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## TRANSPORTER 2024

### 1. Description

The Robot Transporter Competition is a type of robot competition which aims to train participants' mindsets so that they can complete the track that has been provided with a certain algorithm with the mission of moving objects that are at the intersection of track lines, towards a predetermined destination point/area. by lifting the object.

### 2. Participant

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

### 3. Robot

- 1) Each team must have its robot which is only one robot is permitted on the track.
- 2) Robots are permitted to use self-assembled robots or use kits, which can only be programmed using a computer/laptop via cable (not wireless).
- 3) The robot must be controlled autonomously. The use of remote control, manual control, or passing information (by external sensors, cable, wirelessly, etc.) to the robot is not allowed.
- 4) The robot must be able to work automatically with its power supply in the form of a dry battery. It is forbidden to use a power supply of hazardous materials.
- 5) The dimensions of the robot must not exceed 25cm x 25cm x 25cm
- 6) The maximum voltage of the robot power supply is 12 VDC with a tolerance of 1 volts (max 3 cell batere)
- 7) The committee cannot promise that the field will be free from light interference from outside (for example camera flash lights, room spotlights or other light from outside the room). It is the participant's job to adapt their robot design to the above possibilities.
- 8) Robots must not have parts that could damage the field/arena

### 4. Arena Specification

- 1) Field mat made of Outdoor Print Banner
- 2) The line on the match field is black on the white floor, or the white line on the black floor
- 3) The width of the line is between 2 cm
- 4) The requirements of the arena path and missions will be announced on the day of the match.
- 5) There are start and finish points
- 6) Target Object  
Objects are made of acrylic material 3 types of Objects
  - Square, size : 9 cm x 9 cm x 2 cm

- circle, size : diameter 9 cm x 2 cm
- Rectangle, size : 9 cm x 3 cm x 2 cm

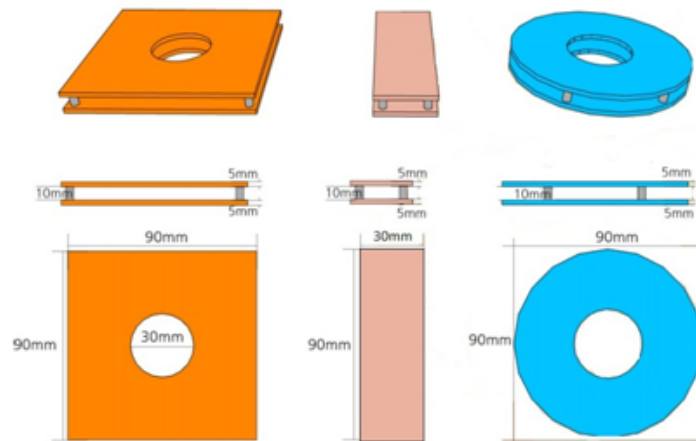


Fig 1. Object

#### 7) Destination Area

The destination or objective is an area for placing an object/target, the destination area is in the form of a marker at the intersection of lines.

#### 8) Obstacle

The obstacle is a sized cube 10 cm x 10 cm x 10 cm located on the track line

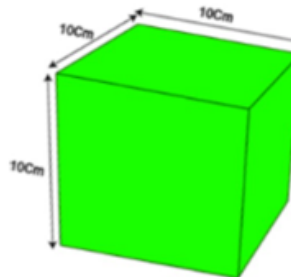


Fig 2. Obstacle

### 5. Match 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

#### 2) Programming

- The duration of programming time is 60 minutes (starting when the check point have been distributed).
- During programming time, participants can use the track to carry out a trial program.
- Track use is carried out alternately by each team using a queuing system.
- If it is discovered that there is cheating in the form of exchanging programs, being assisted by a supervisor, programming without using a computer/laptop and exchanging robots, the participant will be disqualified.
- When the programming session is over, the robot must be collected/quarantined in the place provided (you are not allowed to replace the battery while it is in quarantine).

