



## Conquer the Sky for Human's Good

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- Beijing city MMC Tienmu technology
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- Shandong province zhoucheng city MMC Tienmu technology
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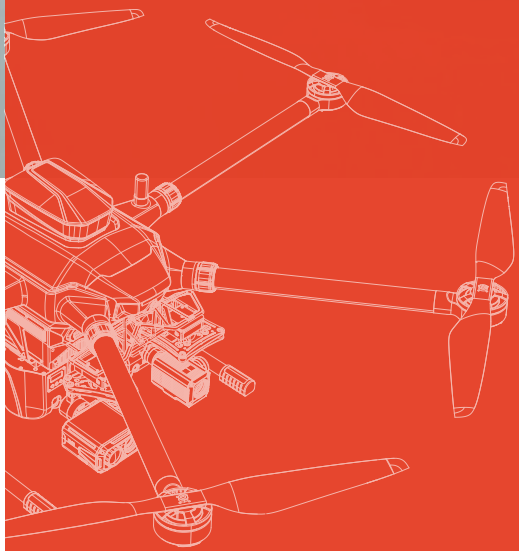
Wechat Official Account



The Cloud Application

# MMCUAV Forest Fire Prevention And Inspection

## Industrial Solutions



## The importance of forest inspection

China has a vast territory and wide distribution, with a forest area of more than 220 million hectares, which is not only a large country of forest resources, but also a country prone to forest fires. There will be 709 forest fires in 2022 and 240 forest fires in the first half of 2023.

Canopy Fire

Surface-fire

Underground Fire

## Current Situation

### The complex forest environment

Relying on forest rangers to patrol mountains on foot, it is time-consuming and laborious, which may increase the cost of the inspection, and less quality.

### Forest fire occurs in the wild

Multi-rotor UAV is widely used in forest fire in spection, which can detect forest condition in real time and find potential fire hazards, and improve the efficiency and accuracy of inspection.



## The Issue of Fire Fighting

During the specific seasons or holidays, the fire hazards are more likely to be occurred which requires high prevention ability of staff. within the comprehensive perspective monitoring, info sharing, commanding, dispatching and fire extinguishing process. These factors would be potential risks of a high efficiency fire suppression.

### Complex Environment

Steep hills, Traffic limitations, The hidden fires

### High Requirments

Requires a professional ranger Knowledge and skills

### Low Efficiency

Multi-rotor short battery duration, limited signal

### Difficulty Coordination

Multi departments coordinating, lack communication



## Project Introduction

### The MMC smart-fire preventing solutions

Two inspection modes maximize the energy efficiency of large-scale automated inspection, it liberates the pressure of manual patrol, and enhanced the efficiency of UAV inspection.

180mins Mega-endurance

HR and Dual Light Imaging

Smoke and Flame Recognition

80km Patrol Radius

5km Laser Range

Live and Efficient Linkage



The Platform (Command Center)

Sending Tasks

Feedback

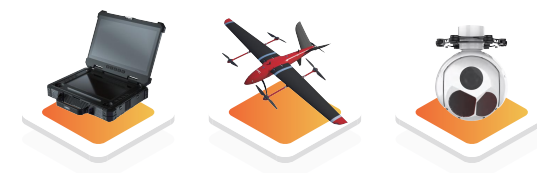


Mobile Device

Sending Inspection Task

Data Transmission

### Solution 1 (GCS Inspection)



GCS

Fixed-wing



Tri-light Camera

### Solution 2 (Automatic Inspection)



M-station

Fixed -wing

Tri-Light Camera



# The Structure



# Program Benefits



### High inspection efficiency

- The maximum daily inspection of 2 rangers is about 20 square kilometers, and the daily inspection of 1 hanging fixed wing is not less than 100 square kilometers;
- Effectively break through terrain constraints, greatly reduce labor and time costs, with higher economic benefits.



