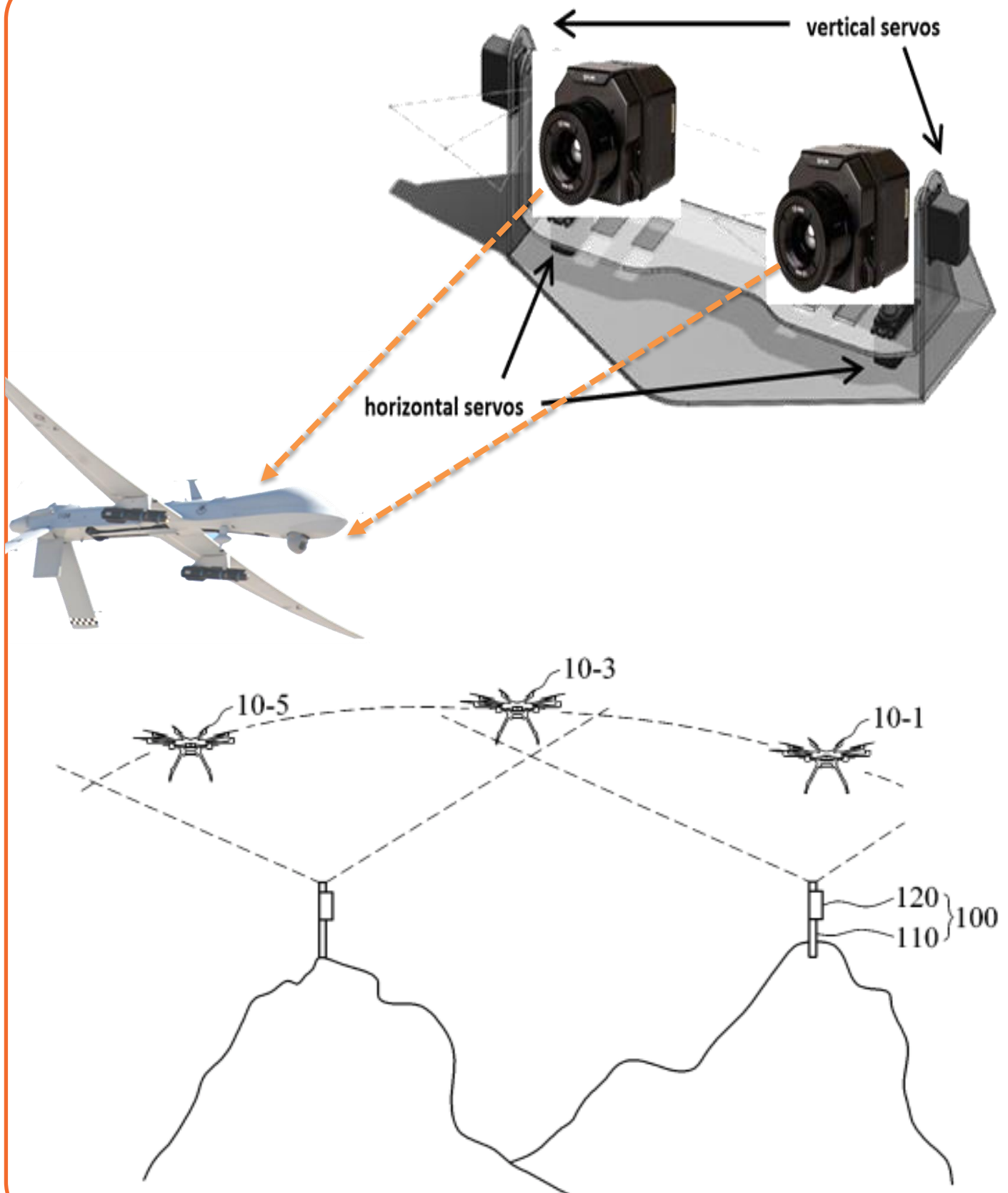
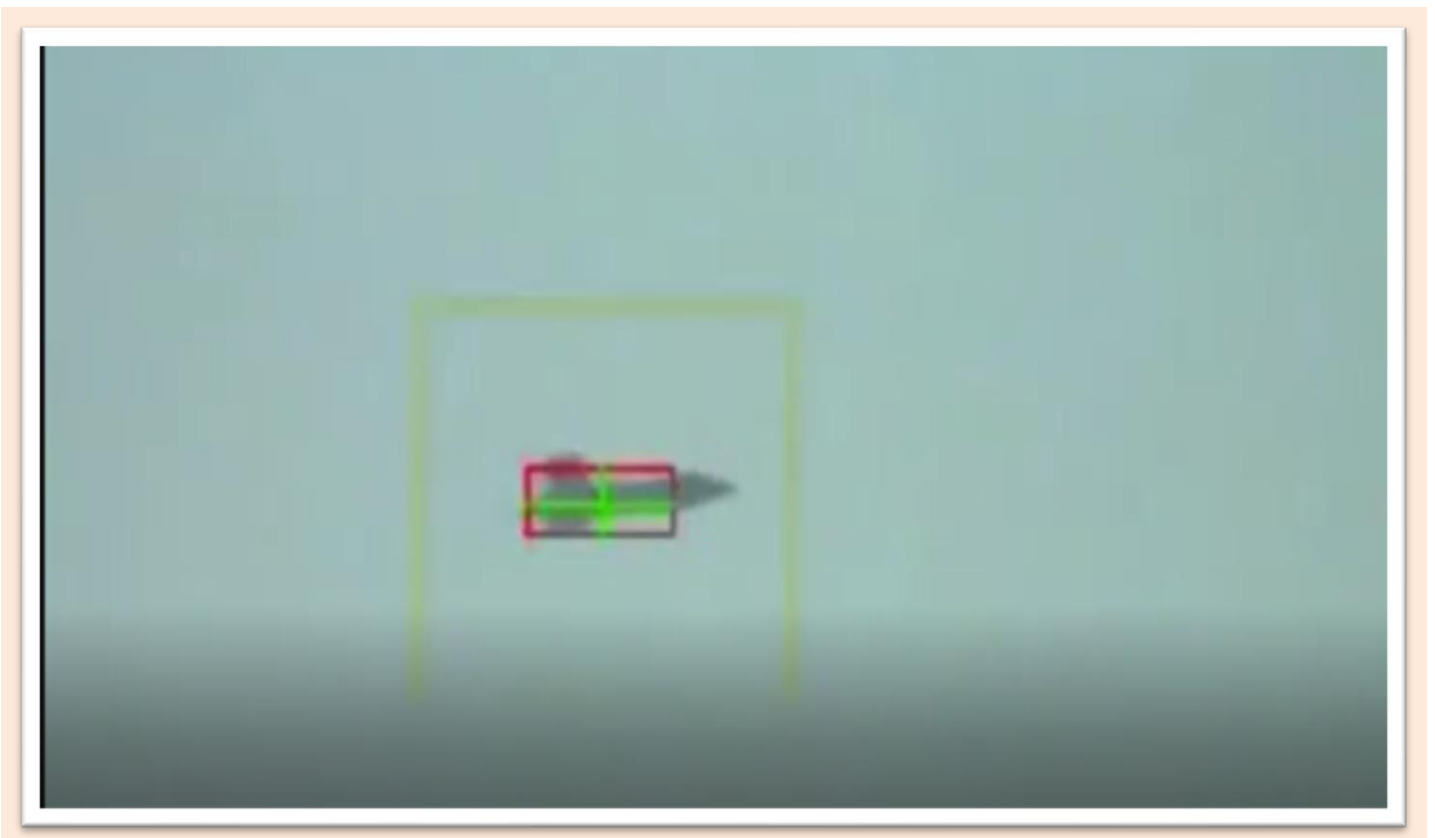
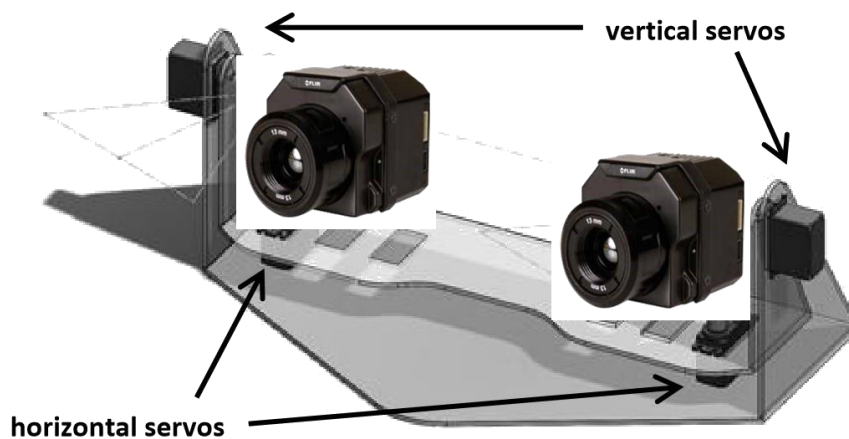


