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01 ABOUT GDU

Established on May, 2015, GDU-Tech Co., Ltd. is a high-tech UAV enterprise integrating R&D, production, and sales, headquartered in China's science and technology center, Shenzhen.

2015

2016

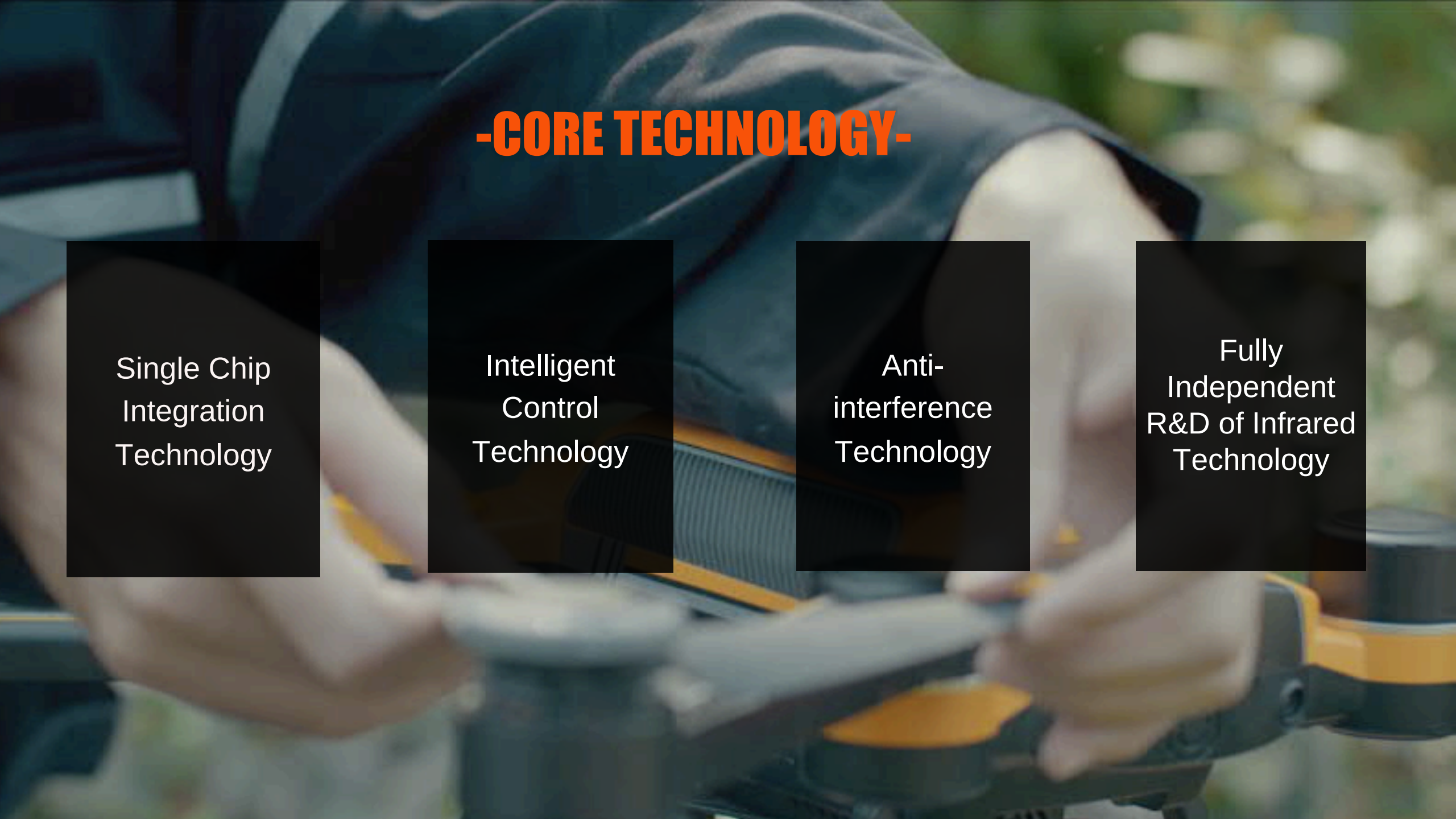
World's first folding drone-GDU Byrd was launched

