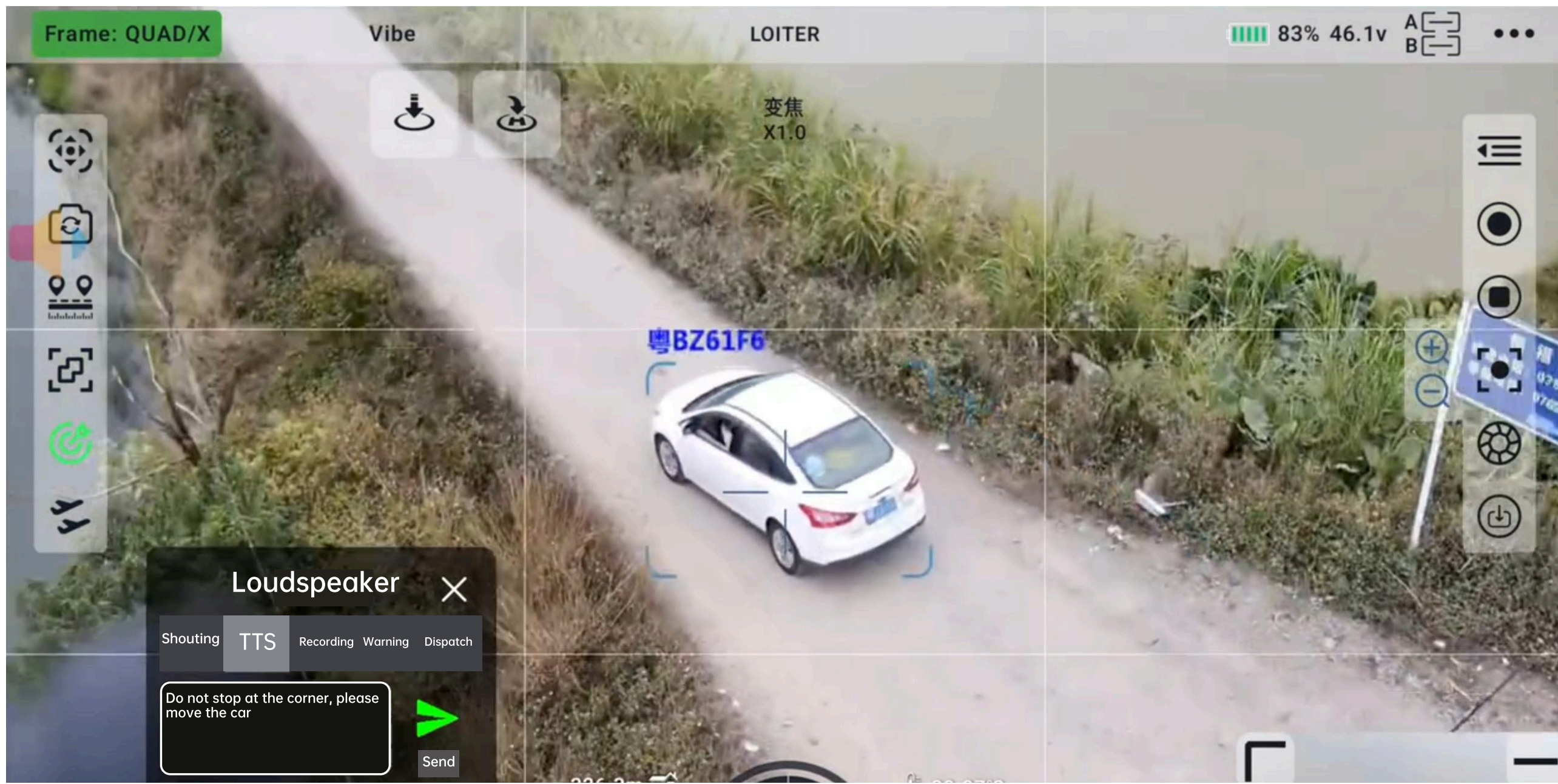
Step 2

The target vehicle receives the warning and moves the car.



Step 3

Smart filght follow, ensure that the vehicle is moved correctly.



Auto-inspection, Landing with one click

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Step 1

Plan the route in advance with the UniGCS.



Step 2

Auto-return after finishing the operation.



Step 3

Slow land the drone after ensuring that there are no human or vehicles.



Step 4

Turn off the power of the drone.



Step 5

Turn off the power of the controller.



Step 6

Store the drone, controller and other accessories in the safe storage box.