UAV and Drone Detection/ Shooting Surveillance System



➤ Drone Detection Overview

The non-radar method uses the camera and neuron sensor to read the 3D image information of the object, and the base station and the base station cooperate with each other like a bee to share the 3D phase information of the drone. In order to improve readability by using the thermal imaging camera at night. This base station can be scattered throughout.



➤ Why the drone is dangerous and why it is necessary Non-Radar

- In the radar shaded area using the neuro-sensing method, the drone detection by the neuron embedded sensing and cognitive method is World's first development and commercialization
- Object recognition and learning are required beforehand to use the camera sensing technology.
- **UAV or Drone has difficult to detect with legacy radar**
- Carrying biochemistry or poisons in place carries a big crisis on national security with drone or UAV
- According to YTN News, In China, Xi Jinping told that he would send a drone to blow up Saad. Publicly proclaimed to blow up the Sad Base before.
- **Neuron Cognitive is the next generation core technology to meet the era of the Fourth Industrial Revolution. This use Core of Cognitive Science and Technology**



➤ Why do you need something that isn't GPU?

➤ Neuron Synaptics, not GPU

Since the first CPUs were developed in 1971, computer performance has grown dramatically. But today's computers are just good calculators, The ability to learn and judge for yourself is not even a child.

Scientists have tried to implement AI using supercomputers.

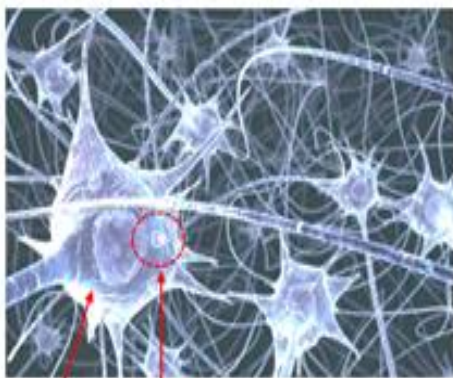
As a result, they could mimic the cat's brain, but in return, 147,456 CPUs and 144TB of memory, and 1.4MW of power. (IBM, 2009)

In comparison, the human brain has excellent intelligence, but consumes less than 10W of power.

In order to realize artificial intelligence, the development of semiconductor integrated technology is not enough. Break away from traditional computing

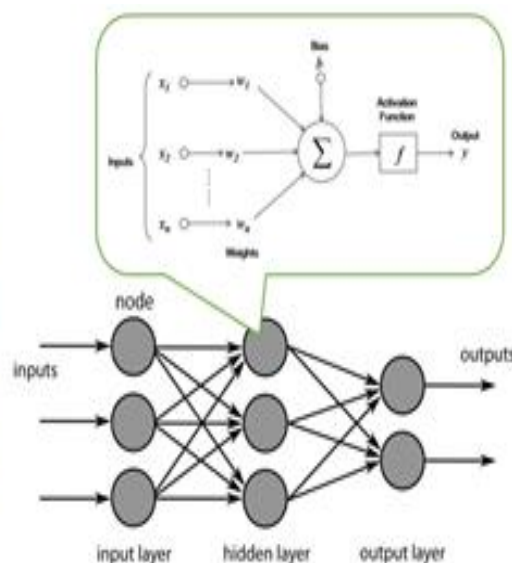
New computational methods have been proposed over the last decade, the most recent of which

This is the Artificial Neural Network. Artificial neural networks are algorithms inspired by the mechanisms by which neural networks in the brain produce and transmit signals.