2017

Mastered single chip integration technology

2018

GDU launched SAGA



-CORE TECHNOLOGY-

Single Chip Integration Technology

Intelligent Control Technology

Anti-interference Technology

Fully Independent R&D of Infrared Technology

02 ABOUT SAGA

Foldable Portability

Intelligent Control

Obstacle Avoidance

Compatible Universal Payload

39

39min Max Flight Time

7KM HD Video Transmission

Open SDK

3.4KG

Max Take-off Weight

Vision Positioning System

Description	Parameters
Model	GDU SAGA
Dimensions (Unfolded)	745mm×555mm×225mm
Dimensions (Folded)	273mm×224mm×107mm
Maximum Take-off Weight	3.4kg
Maximum Load	1kg
Maximum Horizontal Flight Speed	15m/s (Sport Mode)
Maximum Flight Altitude	3500m
Maximum Tolerable Wind Speed	10m/s
Maximum Flight Time	39 minutes
Satellite Positioning Module	GPS/GLONASS Dual Mode
Hover Accuracy (P-GPS)	Vertical：±0.5m (Downward Vision System：±0.1m) Horizontal：±1.5m (Downward Vision System：±0.3m)
IP Protection Level	IP43
Video Transmission and Flight Control Distance	7KM

PAYLOADS

800X600
Infrared Camera

10X Optical
Zoom Camera

30X Optical
Zoom Camera

4K HD Camera

SLR Gimbal

Megaphone

Floodlight

Gas Detector

Release Canister

Other
Payloads

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Model

1. 1280X1024 infrared dual light camera (First-class quality in the industry, ultra clear infrared gimbal)

2. 800X600 infrared dual light camera

3. 640X512 infrared dual light camera

4. 400X300 infrared dual light camera

Features

1. 50Hz frame frequency

2. NETD 30mk or less

3. High precision temperature measurement

4. Multiple lens adaptation

5. Visible light/ infrared video switching

10X Optical Zoom Camera
(GTZMHD-10X)

Features

1: 10x optical zoom, 4x digital zoom, zoom range 4.7-47mm;

2: 12.4 million effective pixels SONY CMOS;

3: 4K@30fps HD video, 1200W HD photo;

4: Fully automatic focusing, supporting fine tune focus;

5: 3-axis stabilization, image stabilization precision ≤ 0.01 °;

6: Optional wiring box, supporting SBUS, PWM, serial port control interface.

30X Optical Zoom Camera
(GTZMHD-30X)

Features

1: 30X optical zoom, 4X digital zoom, zoom range of 6~180mm;

2: 12.4 million effective pixels SONY CMOS;

3: 4K@30fps HD video, 1200W HD photo;

4: Fully automatic focusing, supporting fine tune focus;

5: 3-axis stabilization, image stabilization precision ≤0.01 °;

6: Optional wiring box, supporting SBUS, PWM, serial port control interface.

4K HD Camera
(QYT003)

Features

1: 12.4 million effective pixels;

2: Equivalent focal length 24mm;

3: 4K@30fp HD video, 1200W HD photo;

4: 3-axis stabilization, image stabilization precision ≤ 0.03 °;

5: Optional wiring box, supporting SBUS, PWM, serial port control interface.

GDU | SAGA

In Flight, Day and Night

-03 FIRE FIGHTING-

SAGA Public Security Applications

Emergency Response

In emergencies, SAGA can carry a variety of payloads to complete special tasks such as air monitoring, delivering instructions, and carrying emergency supplies. This decreases the potential for casualties. When natural disasters occur so do traffic jams which make it difficult for personnel and vehicles to arrive at the scene in time. In this case, SAGA's real-time video transmission can be used to alert and locate individuals in need of assistance as well as deliver life-saving equipment.

