

OTO'08 Aqua Robot Competition

Rules and Mission AUV Group

Venue

Port Island Sports Center, Lukewarm Swimming Pool

Date

April 10th, 2008

13:00 ~ 16:00

(Version 1)

1 GOAL

The goals of this competition are to advance technologies of Autonomous Underwater Vehicles and to offer a chance to discuss the future of AUV between young researchers.

2 ABSTRACT OF MISSION

The goal of the mission is to demonstrate the autonomy of the AUV. The mission consists of 2 tasks. First task is to show cruising performance by traveling three waypoints marked by square pipes. Second task is line tracking colored by red. At the end of line, AUV rendezvous the docking station by recognizing the color of LED signal.

3 FIELD

The competition field is 25 [m] length swimming pool at Port Island Sport Center close to OTO'08 conference place. The mission and field is shown in Fig. 1.

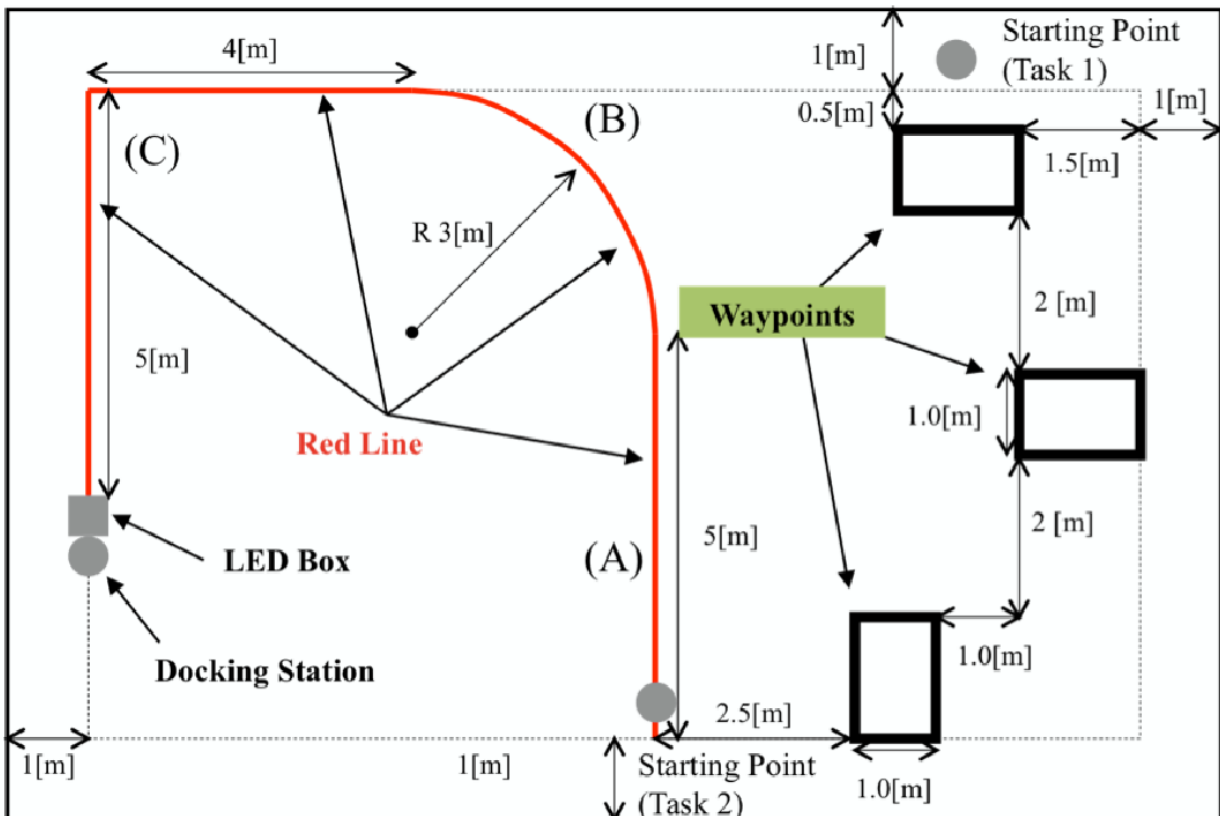


Fig. 1 Swimming pool specification and task arrangement.

4 MISSION RULE

4.1 Qualifying team

The underwater vehicles are Autonomous Underwater Vehicles. No constraints regarding weight and size, but competitors must launch vehicles safely. A crane for handling vehicles is prepared and its maximum loading weight is 490 kg.

4.2 Common rules

Judges evaluate the points of tasks. The operation time for each task is limited to 10 minutes. During the assigned time, each team can try as one wants. Two starting points are illustrated in Fig.1 for each task.

4.3 Task 1

The mission of task 1 is to travel three waypoints. On the surface, three gray square pipes (1.5 m x 1.0 m, see Fig.1) are placed (floating) as the waypoints. By the center of vehicle passing the square pipe, the vehicle gets a score. The scores for each waypoint are 5 points for 1st waypoint, 15 for 2nd waypoint, 20 for 3rd waypoint; therefore the total score is 40 points. If the mission is completed and time remains, 5 points are added per one minute.

4.4 Task 2

The mission of task 2 is to follow the red line on the bottom of the pool and rendezvous the docking station at the end of line while the LED signal turn green from red. The width of line is 5 cm. The scores for line tracking are 5 points for the first straight line (indicated by (A) in Fig.1, 10 points for arc line of diameter 3 m (indicated by (B)) and 20 points for L-shape corner. LED color recognition is 20 points and successful docking gets 5 points, therefore 60 points in total are assigned for task 2. If the mission is completed and time remains, 5 points are added per one minute.

5 AWARD

The winner team will be awarded from IEEE/OES Japan Chapter.