### Highly intelligent

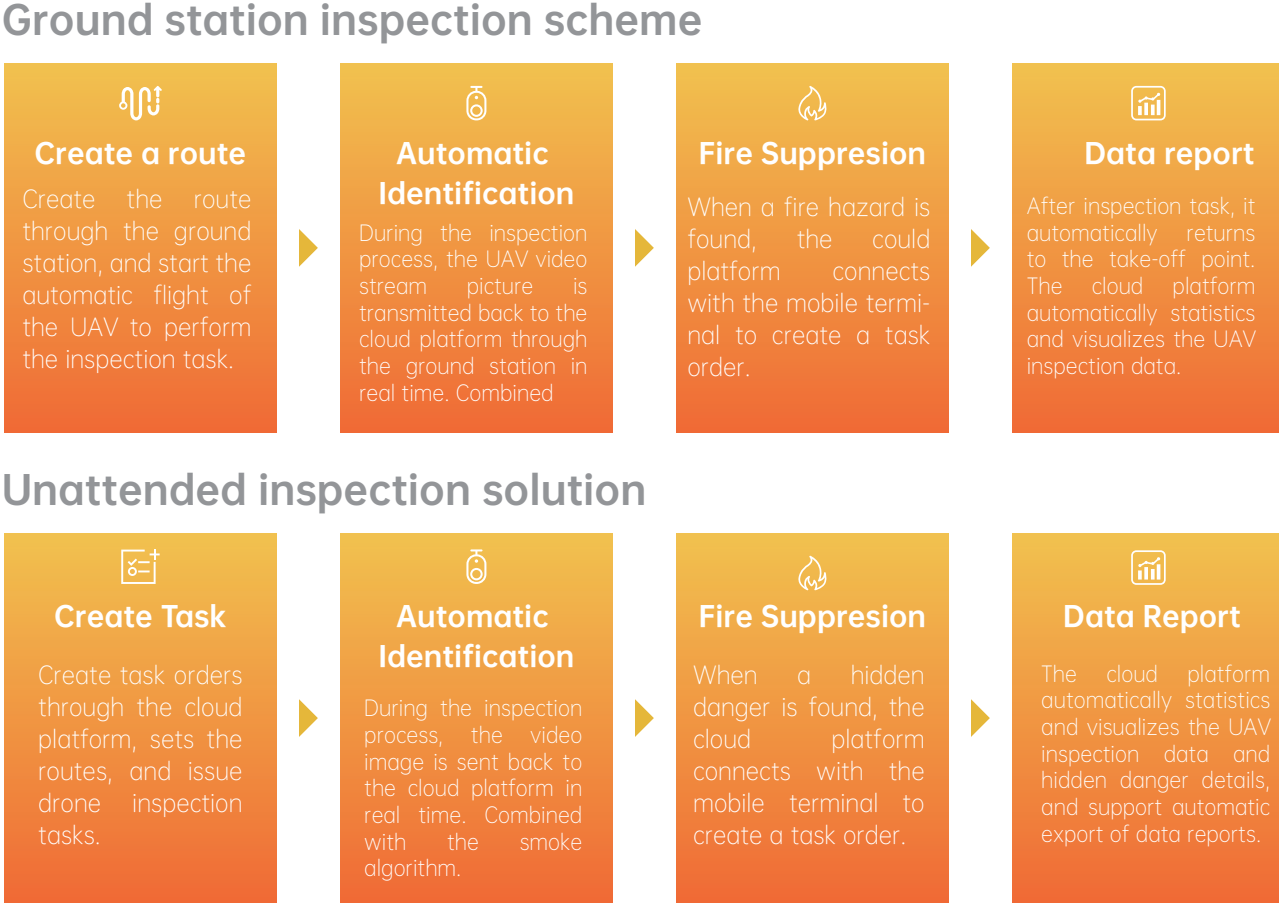
- Dual light imaging, location positioning and intelligent recognition capabilities, comprehensive insight into forest fire hazards;
- No need for professional personnel, greatly optimizing the labor intensity and patrol time of operators.



### Flexible coordination

- Aerial inspection visualization, accurate data acquisition, cross-unit collaboration and high efficiency;
- No need for forest rangers to survey on foot, and can quickly locate suspected or dangerous areas through mobile terminals to complete information coordination.

