

08

Apparatus and Method for Playing Video in Real Time

Ground Control System



Inventor

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Team

Flight Test Team

Status of right

• US : 9547992

Title

• APPARATUS AND METHOD FOR PLAYING VIDEO BASED ON REAL-TIME DATA

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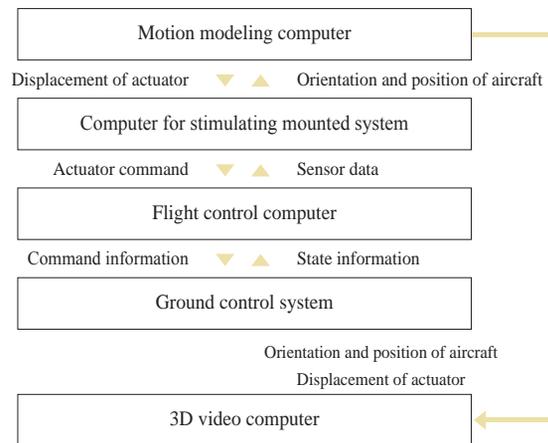
Outline of Technology

Technology related to apparatus for playing 3-dimensional video of aircraft using aircraft information transmitted via communication link in flight tests of unmanned aerial vehicle.

■ Problems of conventional art

- A conventional video playing apparatus is being widely used for post-processing of flight data or in simulation systems, and simulation environment includes a ground control system, a flight control computer, a computer to simulate a mounted system, a motion modeling computer, a 3D video computer and a screen.
- While these conventional video playing apparatuses transmit an orientation and position of the aircraft, and actuator information to the 3D video computer to display configuration and position information of aircraft, the data used for displaying is limited to simulation data, and is mainly used during pilot training in virtual environment, and thus a range of the use is limited.

Conventional simulation environment



Illustrating 3-dimensional video of aircraft using simulation data



Technical features and advantages

Distinctiveness

- Flight data is received in real time to display a 3-dimensional video of information of an aircraft such as a position, speed and attitude, so that operational stability using geographic information and 3D aircraft information, and a situation recognition rate can be increased to be applicable to precision relative navigation using 3D information extended from 2D information.

Technical effects

- The attitude and position of the aircraft can be visually identified using real-time data transmitted through a communication system during actual flight.



Aircraft information

Receiving orientation and position information of aircraft from RTC of ground control system to display received results in real time.

Geographic information

Receiving position information of aircraft to display received results in real time

Technical detail

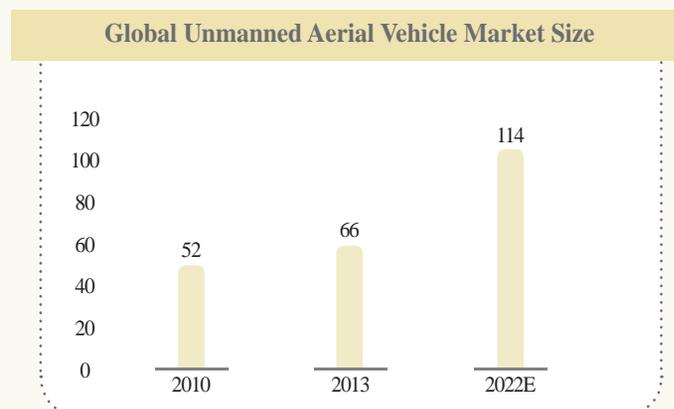
The "smart unmanned device" development project has been promoted, and hardware and software necessary for ground control that controls a smart unmanned device have been developed since 2002. There has been an example of technical transfer of a ground control system for an unmanned aerial vehicle based on the obtained technology.

- Conventionally, an internal pilot can know an attitude and position of the aircraft only as numbered information, however, the pilot can visually identify the attitude and the position of the aircraft using the apparatus for playing a video based on real-time data, and thus it is helpful for the pilot when operating the aircraft.
- When the apparatus for playing a video based on real-time data is used in flight tests, flight information analysts can identify the attitude and the position of the aircraft at a glance, and thus, can determine a reaction of the aircraft with respect to an operational command at a glance and in a very short time.

