Precision Electronic Warfare，Intelligent Unmanned Navigation

Eectronic warfare UAV

Interceptor-1 & 2

Introductions

Profile

Cardiag Inc . specializes in the research, development, production, and application of electronic countermeasure payloads and intelligent unmanned systems.As an integrated technology enterprise, the company combines unmanned systems, electronic countermeasure payloads, software algorithm development, production, sales, service, and training. With a high-caliber R&D team led by Senior experts, the company possesses extensive experience in electronic countermeasure payloads and flight control systems.

Its payloads and platforms feature high compatibility, offering flexible solutions for diverse user needs. Core products include portable electronic countermeasure UAVs, electronic countermeasure payloads, and electronic countermeasure systems.

The product has been applied national defense, education, public safety and other fields..

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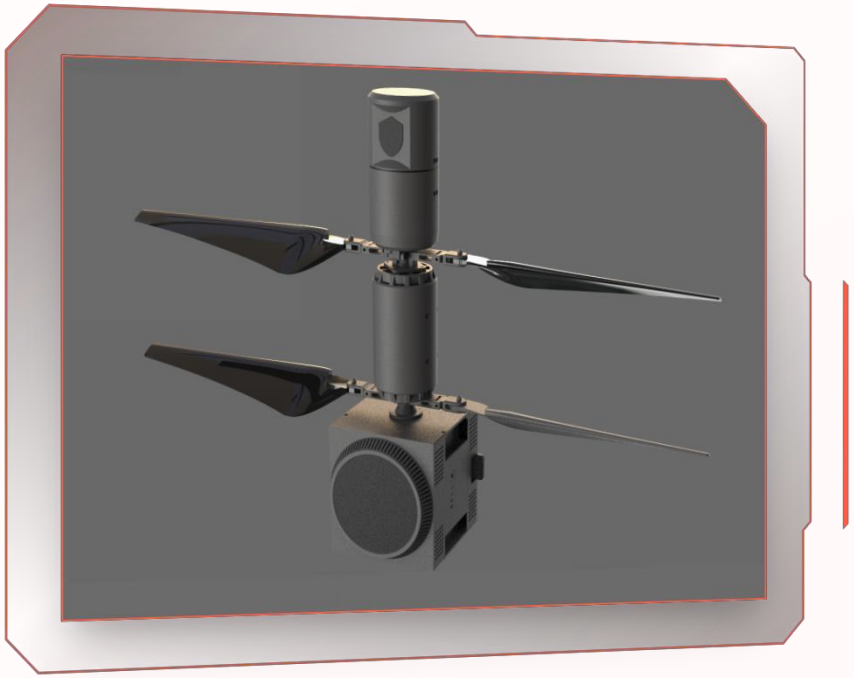
Ⅰ、Product Introduction

- Interceptor-1 is a portable electronic warfare drone designed for single-soldier deployment. Adopting the technic of “drones against drones, drone clusters against drone clusters”。 Obey the design principle of "cost equivalence and efficiency priority".These systems integrate flight control,combined navigation, radio detection, radio interference, and communication technologies, addressing limitations in traditional communication countermeasures such as restricted interference range, mobility, flexibility, and survivability.



- Full-process control over intruding drones (low-altitude, small, slow) and their ground control terminals within coverage. Ground or airborne deployment for omnidirectional/directional defense. Capable of locating ground-based drone operators.
- Typical targets: DJI, Autel, FPV consumer drones, industrial drones, and non-standard UAVs.