# Operation Process



# Introduction To Products

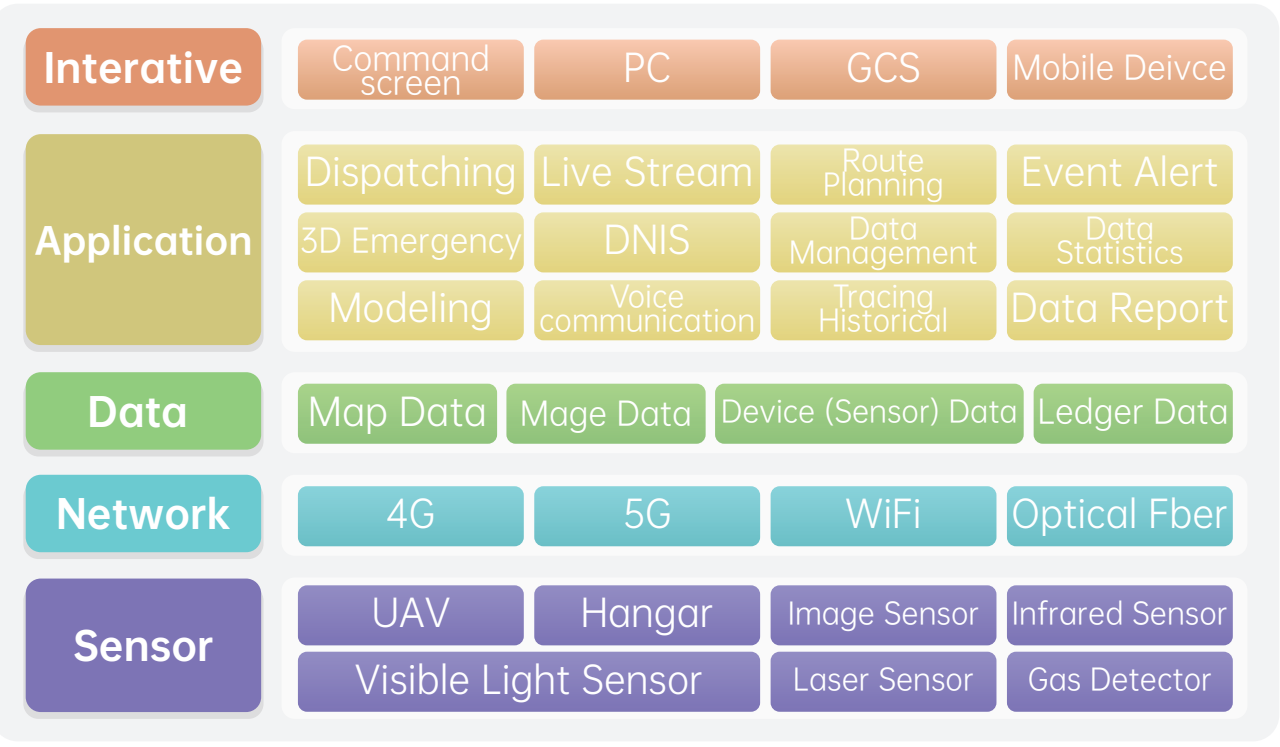
## The Relative Ground Station Products


Platform	GCS	UAV	Tri-light Camera	AI Algorithm	Mobile Device
Mspace	Atlas Mobile 3	Griflion M10	Thyea VT360R	The Algorithm	The Traveller

## Unattended Inspection Solution

Platform	Unattended Hangar	UAV	Tri-light Camera	AI Algorithm	Mobile Device
Mspace	Mar-station 3	Griflion M10	Thyea VT360R	The Algorithm	The Traveller

# The Stucture Of Mspace






### Griflion M10

The flight platform adopts the quick-disassembly design, which can be quickly assembled and deployed, suitable for many mission loads.


180min (6pcs) Max. Endurance	10kg Payload Weight	80km Control Radius	82km/h Cruise Spped
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### Atlas Neo III

It is suitable for the control of MMC full range of UAV products and all types of mounting equipment equipped with high-definition image return, flight path planning, adjustment of flight mode, acquisition of flight status, control of UAV mounting and other functions.

8.4kg Weight	4h Operating Time	IP54 Level of Protection	-20~70°C Storage Temperature
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### Marstation 3 (Unattended Hangar)

MMC unmanned automatic apron system is a visual operating system integrating UAV automatic flight, cluster scheduling and data processing. It consists of an intelligent scheduling inspection platform composed of UAV automatic airport, external intelligent weather station.

4g/5g Wireless Communication	3000w Peak Power	Autonomous Charging
160km Covering Diamete	Mains or Solar	IP55 Level of Protectio



### Thyea VT360R

With detection, identification of ground targets, target location, automatic capture, laser ranging, fault diagnosis and other functions.

30x Optical Zoom	1920*1080 HR	120m-5km Laser Ranging	640*512 HR(Infrared)
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### Data Link (Grid-connected Airborne Terminal)

The world's smallest, lightest, and best adaptive 5G network UAV frontmounted.

SIM Card Design	Support for esim and nanosim/Support for dual SIM
Commucation	Support 5GSA/NSA/4G/air uplink speed 200Mbps
Interface	Multiple serial ports/one Gigabit Ethernet por
Protocol	RTMP/RTSP IPV6/IPv4 / DHCP



### AI Algorithm

Smoke Identification: 98%	Flame Identification Rate: 100%
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### Device


It mainly assists forest rangers in daily patrol, emergency personnel in event viewing, navigation, processing, result reporting and personnel positioning.

Conversation	Real-time Monitoring	Data Traceability
Task Processing	Event Handling	Data Upload


# Successful Case

🕒 2023/9 📍 Guangdong Province Zhaoqing City


## Application: Forest Fire Prevention Drone Project



### Automatic Inspection, Large-scale Inspection



### Three-light Imaging, Laser Rangig, AI Recognition



### Real-time monitoring, forecasting and early warning to promote sustainable development of forestry

Integrated application of UAV, three-light imaging, AI recognition system and other fusion technology, automatic detection of smoke and hidden fire points, quickly identify fire hazards; The UAV flew to a height of 200m for high-speed large-scale inspection, and made imely response to the fire through real-time monitoring to better protect forest resources.