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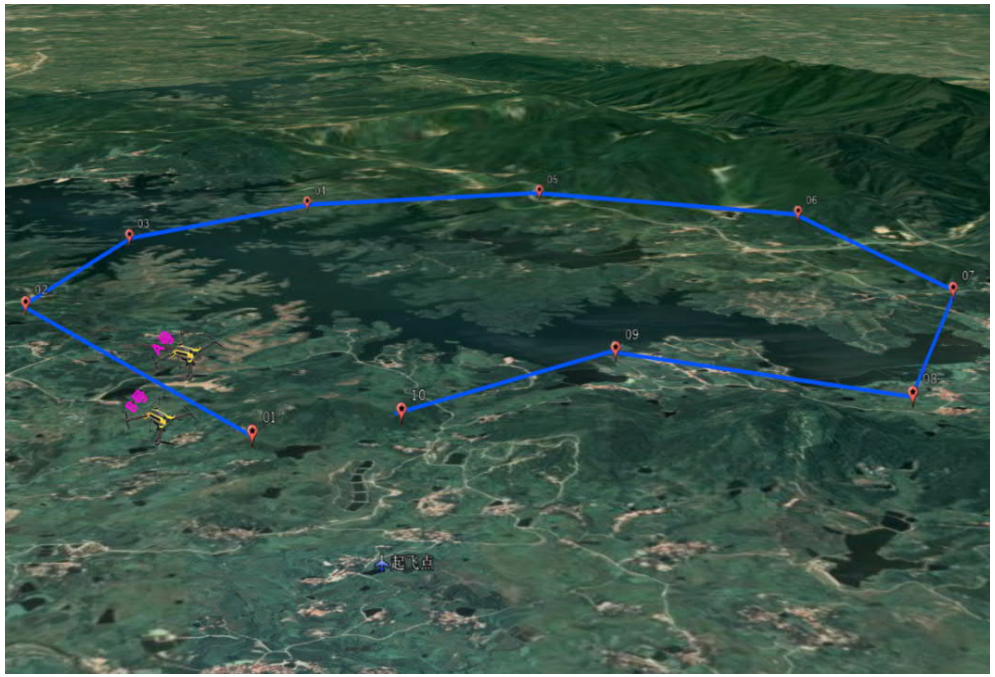


Route Planning Patrol

- ➢On the App, mountain patrol and forest protection routes can be planned in advance. When SAGA takes off, it will patrol and protect the forest according to the planned route. The staff only needs to check the real-time video transmitted on the App.
- ➢After arriving at the designated point, SAGA can carry out panoramic shooting and other specific tasks;
- ➢If abnormalities are found, SAGA can stop the flight path at any time, close to the area in question.
- ➢When equipped with an infrared camera, the App can set the temperature abnormality range. When the infrared camera detects abnormal temperatures, it will immediately report to the command center and alert the staff of the situation detected by the App.
- ➢The planning path file supports sharing and editing. During patrols, SAGA is equipped with infrared and visible light cameras to carry out tasks at different heights. When infrared anomalies are found, the positions are located and detailed information is obtained by the device.

SAGA Fire Prevention Applications

Area Calculation

SAGA equipped with a 30X HD optical zoom camera with automatic white balance, automatic gain and automatic color correction can see practically anything allowing for HD and multi-angle video data to be obtained remotely. Accordingly, the data transmitted by SAGA can determine the effected area.

SAGA Fire Prevention Applications

Monitoring and Tracking

Fire fighters face all kinds of disasters especially since conditions can change instantly. Using SAGA for real-time monitoring and tracking can provide precise information regarding changes in any situation to ensure that all levels of leadership are informed in a timely manner.

SOLUTIONS ——Fire Prevention

Rescue Assistance

1. An Integrated megaphone can transmit and convey instructions which is more effective to direct those on the ground.

2. Use SAGA to assist rope throwing or carry key equipment (such as a breathing apparatus) to open up a life-saving passage.