Ⅱ、System Functions

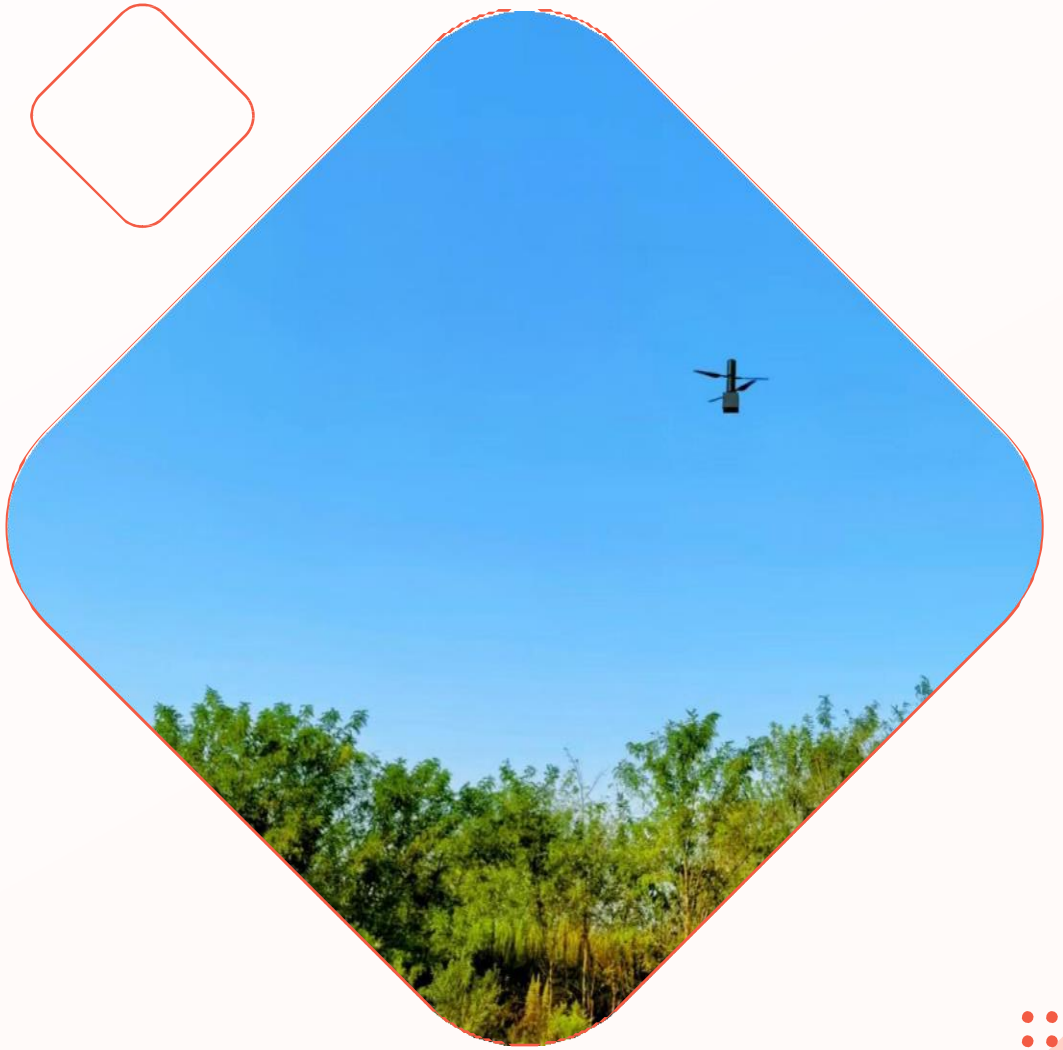
- Capable of receiving and processing electromagnetic signals within the working frequency range of 300MHz — 6GHz in all frequency bands, in all directions, with large dynamic range, signal frequency conversion, and fast frequency scanning monitoring;
- Capable of monitoring and direction finding unmanned aerial vehicle measurement and control signals and imagetransmission signals;
- Capable of multi station networking and multi station rendezvous target positioning;
- Ability to possess and apply the "known drone signal feature database";
- Capable of automatically or manually upgrading database management;

Ⅱ、Capabilities

Disturb communication: The communication link between the drone and the remote control is disrupted by Interceptor-1, making it impossible for the drone to receive commands from the remote control, resulting in loss of control.

Disturb Navigation: Interfering with the navigation system of drones, such as (GPS) or other navigation signals, makes it impossible for the drone to accurately obtain its own position and navigation information, resulting in loss of direction or inability to fly along the predetermined route..