뉴런
시냅스

Biological neural network



Artificial neural network



Deep learning example

➤ Product Prototype

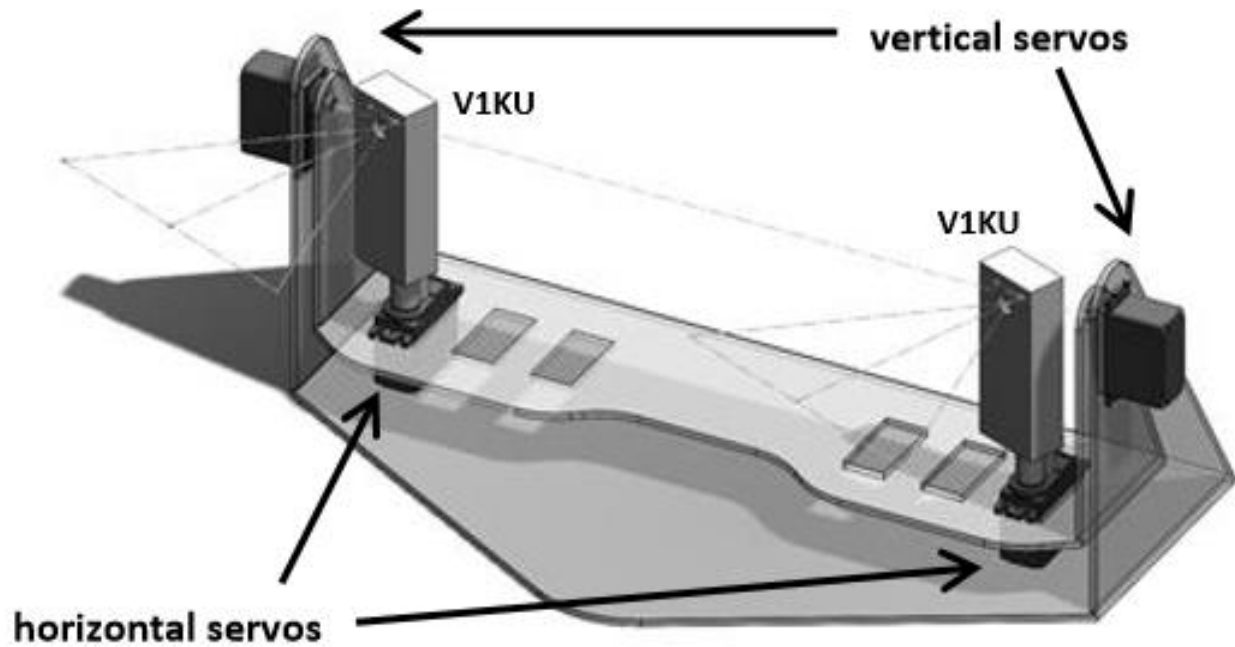