3. SAGA can be used for communication relays. For example, in an environment where communication is blocked, the integrated relay module for SAGA can be used to serve as a temporary relay station, so as to establish wireless communication links in these extreme environments.

4. SAGA's integrated aerial photography module is used for surveying and mapping to collect all the information of a disaster or accident site and transmit it to the command center, so as to conduct emergency terrain mapping and provide strong support for rescue operations.

SAGA Fire Prevention Applications

Surveillance

SAGA can be used for comprehensive and real-time detection of forest areas, timely detection of fire hazards, real-time fire control, forest fire inspection, and on-site image storage. Video monitoring can be connected to other security or fire monitoring systems. It supports large-capacity and long-term image storage, retrieval, remote viewing, and control functions through intelligent terminals.

SAGA Fire Prevention Applications

Monitoring

After arriving at the scene of a fire, SAGA, carrying a 30X optical zoom camera, can collect evidence in the air and search for people trapped inside. After fire fighters break windows, the source of the fire can be identified with an infrared thermal camera and transmit the images to the command center in real time. Evacuating trapped people by means of HD cameras and using loudspeakers to convey information for a hasty escape is incredibly effective.

SAGA Fire Prevention Applications

Detection of Harmful and Explosive Gases

With chemical fires developing rapidly, the high potential for and toxic fallout from explosions are incredibly high making fire fighting and rescue operations extremely dangerous. SAGA can carry out real-time data analysis of gas concentrations and composition to transmit the data to the command center for leaders to make decisions, so as to avoid recurring explosions and casualties.

SAGA Fire Prevention Applications

Fire Scenarios & Rescue Operations

SAGA equipped with a release canister containing a smoke hood, fire-extinguishing bomb, rescue rope or other materials can assist trapped people trying to escape heavy smoke and fire. If there is a fire source below and the conditions for escape are not met, SAGA can also conduct aerial wiring and lead people to the opposite building for a lateral escape.