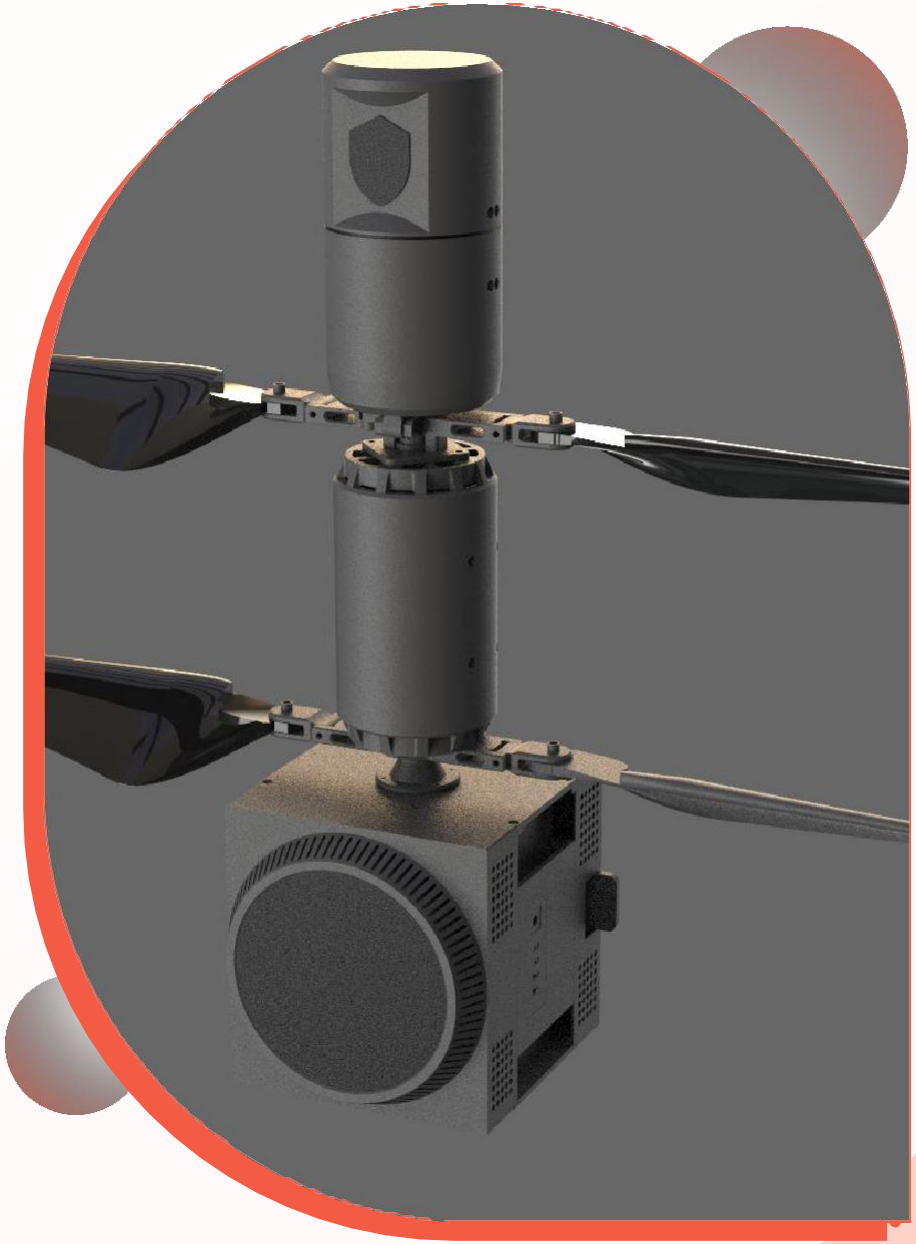
Positioning QGC: Utilize maneuverability to form a visual environment with the ground receiving end, and achieve traceability and positioning of the ground controller through angle measurement and direction finding.



