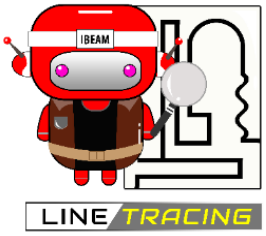
i-BEAM Line Tracing robot

GAME RULES



Section 1 Participants

Article 1

1.1 One member per team.

1.2 The competition has 2 age categories;

Junior (ages 10 to 14)

Senior (ages 15 to 19)

1.3 Every team may or may not have teacher/mentor by each team must have only 1 person (1 teacher or mentor can supervise multiple team).

1.4 Each participant can play only one team.

Section 2 Playing field and components

Article 2 Playing field dimension

2.1 The size of the playing field is 400cm x 250cm.

2.2 The playing field is made of printed PVC or Vinyl.

2.3 The black line is approximately 18 to 25 mm. in width.

2.4 The actual playing field will be revealed on the day of the contest.

Section 3 Robot requirements

Article 3 Technical Requirements

3.1 Robot size

3.1.1 **Junior** : the robot size must not larger than 15 x 15 cm. with no limit in height. The robot must be able to place inside a 15 x 15 cm. box which will be provided on the competition day.

3.1.2 **Senior** : the robot size must not larger than 25 x 25 cm. with no limit in height. The robot must be able to put inside a 25 x 25 cm. box which will be provided on the competition day.

3.2 Robot controller and other equipment

3.2.1 **Junior** :

3.2.1.1 The robot must be using i-BEAM controller board from INEX.

3.2.1.2 The motor must be BO-1 model with 73:1, 87:1, or 120:1 gear ratio, provided from i-BEAM robot standard kit and i-BEAM Rover kit

3.2.1.3 The sensor must be INEX's ZX-03 sensor board only 2 pieces.

3.2.1.4 The batteries must be AA alkaline (no more than 4 batteries, any Oxyride and lithium batteries are not allowed). The participant may bring more than 4 battery packs, but only 4 are permitted to use in the robot.

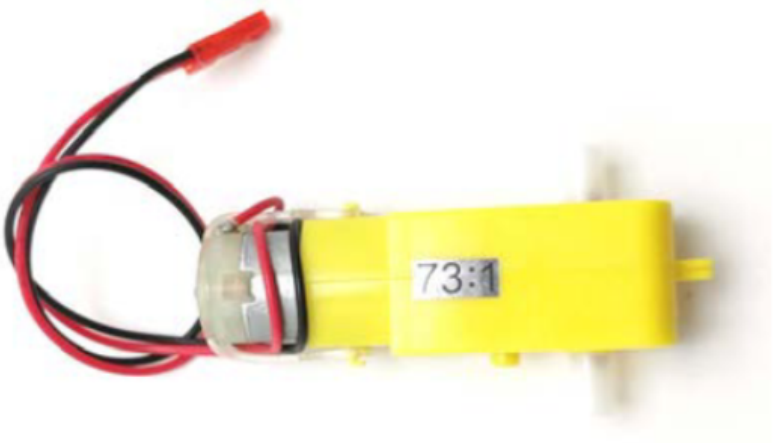


Figure 1: BO-1 model motor with 73:1 gear ratio, provided in standard i-BEAM Robot kit and i-BEAM ROVER kit

3.2.2 **Senior** :

3.2.2.1 Participant must use the INEX's i-BEAM controller.

3.2.2.2 No any limitation about number of sensors, motors, power supply circuit and type of batteries.

3.3 The robot must be motivated by only wheels.

3.4 The robot may extend its size during the competition.

3.5 The total voltage of the batteries must not exceed **6.9V for Junior category**, and **12V for Senior category**. Measured at the connection between the batteries and the controller board.

3.6 Other pieces of equipment not listed in this section have no limitations.

3.7 Any materials used to hold the model must be firmly tightened. If any broken pieces fall off the robot during the competition, the referees will bring them out of the area and continue the competition. However, the referees will not take any responsibility if there is a loss of the pieces.

3.8 There is no weight limit.

Article 4 Prohibition

Any equipment used to damage the competition area is not permitted.

Section 4 The Competition

Article 5 Rankings

5.1 Each team is granted a minimum of 2 attempts, with the most successful run being considered for ranking.

5.2 Ranking will base on running time to complete the mission. If the best running time is equal, the referee will consider the based on other competition round. The team who has better score in other competition round get better rankings.

5.3 Teams placed within the 13th to 20th ranks (up to a maximum of 8 teams) will be honored as **3rd Runner-up**, earning them a Copper medal.

5.4 Teams placed within the 9th to 12th ranks (up to a maximum of 4 teams) will be honored as **2nd Runner-up**, earning them a Bronze medal.

5.5 Teams placed within the 5th to 8th ranks (up to a maximum of 4 teams) will be honored as **1st Runner-up**, earning them a Silver medal.

5.4 Teams placed within the 2nd to 4th ranks (up to a maximum of 3 teams) will be honored as **Gold award**, earning them a Gold medal.

5.5 The top-ranking position will be awarded **the title of "Champion"**, earning them a Champion trophy and Gold medal.

Section 5 Game competition

Article 6 Starting

6.1 Participant places the robot at the starting point (any direction is permitted) with all the pieces of the robot not over the start line.

6.2 Turn on the robot. The timer starts when the robot passes the start point.

6.3 The robot must move along the line to finish point. Timer will be stop immediately after the robot moves through the finish point. (possible the start point and finish point is same point.

Article 7 Pause

7.1 After the robot becomes out of track, it must be returned to the last checkpoint before continuing. During this process, there is no time pause.

7.2 If the participant touches the robot, it must be returned to the last checkpoint before continuing with no time pause.

Article 8 End of competition

The competition will end from :

8.1 The robot reaches the finish point. During the competition, the referee will record the times of the participant’s touching the robot to add with their running time for ranking purpose. Each touch results in 5 seconds time penalty.

8.2 Game time is 3 minutes.

8.3 The participant asks to end the competition. The referees will record the time as 3 minutes.

Section 6 Fouls

Article 9

Any participant who contravenes rules Article 4, 10, and 11 or all is considered foul.

Article 10

The participants who act insulting, abusing an opponent, whether verbally or physically, or letting the robot make noises, express messages, or act disrespectfully, will be disqualified.

Article 11

Any participants who commit any of the following is considered foul.

11.1 Interrupting the opponent's robot.

11.2 Entering the competition area during other team's competition.

11.3 Bring anything into the competition area during other team's competition

11.4 Disrupting the competition without valid justification

11.5 Acting disrespectfully to the competition.

Section 7 Punishment

Article 12

Any participant who commits the fouls according to rule Article 9, their time will be added more 5 seconds.

Article 13

If any coach commits the fouls, all the team under their supervision will be disqualified.

Section 8 Damage and Accidents

Article 14 Asking to end the competition

The participant may ask to end the competition if their robot is damaged so that it cannot be used.

Article 15 Repairing Time

The participant can repair the robot anytime during the competition. However, the time will not be paused. Every time of participant touches the robot, added time 5 seconds each.

Section 9: Robot Identification

Article 16

Naming or any identifiers must be obvious and easy to see all the time during the competition.