UNDERWATER
2025

1. Description

Underwater Robot for students (Primary / Secondary). This competition to control the underwater robot (mini ROV), to pick up and move objects (marbles) into a designated place (basket) using a wireless remote control (Manual).

2. Participant

1) Students in categories at elementary, middle school, high school and open Category
2) Consists of a minimum of 3 students and a maximum of 5 students.
3) Fulfill administrative requirements (Registration and Payment)

3. Robot Specifications

1) Each team is only allowed to use 1 robot to compete on the field. (1 team 1 robot, cannot exchange with other teams).
2) The robot must be able to be controlled using a wireless remote
3) Maximum dimensions of the robot are 30cm x 30cm x 30cm
4) Maximum voltage is 12V with a tolerance of 1V (max 3 cell battery)
5) Robots that move using wheels or legs on arena will not be permitted. And it is prohibited to use any type of explosive material.

4. Spesifikasi Lapangan

1) Field is made of aquarium glass with the following dimensions:
   The dimensions of the arena are Long : 105 cm, wide: 50cm and high : 50cm (according to conditions, size can be change)

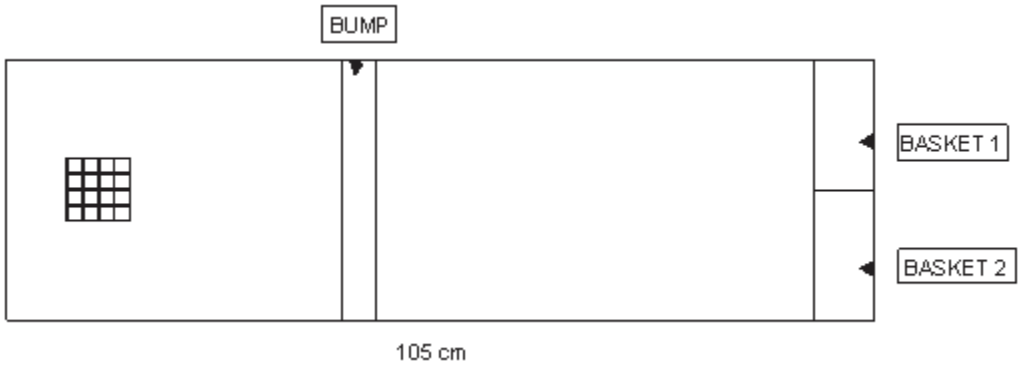

Fig 1. Arena

2) There is a marble holder (Cargo Holder) with the following sizes:

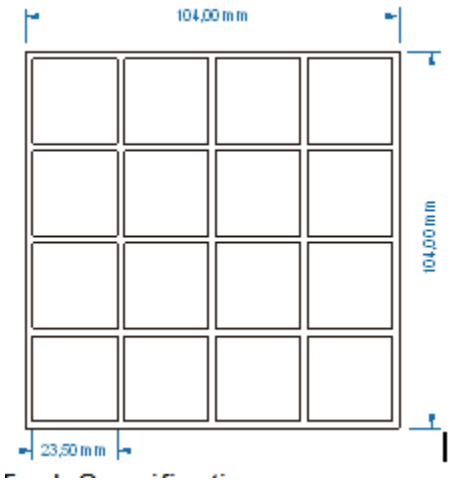

Fig 2. Cargo

5. Competition Rules

1) Before Competition
   - Committee will check several things as follows (robot power supply voltage, robot dimensions, robot ownership/label)
   - If the robot does not comply with the provisions, the team is given 5 minutes to adjust the robot's specifications immediately. If it still does not comply with the specified limits. The team can not following this competition
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2) Competition Session
   - Each team will be given 6 minutes of competition time, including 1 minute for setup time.
   - For elementary school level: the number of marbles is 16 and there is no difference in marble color.
   - For Middle School, High School and Open: Number of marbles is 16. There are 2 kinds of colored marbles, which are placed randomly in the cargo (marble holder).
   - Robots can move marbles from cargo to baskets
   - Marbles that fall out of the cargo or basket cannot be retrieved
   - Each move can only lift one marble at a time.

6. Scoring

1) Elementary School : marbles placed in the basket are worth 4 points if there is a pair (each pair) with the color of the marble being ignored.

2) Middle school, high school and open Cateogory : marbles placed in a basket are worth 4 points if there is a pair (each pair) with the same color of marbles (basket 1 with white marbles, basket 2 with clear marbles)
3) 1 point for unpaired marbles.
4) The winner is determined by:
   - Highest point.
   - If the points are the same, then the fastest time is calculated.
   - If the time is also the same, then look for the fastest placement of the first marble.

5) When the Robot Retry in each assessment session, the retry is only for the robot, the marble is in the final position.

Scoring Example

NAMA TIM	

Basket 1	Basket 2

Time Drop First	
Total Time Finish	
Retry	

Total Pair		X 4	=
Total Not Pair		X1	=
TOTAL POINT			=

Signature

TIM	JUDGE

7. Violation

1) Touching the robot during the game is not permitted unless explicitly permitted by the referee.
2) Robot does not comply with the specified provisions

Rules are adopted from various National and International robot competition activities