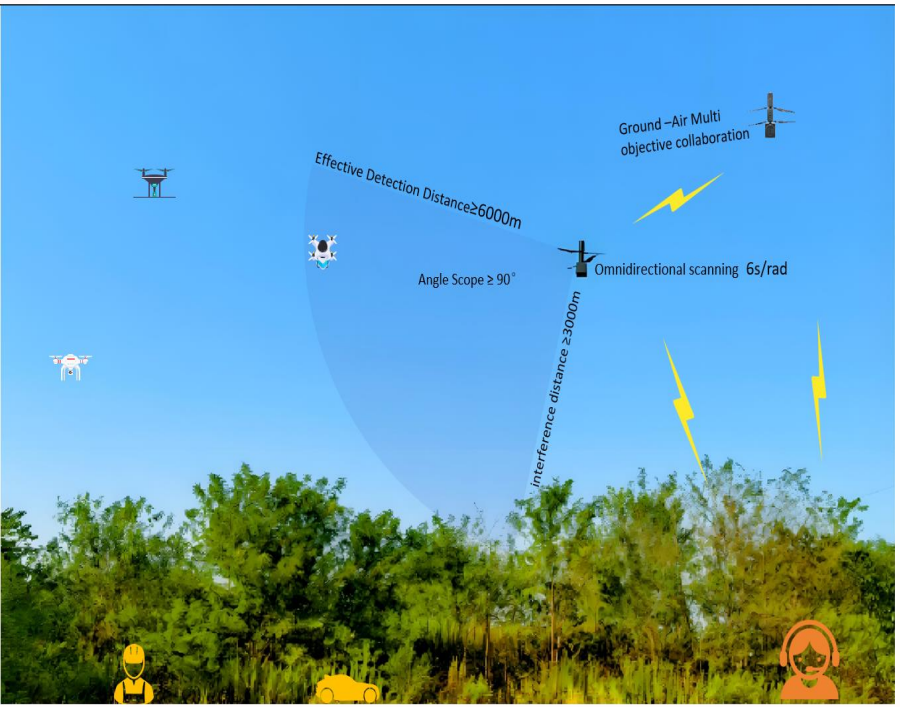
Ⅱ、Radio signal detection

Signal Detection : Within the range of 300M-6GHz, one or more frequency bands can be detected and measured, and support signal type discrimination and classification, occupancy measurement, waterfall plot, signal occupancy display, amplitude time-domain distribution, signal triggering measurement, interference intermodulation calculation and other measurement and analysis

Signal Identification : System is capable of recognizing various modulation signals such as OFDM, FM, FSK, MSK, BPSK, QPSK, as well as various types of unmanned aerial vehicle data links.



Ⅲ、Advantages



01

Smartly and efficiently detect

Combined with the strong maneuverability of the flight platform，using Radio reconnaissance and optical reconnaissance can smartly and accurately locate and identify targets.

02

Interference & Anti-interference , Offensive & Defensive

Capable of suppressing various navigation signals, mobile phone signals, and drone data links； Capable of interfering with both airborne and ground targets simultaneously； Capable of achieving close range interference without being limited by interference distance.

03

Lightweight and portable, flexible deployment

Small size and weight, making it easy to carry and support rapid vehicle launch.

04

Distinctive Architect Design

Small size, strong concealment，It’s difficult to be detected and attacked.

05

Flexible and proactive defense

Can be deployed on the ground or in the air, can be fixed for passive defense, and can be maneuvered for active attack.

IV、Parameters

Size： ＜ H700mm /(Electronic pod: 180*160*160mm)

Max speed：15m/s;

weight：6.5kg ;

max payload ： 12kg;

In-between charges： 75min;

max range ： 50km;

Practical ceiling ： 5500m ;

Detection Frequency： 0.3GHz~6GHz;

Instantaneous Bandwidth ： 100MHz;

Effective reconnaissance distance ： ≥ 6000m ;

Interference Frequency ： 0.8GHz ~ 6GHz;

Effective interference distance ： ≥ 3000m ;