Solution A	No.	Name	Optional Components
	1	Drone Platform	UniDrone E900 Industrial-grade Drone Platform
	2	Installation Component	UniDrone E900 Dual Gimbal Mounting Component
	3	Installation Component	ZT30 Vibration-damping & Quick-release Component
	4	Gimbal Camera	SIYI ZR30 Optical Pod
	5	Loudspeaker	YA-4 All-in-one Device
	6	Software	UniGCS

Solution B	No.	Name	Optional Components
	1	Drone Platform	UniDrone E900 Industrial-grade Drone Platform
	2	Installation Component	UniDrone E900 Dual Gimbal Mounting Component
	3	Installation Component	ZT30 Vibration-damping & Quick-release Component
	4	Gimbal Camera	SIYI ZR10 Optical Pod
	5	Loudspeaker	VT100R Drone Loudspeaker
	6	Software	UniGCS

		 Purchase Index	
UniDrone E900 Industrial-grade Drone Platform			
Name	Parameter	Name	Parameter
Wheelbase	900mm	Payload Capacity	10.5 kg (maximum takeoff weight) 2.1 kg (maximum payload weight)
Flight Time	55min (no payload) 43min (full payload)	Positioning and Orientation Accuracy	RTK Centimeter-level Precision
Tramsmission Range	35km	Frequency	2.4G & 5G
FPV Mode	Pitch Follow Mode + FPV Mode	AI Function	Any Object Recognition AI Tracking Smart Flight Follow
Ground Station Display	7 inch 1080P	Battery Type	Smart Battery
Max Horizontal Flight Speed	20m/s	Aircraft Dimensions	Full Dimensions (Unfolded): L738 x W673 xH425 mm
Max Flight Altitude	5000m		Folded Dimensions: L428 x W412 xH425 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...		



UniDrone E900 Dual
Gimbal Mounting Component

Product Introduction:

One of the standard installation components of the UniDrone E900, which is used to expand the mounting space to support dual gimabal mounting, enabling more complex applications. Such as highway inspection with loudspeaker and ZR30 gimbal camera, or night-time search & rescue with a searchlight and ZR30.



ZT30 Vibration-damping &
Quick-release Component

Product Introduction:

One of the standard installation components of the UniDrone E900, it is used to reduce the spontaneous vibrations of the loads such as the megaphone and the gimbal camera. It can also provide a quick-release function, enabling rapid task transitions.

 SIYI ZR30 Optical Pod	Zoom Camera	30X Optical Zoom (180X Hybrid Zoom) 4K 1/2.7-Inch CMOS 8 MP Effective Resolution	Quick- Release Structure	Supported	 Purchase Index
			Controllable Yaw Angle	-270° ~ +270°	
			Video Output	Ethernet, Micro- HDMI	
			Control Signal Input	S.Bus, UART, Ethernet UDP	
			Product Dimensions (Including the Quick Release Anti-Vibration Board)	132*100*159 mm	
			Product Weight (Including the Quick Release Anti-Vibration Board)	628g	

 SIYI ZR10 Optical Pod	Zoom Camera	10X Optical Zoom (30X Hybrid Zoom) 2K 1/2.7-Inch CMOS 4 MP Effective Resolution	Controllable Yaw Angle	-160° ~ +160°	 Purchase Index
			Video Output	Ethernet	
			Control Signal Input	S.Bus, UART, Network UDP	
	Product Weight	381g	Product Dimensions	121*101*78 mm	

 VT100R Drone Loudspeaker	Name	Parameter	Name	Parameter
	Dimensions	125*135*145mm	Sound Pressure Level	130dB
	Weight	430g	Supported Format	MP3/WMA/FLAC/AAC/WAV
	Power	40W	Mode	Real-time shouting, TTS, Recording, Warning
	Control Interface	Network port	TTS	Male voice, Female voice, Speech rate, Intonation, Cycle
	Operating Voltage	12-24V	Pitch Adjustment	90°
	Sound Projection Distance	500m	Operating Temperature	-20℃~60℃

 YA-4 All-in-one Device	Name	Parameter	Name	Parameter
	Dimensions	200*155*140mm	Sound Pressure Level	130dB
	Weight	970g	Supported Format	MP3/FLAC/AAC/WAV
	Power	≤50W	Mode	Real-time shouting, TTS, Recording
	Control Interface	Network port	TTS	Male voice, Female voice, Speech rate, Intonation, Cycle
	Operating Voltage	12-24V	Pitch Adjustment	90°
	Sound Projection Distance	500m	Operating Temperature	-20℃~45℃

 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
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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 |
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