

MULTISENSE[®]

MULTIPLE SENSES BIONIC VISION SELF-DRIVING SYSTEM

PRODUCT INTRODUCTION





INTRODUCTION

MULTISENSE is a multiple senses bionic visual self-driving system which is independently developed by HANVO. It has the functions including control and navigation, three-dimensional space perception and positioning, path planning and decision-making, and real-time autonomous obstacle avoidance.

Relying on powerful edge computing capabilities, MULTISENSE can realize real-time perception and 3D map construction of the surrounding environment, and complete path planning and intelligent decision-making based on the spatial information of obstacles in the surrounding environment.

MULTISENSE could be easily installed, integrated and used as a common sensor due to the highly integrated modular design; Flexible interface design and software configuration options provide users with maximum flexibility to adapt to different application scenarios; Due to the customized design the protocol can be directly used for existing unmanned devices such as drones, unmanned vehicles, unmanned boats, and robots.

INTRODUCTION

Product Characteristic

- ⌚ L4 autonomous driving
- ⌚ Multiple redundant system
- ⌚ Indoor and outdoor navigation without GNSS
- ⌚ Path planning and obstacle avoidance
- ⌚ Anti-electromagnet interference
- ⌚ WIFI + 4G/5G double data link
- ⌚ Simplified vehicle operation
- ⌚ Real time 3D reconstruction and display
- ⌚ Flexible software configuration
- ⌚ Multiple application mode
- ⌚ Multiple application mode
- 🎯 6 x cameras, 3 groups of stereo cameras
- 🎯 1 x USB3.0 OTG
- 🎯 1 x USB3.0 HOST
- 🎯 1 x Gigabit Ethernet port
- 🎯 1 x SD card
- 🎯 2 x UART, Baud rate up to 27 Mbit/s
- 🎯 16 x GPIO



Application Scenario

Reconnaissance



Outdoor with complex obstacles



Electromagnet Interference



Indoor with complex obstacles



Without GNSS

Fulfill the requirements for the reconnaissance in the strong electromagnetic interference environment, indoor complex environment, and no GNSS environment

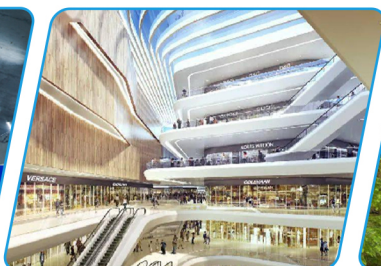
Search and Rescue



Mine/Cave



Tunnel



Mall



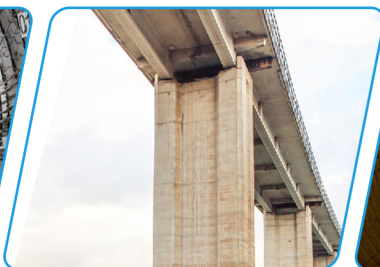
Forest

Fulfill the requirements for the search and rescue in the strong electromagnetic interference environment, indoor complex environment, and no GNSS environment

Mapping



Tunnel



Bridge



Underground tunnel



Inspection

Fulfill the requirements for the mapping in the strong electromagnetic interference environment, indoor complex environment, and no GNSS environment

Product Specification

System Configuration

IMU	Triple IMU
Barometer	Triple Barometer
Compass	Triple Compass
GNSS	Double GNSS
	GPS、GLONASS、GALILEO and Beidou
	RTK mode and Single mode
	High-Performance Helical Cylindrical Antenna
Positioning accuracy	-5cm ~ +5cm
Button	Reset and Recovery
Status light	Power and System status
Power in	AMASS XT30UPB-F
	DC 5.5V~19.2V (35W)
Weight(system)	386g
Size (LxWxH) /mm	107 mm * 64 mm * 52 mm



Visual Sensor

Size (LxWxH) /mm	28 mm * 28 mm * 20 mm
Number	Maximum 6 visual sensors



Interfaces

USB Type-C	Host mode: USB3.0 super speed mode (5Gb/s) , 5W power in
	OTG mode: USB3.0 super speed mode (5Gb/s)
USB Type-A	Host mode: USB3.0 super speed mode (5Gb/s) , 5W power in
Ethernet port	Gigabit Ethernet port, 10/100/1000 Ethernet
3 in 2 card	Nano、Micro SD card 3 in 2, 1 Miro SD card and 1 Nano 4G card
Wireless network (optional)	WIFI, IEEE 802.11a/b/g/n/ac 2x2 MIMO, maximum speed 866.7Mbps
	LTE, CAT4, maximum upload speed 50Mbps, maximum download speed 150Mbps (available for global version)
	2 antenna, SMA interface, WIFI<E 2 in 1 antenna
UART	2, Baud rate up to 27Mbit/s
GPIO	16 x GPIO channel, configurable for PWM out, in or others
RC channel	SBUS、PPM receiver

Ground Control Station

ASA(Autonomous Systems Assistant)

3D satellite map operation interface

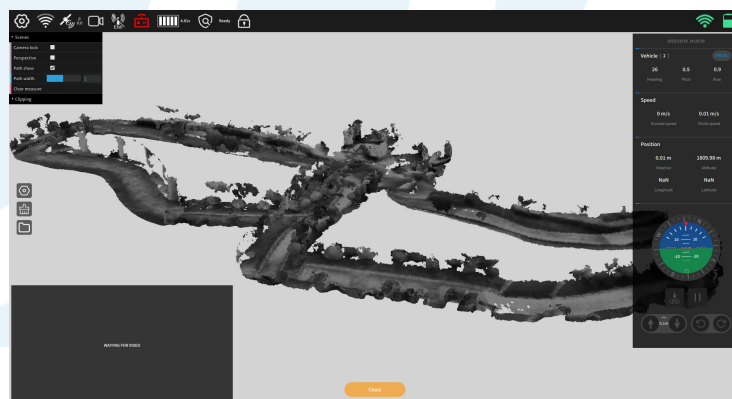
The 3D satellite map can not only reflect the latitude and longitude coordinate information, but also intuitively reflect the relative altitude information of the flight trajectory of the aircraft and the surrounding geographical environment. This allows ground station operators to more reasonably set waypoints and trajectory planning for flight missions, improve flight efficiency and reduce mission risks.

Simplified Vehicle Operation Interface

With the help of Simplified Vehicle Operation (SVO), the flight control is simplified to just tap the target location, and the drone can automatically fly to the target. Even mission executives who have never had any experience in drone remote control can quickly get started. Due to the application of digital twin technology, SVO can display the 3D flight trajectory and the 3D reconstruction model of the surrounding environment in real time, providing visual information for different mission scenarios.



▲ 3D satellite map operation interface



▲ Simplified Vehicle Operation Interface

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