IV、Parameters

Payload weight：800g；

Interference communication ratio：20:1（C/I）

Operational radius ：detection - 6000m，interference - 3000m ；

Detection response time： ≤2S；

Effective time of interference： ≤3S；

Operation duration： Continuous detection and countermeasures ≥ 65min ；

Simultaneously interference quantity： ≥ 10；

Saturation suppression range： ≤ 300m；

Scope of detection angle： 90°；

Working temperature：-20℃ - 55℃；

Water-resistant： IP55；

IV、Parameters

Size： < H1250mm /(Electronic pod: 180* 160* 160mm)

Max speed：25 m/ s;

weight：12 kg ;

max payload ： 25kg;

In-between charges：100 min;

max range ： 50 km;

Practical ceiling ： 5500 m ;

Detection Frequency：0.3 GHz ~ 6 GHz ;

Instantaneous Bandwidth ： 100M Hz ;

Effective reconnaissance distance ： ≥ 6000m ;

Interference Frequency ： 0.8 GHz ~ 6 GHz ;

Effective interference distance ： ≥ 3000m ;

IV、Parameters

Payload weight：1.5 kg；

Interference communication ratio：20:1（C/I）

Operational radius ：detection - 6000m，interference - 3000m ；

Detection response time： ≤2S；

Effective time of interference： ≤3S；

Operation duration： Continuous detection and countermeasures ≥ 75min ；

Simultaneously interference quantity： ≥ 10；

Saturation suppression range： ≤ 300m；

Scope of detection angle： 90°；

Working temperature：-20℃ - 55℃；

Water-resistant： IP55；

V、 Scenarios(Military affairs)

Situational awareness

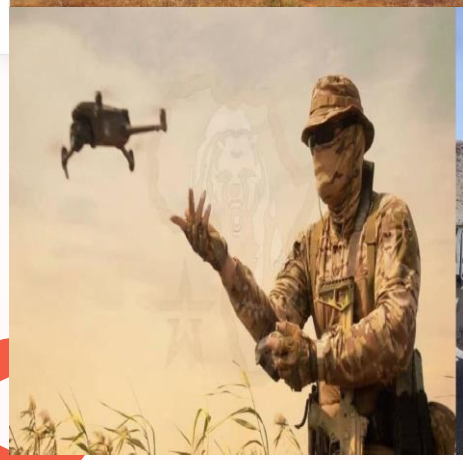
In designated area, it is possible to quickly obtain the electromagnetic radiation situation of various combat units on the zone, and provide a comprehensive battlefield situation for our own side through signal analysis.

Anti-UAV via UAVs

In the monitor area conduct targeted or mobile detection and warning of incoming drones . At the same time , disposal and position the ground control station.

Support Radio management

Assist in the management and control of the Radio spectrum over the area, ensuring the normal operation of our communication and other electronic systems. Support military units in conducting electronic warfare training, simulating various complex electromagnetic environments and enemy electronic countermeasures.



V、 Scenarios

Military affairs

UAV detect and jamming
In military applications, counter-UAV devices can be used to detect, jam, and destroy hostile drones, guarding military facilities from interference, and attacks.

No-Fly Zone Defense
Counter-UAV devices ensure the protection of no-fly zones to prevent illegal drones from entering sensitive areas.

Border Patrol
Counter-UAV devices can replace human personnel in border patrol missions，enhancing efficiency while effectively combating illegal cross-border criminal activities.

Public Security affairs

Major Event Security
In exhibitions and other major events, counter-UAV systems can ensure public safety.。

Law Enforcement and Security
Counter-UAV equipment can be deployed at law enforcement scenes and other sites requiring prevention of information leakage during operations.

Combat Illegal and Criminal Activities
Counter-UAV equipment can effectively combat smuggling and other criminal activities.

Common affairs

City Management
In commercial and industrial sectors, counter-UAV equipment can effectively prevent information leakage or other security breaches.

Disaster Mitigation and Rescue
Counter-UAV can detect radio and location，thus save critical time during rescure operations.

V、 Scenarios(Jungle Emergency rescue)

Radio Detection

UAVs can detect and analyze signals over a large jungle area from the air using radio detection equipment to conduct electronic signal monitoring. For intelligence gathering and target tracking and localization.