Fig. 2. Camera/Servo Harness (Perspective view)

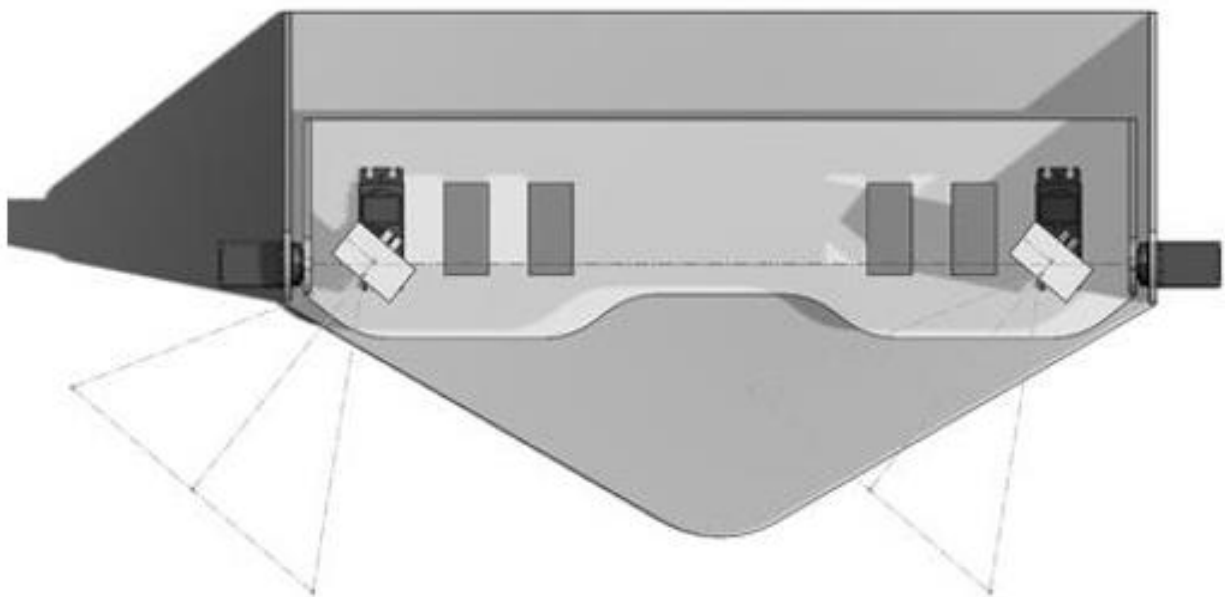
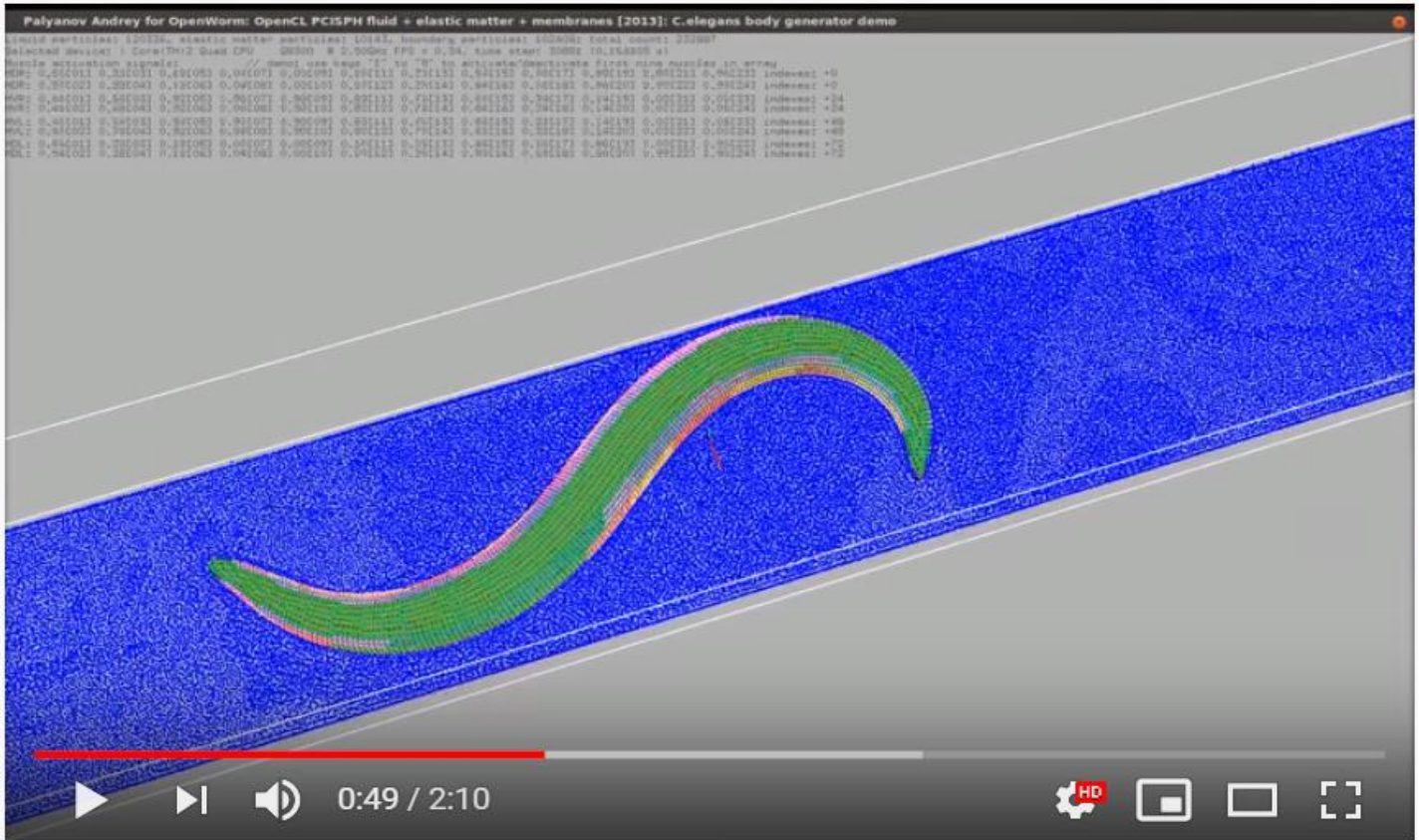