04 SAGA Solutions & Case Studies

Disaster Monitoring

- Fire protection
- Post-disaster assessment
- Pest control

Resource Survey

- Resource Monitoring

UAV Inspection

- Animal monitoring and tracking
- Vegetation monitoring
- Logging monitoring

Command Center

- Real time monitoring
- Patrol task scheduling

03 SAGA FORESTRY APPLICATIONS

Forest Resource Patrol

Fire Monitoring and Prevention

Plant and Animal Monitoring

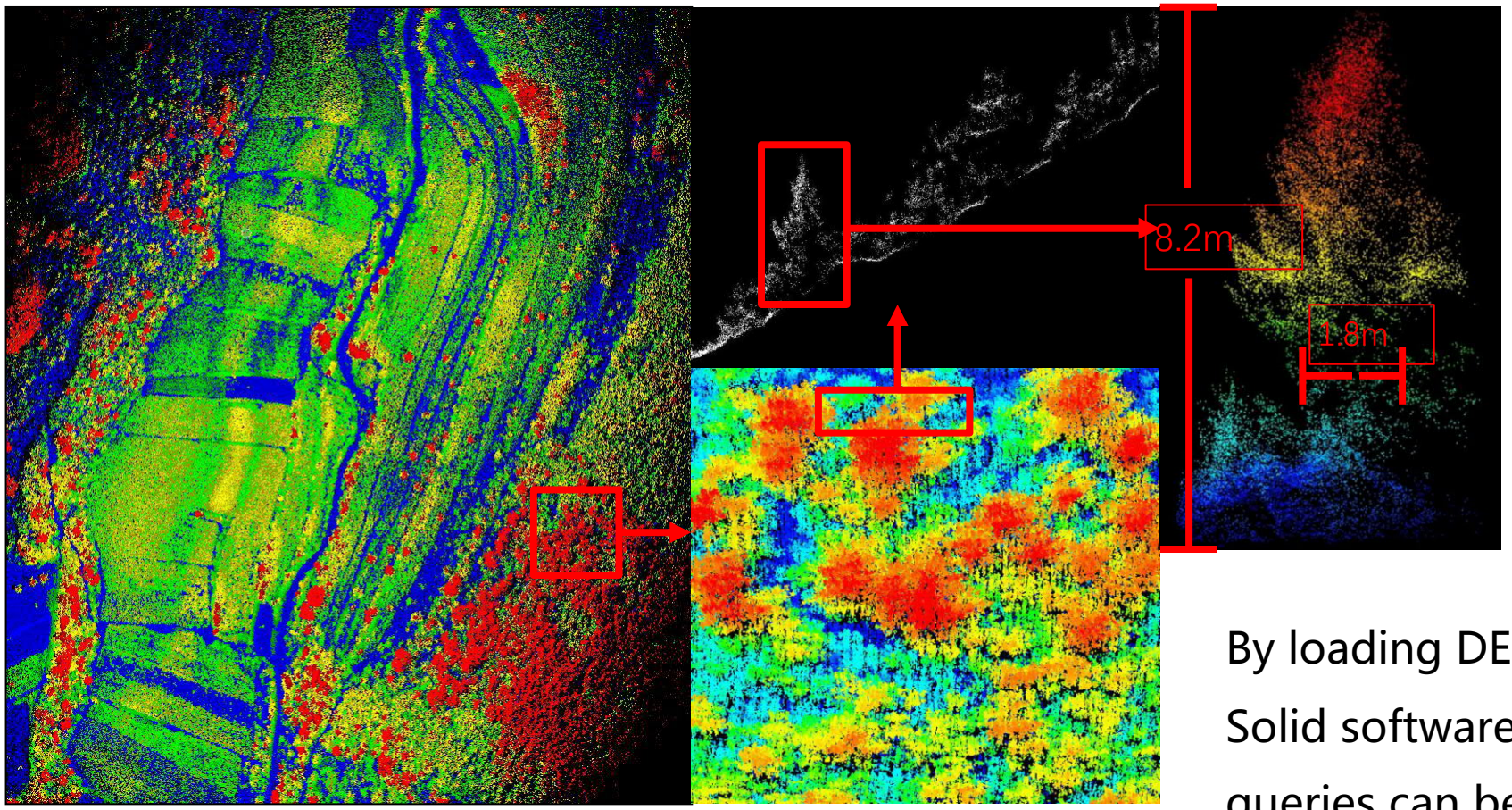
Pest Monitoring and Control

Advantages of SAGA Applications in Forestry

Index	Satellites	Aircrafts	SAGA	Probes
Cost	Moderate	High cost, need to lease aircrafts, aerial cameras, airport and other facilities	Low cost, one-time purchase, worry-free	The cost is low but the quantity demanded is large
Efficiency	Very low efficiency, images and data collection are time consuming	Average efficiency, greatly affected by the weather and greatly regulated by civil aviation	High efficiency, low flight altitude, little control by civil aviation	High efficiency but need to distribute probes by region
Real-time	---	Flight missions are reported in advance and requires 6 hours for preparation	Always on standby, urgent tasks can be started in a few minutes	All-weather operation
Practicality	----	----	Different payloads can be equipped to complete a variety of tasks, such as pesticide spraying	----
Controllability	Uncontrollable	Low controllability. Pilot operated and fixed route	High controllability. After training, the ground station can be used to control the UAV's flight	Low controllability limited by fixed working platform with the probe angle only able to be rotated in place
Accuracy	Low accuracy, currently only supports a resolution less than 50cm	High accuracy, supports a resolution ranging from 5-50cm	High accuracy, supports a resolution ranging from 3-50cm	----