Seeking target

Through combined radio signal and optical detection, quickly search for camouflaged personnel and communication equipment beneath dense vegetation and behind concealed bunkers.

V、 Scenarios(Border Patrol and Disposal)

Sea monitoring

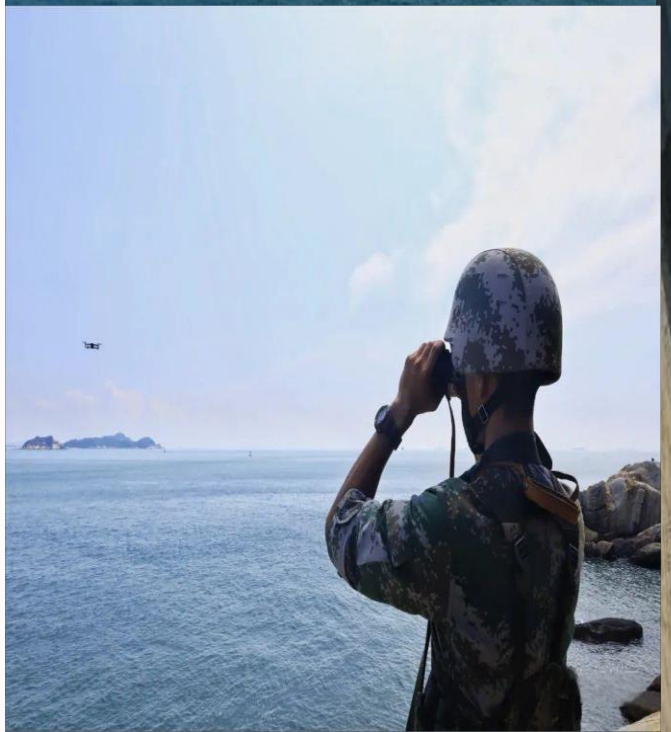
Monitor maritime safety, guard against illegal intrusions, smuggling, illegal immigration, and other criminal activities. Supervise and expel vessels that illegally enter the area.

Coastal defense patrol

Coastal defense outposts, ports, and other important locations can utilize the system to designate target areas for aerial patrols, conduct rapid searches using electro-optical and radio means, and locate suspicious vessels, unmanned boats, unmanned surface vehicles, and maritime command centers.

Border patrol

It’s possible to detect and prevent illegal drones from being used for smuggling, illegal immigration, or espionage activities. This strengthens border security control and safeguards the country's territorial security and border stability in border areas.



V、 Scenarios(anti-drone defense over activity & location)

Major Events Security

During major sporting events and important conferences, electronic countermeasure drones can be deployed in the air to conduct omnidirectional and round-the-clock monitoring of drones and actively intercept unauthorized ones. This is to prevent unauthorized drones from entering the airspace above sports venues, avoiding interference and potential safety hazards to the events or activities.

Important Location Security

Military bases and critical defense sites have extremely high requirements for airspace security. Electronic countermeasure drones can actively detect and maneuver to intercept low-altitude reconnaissance drones and lethal drones, and send the pilot's location information to the ground command center.

V、 Scenarios(radio security monitoring)

Wireless communication monitoring

Monitor radio communication signals to ensure the quality and security of communications. It can detect the strength, frequency, interference, and other conditions of the communication signals, promptly identifying communication faults. At the same time, it can also monitor and investigate illegal radio communications, maintaining communication order.

Spectrum resource management

Radio detection equipment can be used for spectrum monitoring to grasp the utilization of radio spectrum. Through spectrum monitoring, illegal occupation of spectrum resources can be identified, allowing for rational allocation and management of spectrum resources and improving spectrum utilization efficiency.

