Department of Engineering Science and Ocean Engineering

Giant Fish

水下載具實驗室
UNDERWATER VEHICLE LAB

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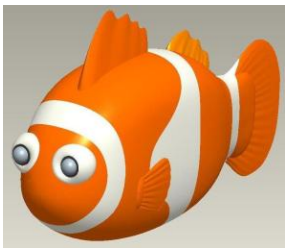
Introduction

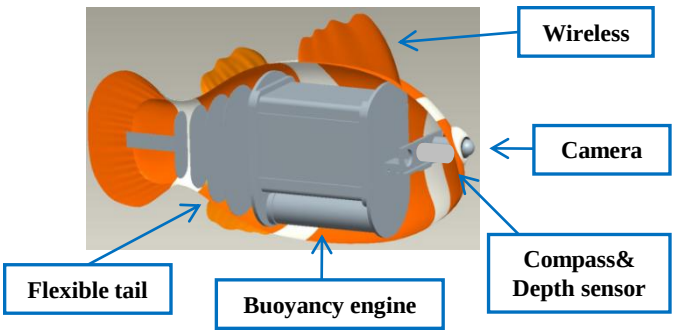
The Giant Fish is a biomimetic underwater vehicle demonstration. By using a flexible tail and a buoyancy engine, the operation time of the robot could be extended, thus it helped to save the propulsion energy.

Specification of Giant Fish

Dimensions	**90 × 25 × 50[cm] (L × W × H)**
Dry Weight	**19.9 [kg]**
Camera	**Webcam**
Compass	**OS5000**
Pressure Transducer	**MSP300**
Motor	**Cool Muscle CM1-17L30 Faulhaber Series 2657_024CR**
Wireless	**D-Link DWA-131**



Appearance of Giant Fish



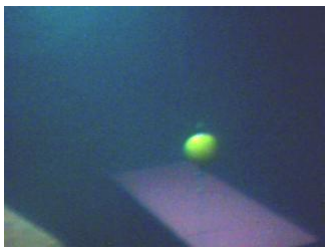
The profile of Giant Fish

Competition strategy

Using the Extended Kalman filter localization algorithm to complete different mission in the competition. The fish could locate it self and reduces its positional uncertainty by the information provided from targets.

Image processing

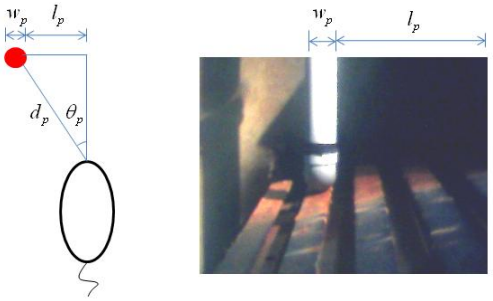
The image processing of fish utilize HSV to help it understand the environments.



The simulation competition site

After HSV processing image

Using post's width w_p and location l_p in the picture to estimate post real position.



Estimate post position