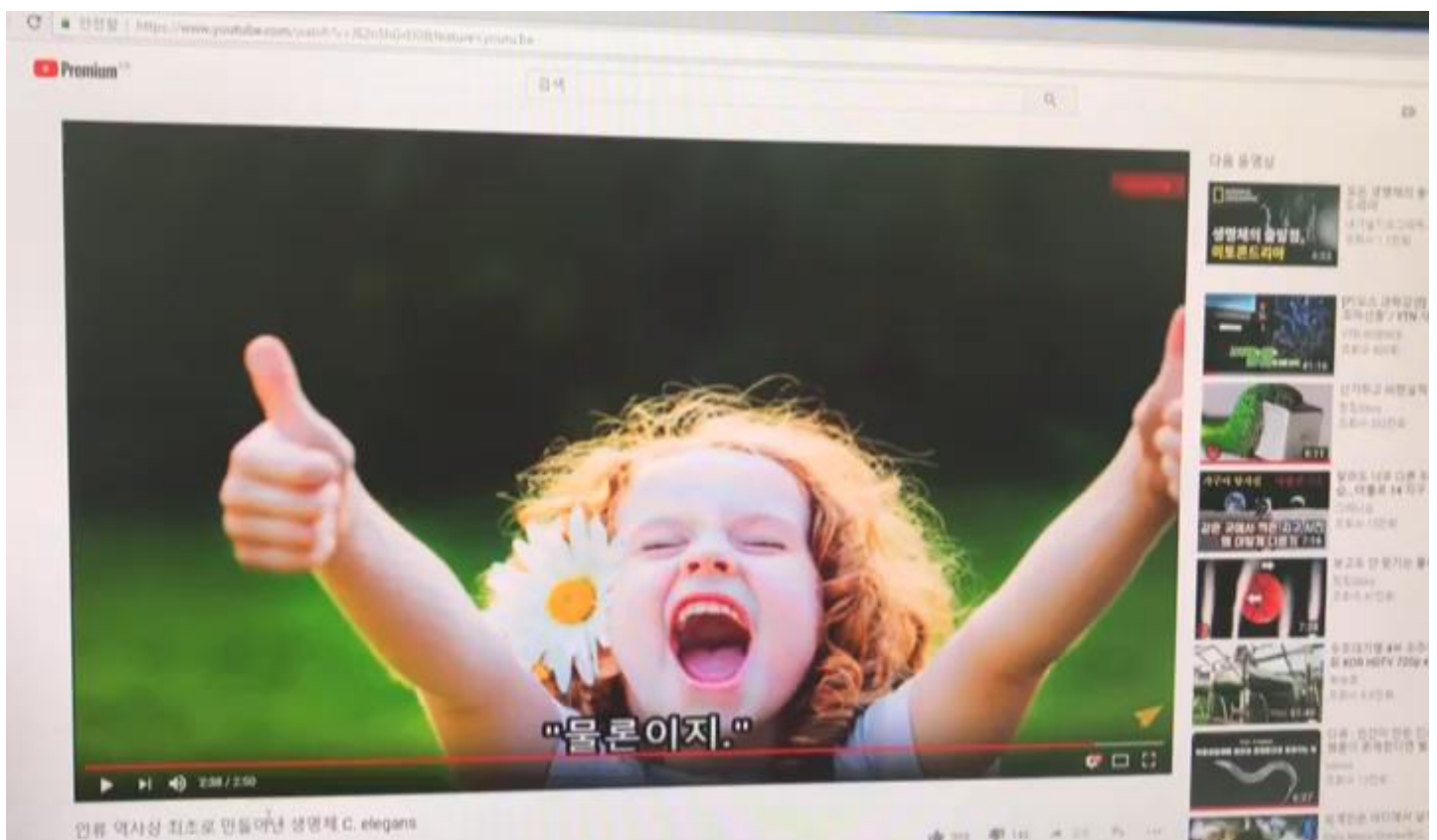
Fig. 3. Camera/Servo Harness (top view)