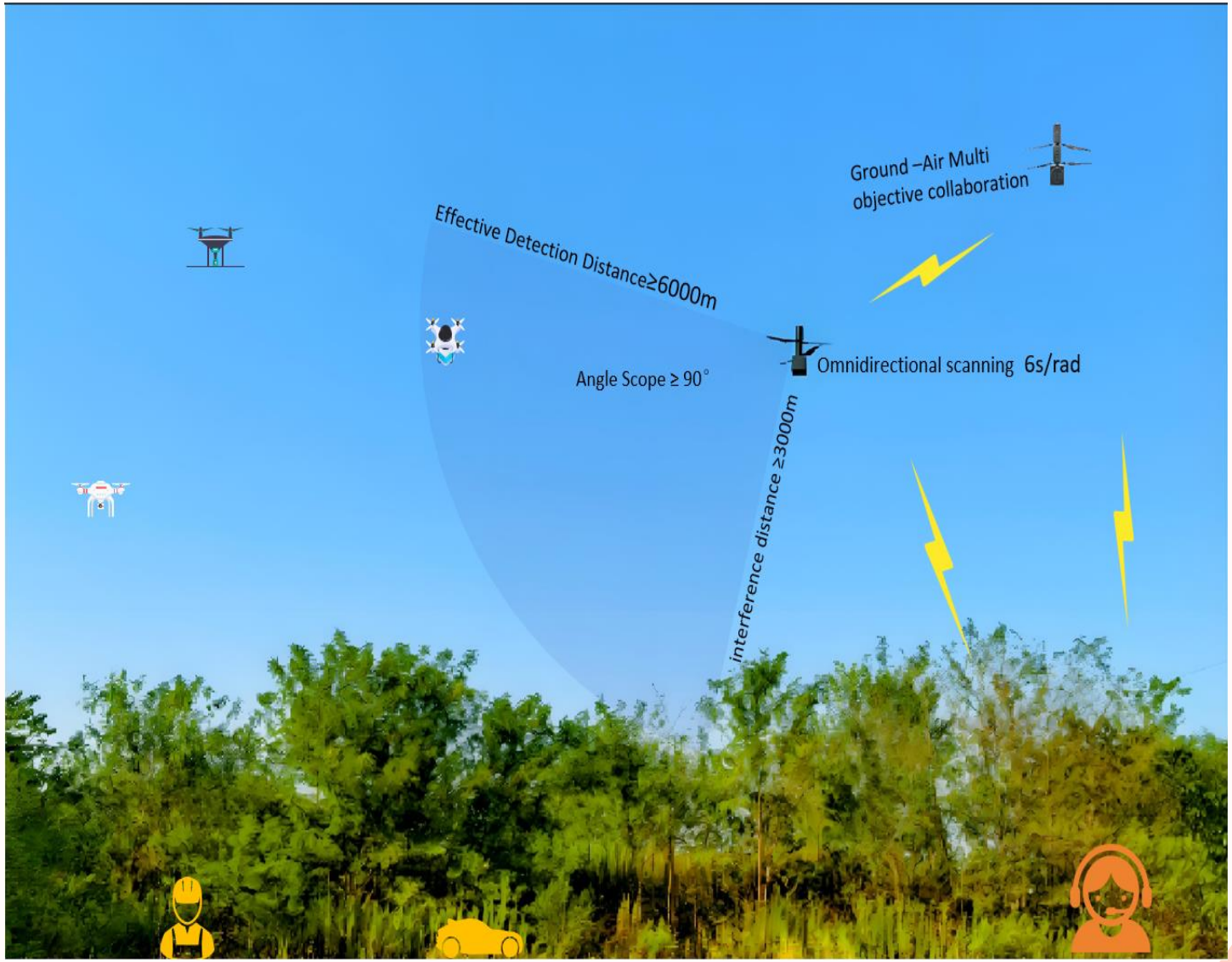
VI、System Effectiveness

Defense area

- Protection range

Detection range : 6km
Interference range : 3km
Scan angle : 90°
protection range in directional mode:
$area = \pi r^2/4 = \pi * 6^2/4 \approx 27km^2$
interference range in directional mode:
$area = \pi r^2/4 = \pi * 3^2/4 \approx 7km^2$

- protection range in omnidirectional mode:
$area = \pi r^2 = \pi * 6^2 \approx 108km^2$
interference range in omnidirectional mode:
$area = \pi r^2 = \pi * 3^2 \approx 28km^2$



THANK YOU

Cardiag Inc