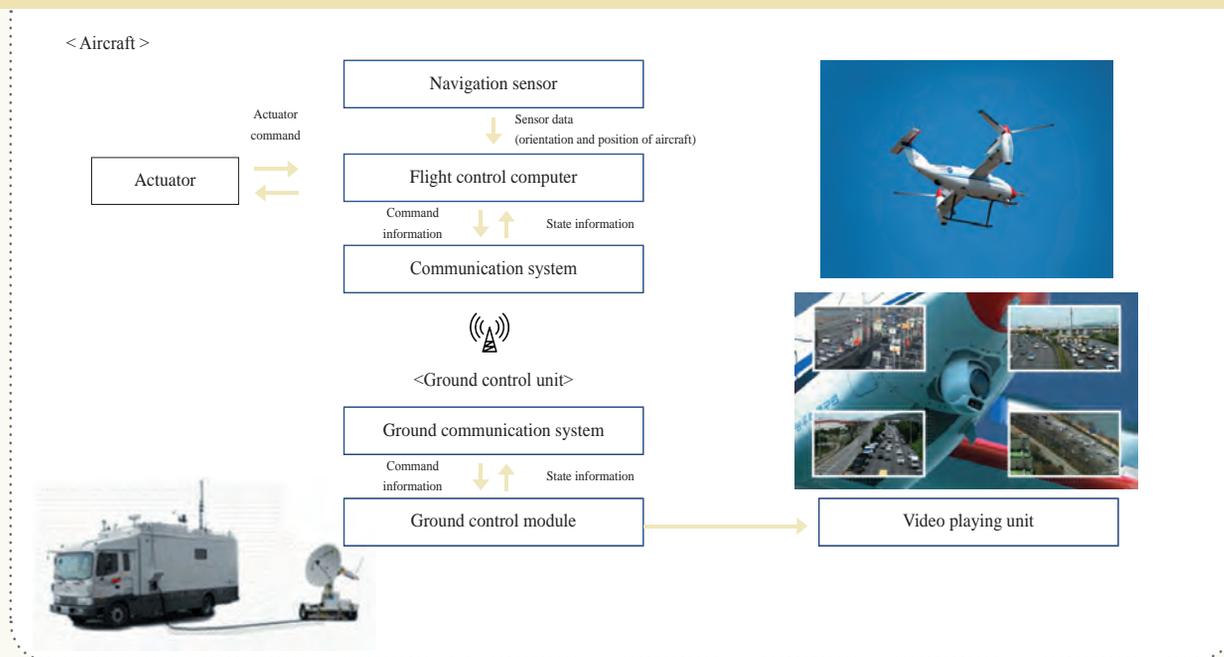
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Market and future prospects

- The ground control system is an essential element for operating an unmanned aerial vehicle, and about 5 and 6% of the expenditures for development of the unmanned aerial vehicle out of the development of the smart unmanned aerial vehicle is injected into the ground control system.
- The unmanned aerial vehicle market is expected to grow at an average annual rate of 8% by 2020 to be developed to the market size reaching 11.4 billion USD. European countries, and Asian countries such as China and Singapore have actively participated in development of the unmanned aerial vehicle, and in particular, China has proceeded with its own development of the high altitude long endurance unmanned aerial vehicle and unmanned combat air vehicle.
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Apparatus for playing video in real time



Applications

- Companies that manufacture system/aerial vehicle design, aerial vehicle manufacturing, ground control system, ATC, supervisory equipment, radar, flight support system are the main market.
- As the intelligence and autonomy of the unmanned aerial vehicle are getting higher, one pilot can operate a plurality of unmanned aerial vehicles. In addition, for this purpose, research into development of Man-Machine Interface has been actively progressing.

< One System >



< Universal Control System >