▶ Videos to help you gain an intuitive understanding of neurons

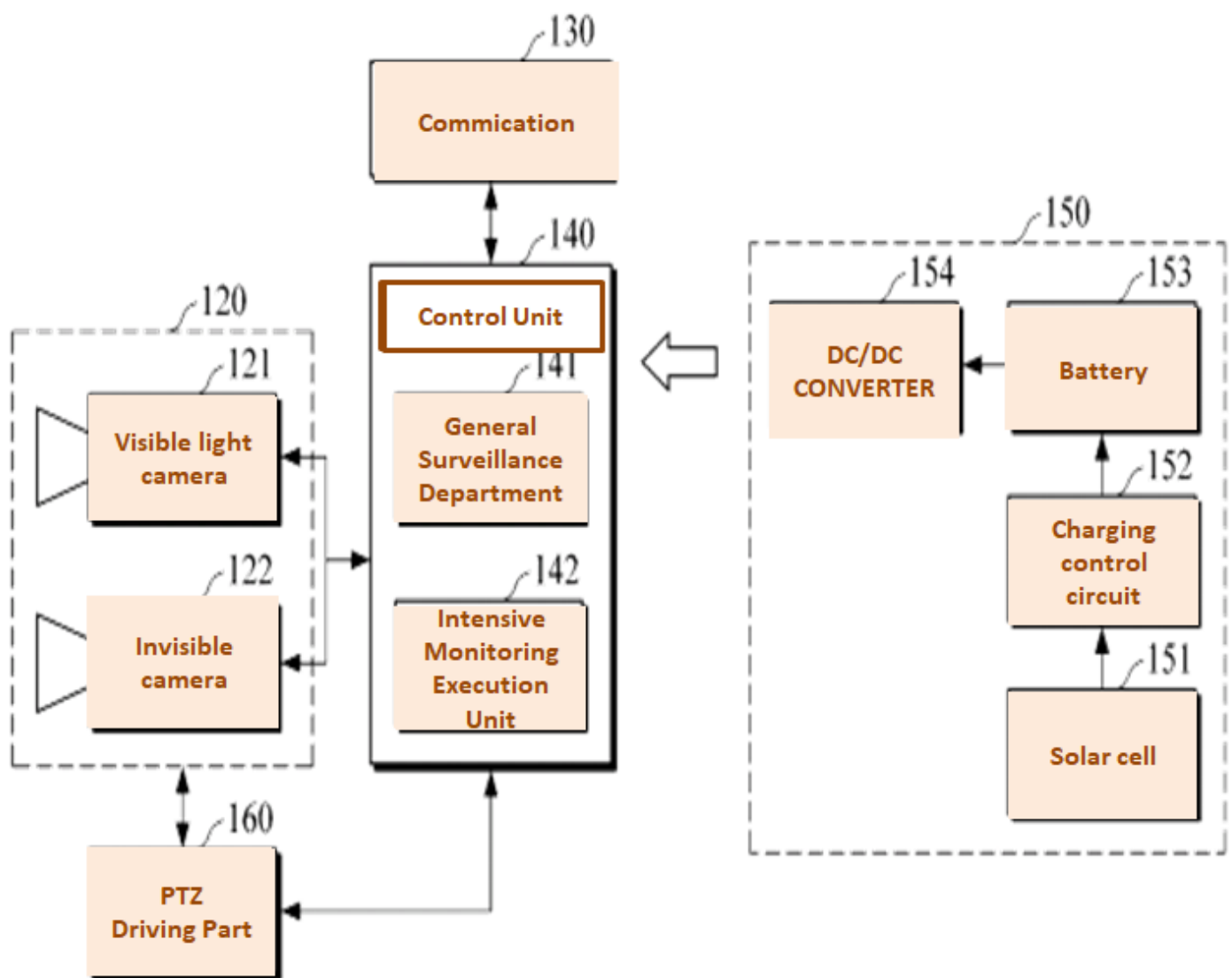
https://youtu.be/9T_25APWwic



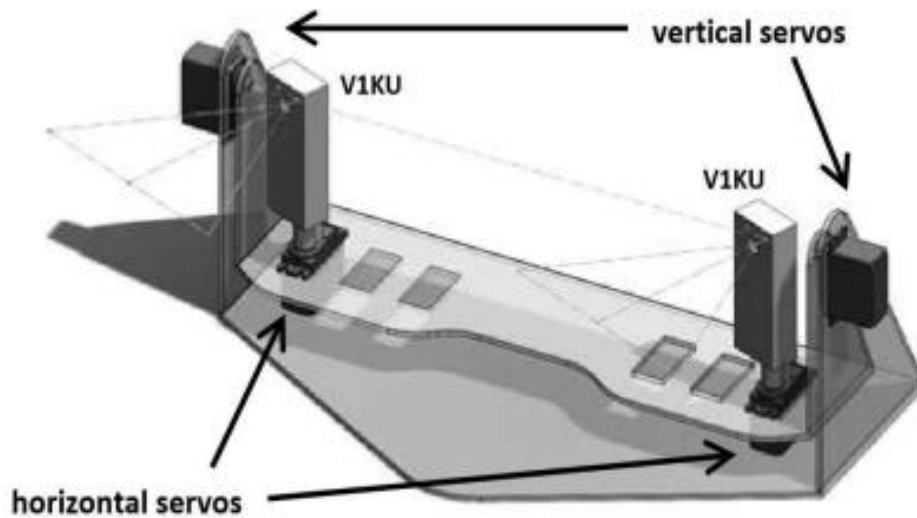
=> Click below You can see movie



Block Diagram of Dron Detection/Shooting



➤ Specification



ITEM	Target performance	Remarks (Environment, State, etc.)
1. Subject recognition rate according to distance/Day	Distance 1000m / 95% ± 5% recognition rate	Sunny Day Camera resolution (640*512) more than
2. Subject recognition rate according to distance/Night	Distance 500m / 95% ± 5% recognition rate	Night Camera resolution (640*512) more than
3. Subject recognition rate according to distance/Day	Distance 500m / 90% ± 5% recognition rate	Rainy/Cloudy Day Camera resolution (640*512) more than
4. Subject recognition rate according to distance/Day	Distance 500m / 90% ± 5% recognition rate	Foggy Day Camera resolution (640*512) more than
5. Detection Time	10 μs (10 / 1,000,000 second) / per 1 UAV 3D Object	one 256Byte pattern/among 1,000,000 patterns data

* This performance can be further improved depending on the amount of training

Development scope and contents

- Development of a non-radar detection system module that detects birds, drones, or others at visible distance (100m ~ 500m) with subject learning and classification function by applying neuron sensing at daytime visibility
- Test to acquire more than 1000, 2D image photos and learn them in advance
- Research and development of a method for identifying a subject in 3D space using 2D image +
- Research and development of 3D image input method for identifying subject
- For long distances over 500m, use a telephoto camera with zoom in Improved recognition rate by enlarging the extracted image