SOLUTIONS—Resource Survey

Forest Resource Estimation



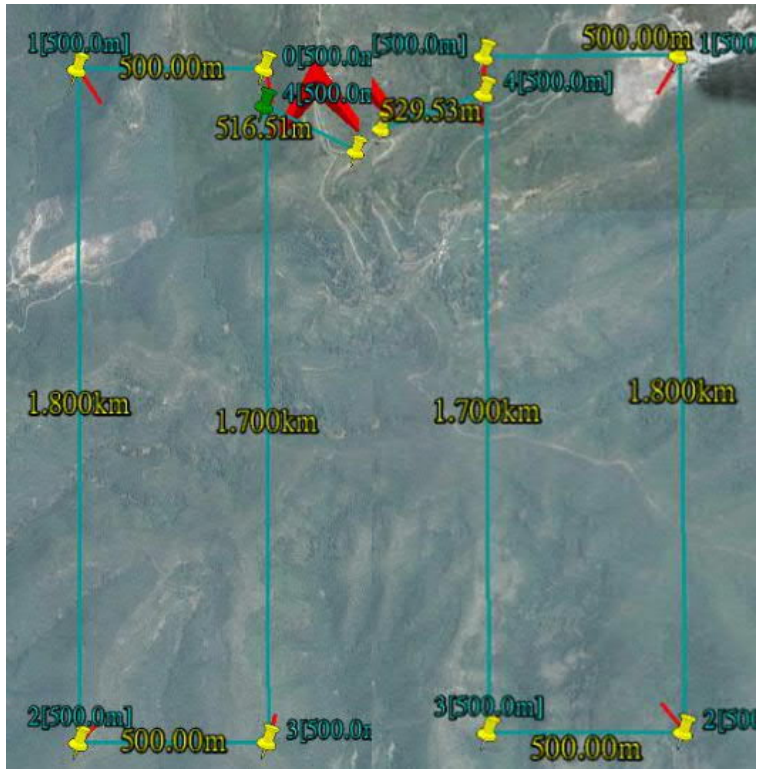
By loading DEM data in Terra Solid software, various attribute queries can be performed.

SOLUTIONS——Resource Survey

Vegetation Monitoring

With HD optics, SAGA can survey vegetation and monitor trees to prevent illegal activities such as logging and jungle reconstruction.

SOLUTIONS——Resource Survey



Equipped with an HD optical camera, GDU SAGA can plan a flight path, and collect resource distribution data.