### 3) Scoring

- Participants will be called in order and participants will bring robots that have been collected and programmed previously.
- The time given to each team to complete the maze is a maximum of 3 minutes (180 s). The jury will assess the teams according to the agreed time form.
- The robot is placed in the start position.
- To start the robot assessment the robot must only operate with one push of the button.
- When the robot is running, participants may not touch the robot without the referee's permission. If a participant touches the robot without the referee's permission, the team must retry
- While the robot is running, if the robot cuts a path/shortcut, the team must retry
- Participants are given the opportunity to re-try as long as there is still time remaining in the match. When retrying, the time continues to run.
- A re-try is given to participants if the robot stops or the entire robot body leaves the track. The opportunity to re-try is given after a signal from the referee. And the retry is done at the start position
- A robot that has reached the finish (stopped/crossed the FINISH line) is considered finished
- If during the competition the time provided has run out and the robot is still running, then the participant must stop the robot after a signal from the judge and will be deemed not to have finished.
- During the assessment, participants are prohibited from reprogramming their robots and the laptop is closed.
- Participants sign the assessment results in front of the jury.
- The jury's decision is final and cannot be contested.

## 6. Result

- 1) The robot gets points by moving the target to the destination area in the competition arena correctly and in accordance with the mission

- 2) The robot moves the target/object by lifting it from the initial position of the object to the destination area. It is not permitted to move the target/object by sliding/throwing it into the destination area.
- 3) The value for each object is
  - square = 10.
  - circles = 10.
  - rectangle = 10.
- 4) Objects that have been moved according to the mission are declared to have scored if they are above/touching/in the destination area. on missions with a target stack/arrangement, you will get a score if it matches the stack (not reversed/not fallen).
- 5) There is additional value in the mission with the target in the form of a pile/arrangement of objects, the maximum pile/arrangement contained in the mission is 3 objects, namely layers 1, 2, and 3. The additional value is:
  - layer 2 = 10.
  - layer 3 = 20.

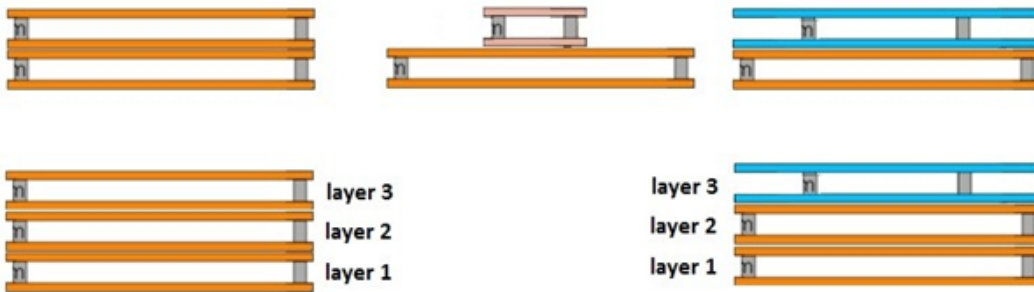


Fig 3. Mission Layer

- 6) The jury will give an assessment after the robot completes the mission (finishes)/stops/the allotted time has been completed
- 7) The winner is determined by:
  - Add up the points and time in each assessment session
  - The winner is the team with the highest points
  - If the points are the same, then the fastest time is calculated.
- 8) When the Robot Retry in each assessment session, the value/point will be reset (restarted) in that session.

**Result Form**

Nama Tim : .....

TTD : .....

Jenjang : SD/SMP/SMA

No	Layer	Destination						poin	Jumlah
		1	2	3	4	5	6		
1	Layer 1								
2	Layer 2 (+10)								
3	Layer 3(+20)								
4	Waktu								

**7. Violation**

- 1) Participants are not allowed to bring storage media (flash disk, external hard disk, memory card, and other portable storage media) into the competition arena.
- 2) Participants are not allowed to program directly on their robot, they must use a computer/laptop
- 3) During programming and assessment sessions, coaches are not permitted to enter the programming area and competition area, and there is no communication between teams, whether teams from the same school or from different schools.
- 4) During the competition, Bluetooth, Wi-Fi on laptops and cellphones must be turned off.
- 5) Participants are not allowed to interfere with/damage the opposing team's robot during the assessment session.
- 6) Team participants who commit violations will receive a score of 0 (zero/blank) in each assessment.

**Rules are adopted from various National and International robot competition activities**