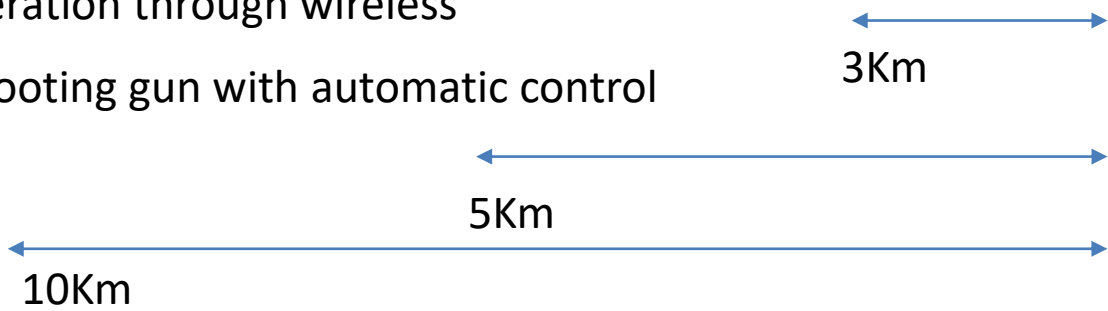
max speed : 1,100Km/h

Low Altitude UAV



* base system share the 3-dimensional coordinates of UAV with cooperation through wireless

* option: shooting gun with automatic control



* base system can be scattered around the factory with solar power and battery

특허증

CERTIFICATE OF PATENT



특허

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출원번호

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위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다.

This is to certify that, in accordance with the Patent Act, a patent for the invention has been registered at the Korean Intellectual Property Office.



특허청

Korean Intellectual
Property Office

2018년 06월 01일



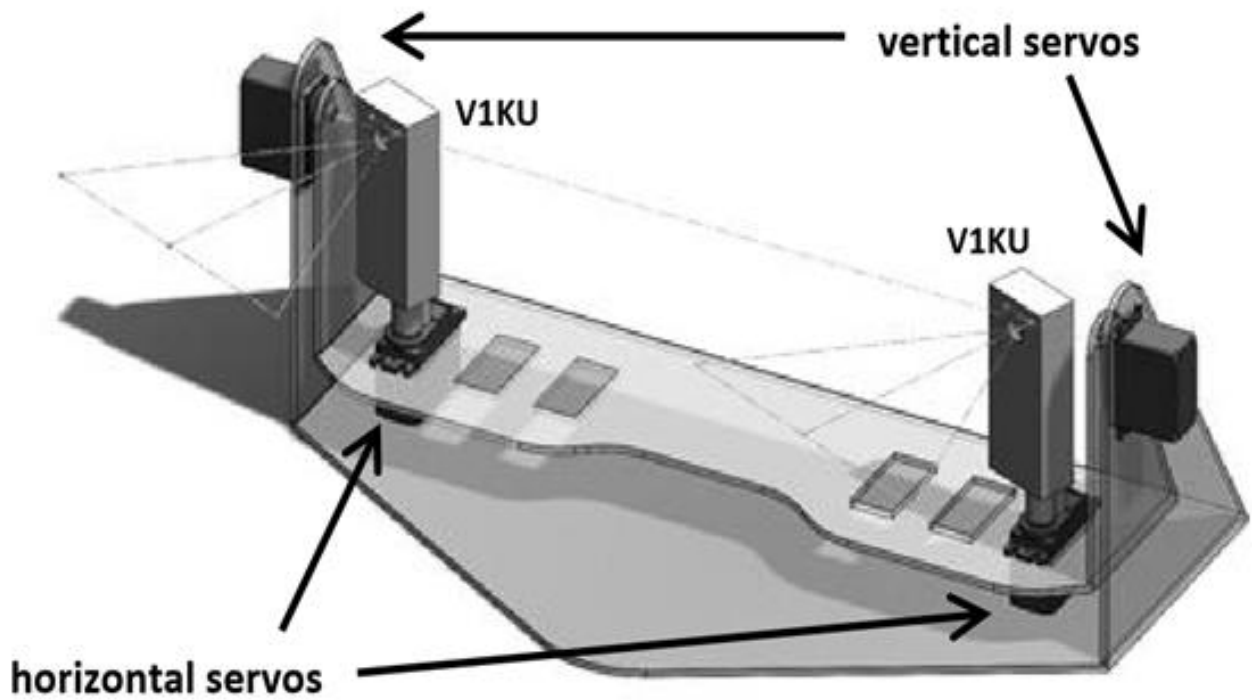
QR코드로 현재기준
등록사항을 확인하세요

특허청장

COMMISSIONER,

KOREAN INTELLECTUAL PROPERTY OFFICE

성근모



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