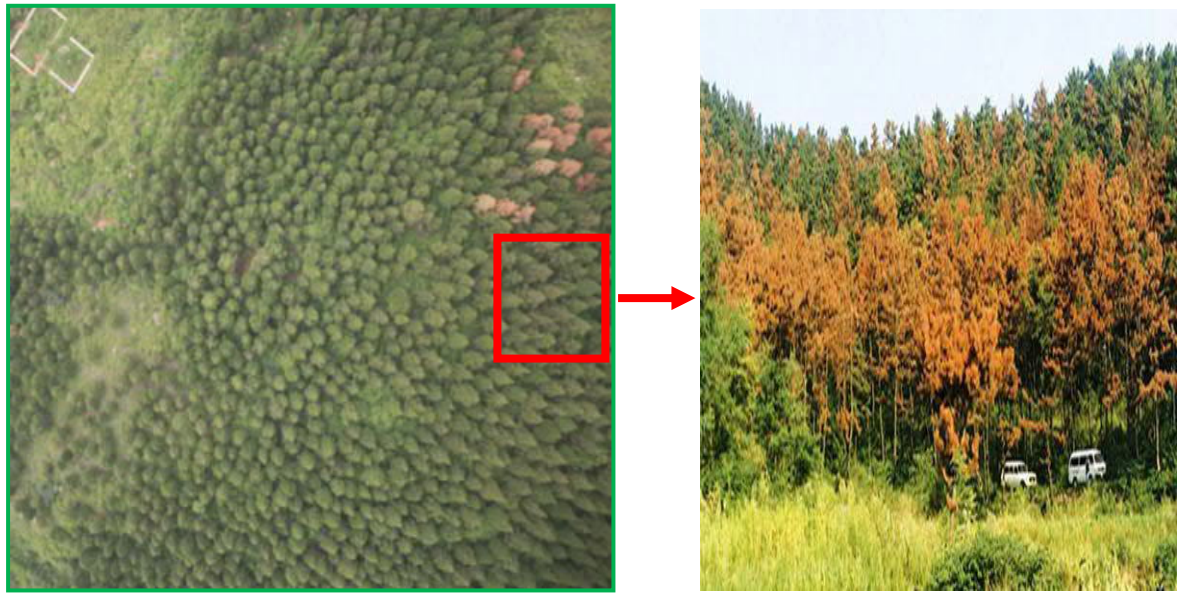
Resource Monitoring & Measurement

SOLUTIONS——Wildlife Monitoring

HD Zoom Camera Monitors Wildlife Status

Under normal circumstances, HD scanning and shooting by SAGA can be carried out in key areas of wildlife activity, such as migration, breeding, and hibernation, so as to obtain high-resolution aerial image data, affirm resource quantity, and eco-status of wild animals.

SOLUTIONS——Wildlife Monitoring



Pest Control

- SAGA' s remote sensing data collection is also supplemented by satellite and manned aerial remote sensing. According to data analysis results, targeted manual ground inspection is conducted to ensure the coverage accuracy of forest pest detection and reporting, while improving the working efficiency.
- SAGA will regularly acquire woodland data and generates DOM data after processing. DOM data is used to monitor the discoloration abnormalities of trees. Dead trees, discolored trees, and abnormal trees can be located by using high-precision remote sensing images and GIS information. This can clearly distinguish the effects of diseases and insects.
- Verification, supervision, and fine management. Remote sensing technology is used to monitor forest growth rapidly and with high precision. First-hand information is obtained so as to monitor and control the situation and keep track of forest growth.

SAGA Case Study 2

GDU SAGA Aids an Overseas Forest Bureau to Increase Forest Greening Rate

Client : Forestry Bureau

Main Purpose : Forest protection, general forest inspection

Platform : GDU SAGA + 4K camera

Main Functions : Upload to data server, picture stitching, task planning

Project Background : A country is a tourist destination. It should actively engage in environmental and forest protection, take initiative in producing forest maps, and update old data. If the appropriate updates are made in real-time, there will be no deforestation, illegal buildings, forest fires or other various environmental issues.

SAGA's Highlights :

1. A server database is stored in the Forestry Bureau of each country. The officials of the Forestry Bureau headquarters can retrieve the required data through the webpage anytime and anywhere.

2. Task planning. Planning the designated flight mission according to the needs of surveying and mapping.

3. Forests are large and SAGA's flight time is long. A height of 500m is needed to shoot a 2 square kilometer area.

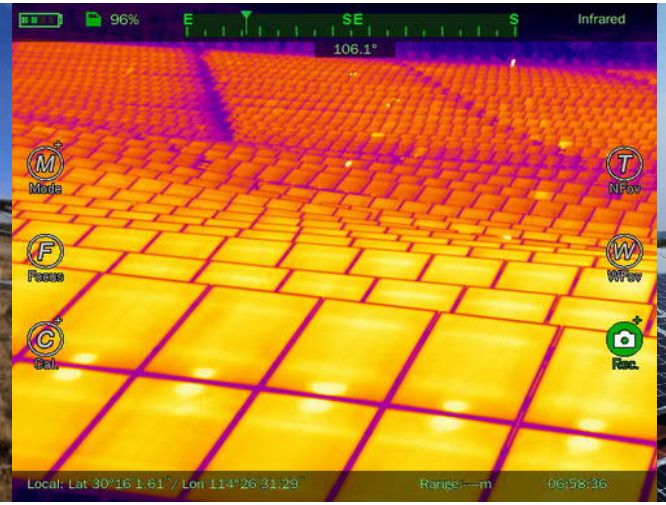
4. Plan to take photos of different points of the target and then stitch out the terrain in real-time.

5. Take pictures with their own coordinates, latitude and longitude.

SAGA not only manages the design, operation, maintenance, post-evaluation, emergency processes for the power station, but also carries out the monitoring and maintenance of solar panels. It can save time and energy unlike manual inspection, provides aerial mapping quickly, conducts image temperature recognition accurately, gives timely information feedback, and will improve work efficiency.

Solar power station inspection

Solar panel inspection



Solar panel temperature identification

Inspect solar panel hot spots

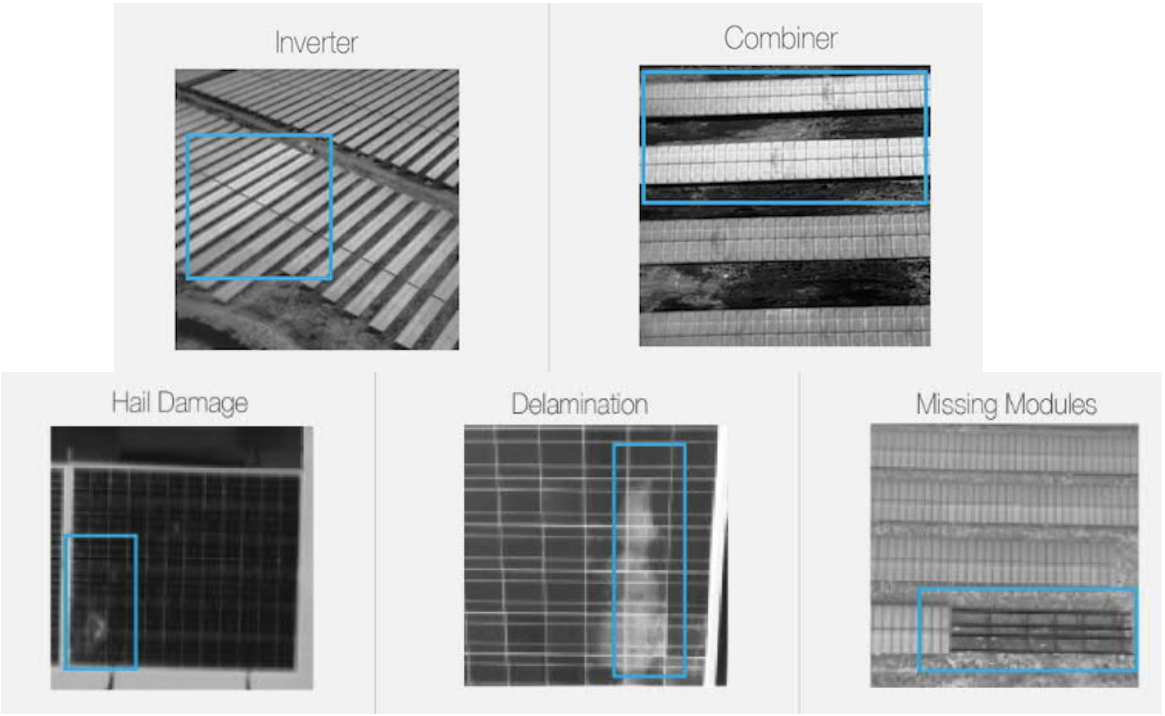
SAGA Case Study 2

Testing the Solar Power System -- 800X600 Infrared Camera

Content : SAGA, using a 800x600 HD infrared intelligent camera, can accurately collect temperature information of solar panels, quickly identify abnormal hot spots from tens of thousands of solar panels, distinguish damaged infrastructure in great detail, all while locating safety risks, reducing costs, and increasing efficiency.

Advantages : Not affected by the environment, highly efficient, convenient payloads, supports Smart Shot, intelligent obstacle avoidance, gesture recognition, accurate real-time information collection, intelligent software processing

SAGA Case Study 4



Solar Panel Abnormality Detection

Content：SAGA will identify various abnormalities (such as battery hotspots, multi-cell hotspots and activated bypass diodes) in the solar module framework, strings may be reversed or failed, and inverters be offline. By carrying a 4K HD camera, 30X camera, infrared camera, or other intelligent payloads, SAGA can accurately and comprehensively collect information of solar panels, strings, inverters and combiners, and can quickly perform inspections using real-time HD imaging for routine maintenance.

Advantages：Environmental adaptability, timely information collection, high security, rapid inspection and identification