IDE SERIES

2026 SINGAPORE

IDE SPRINT

Competition Manual

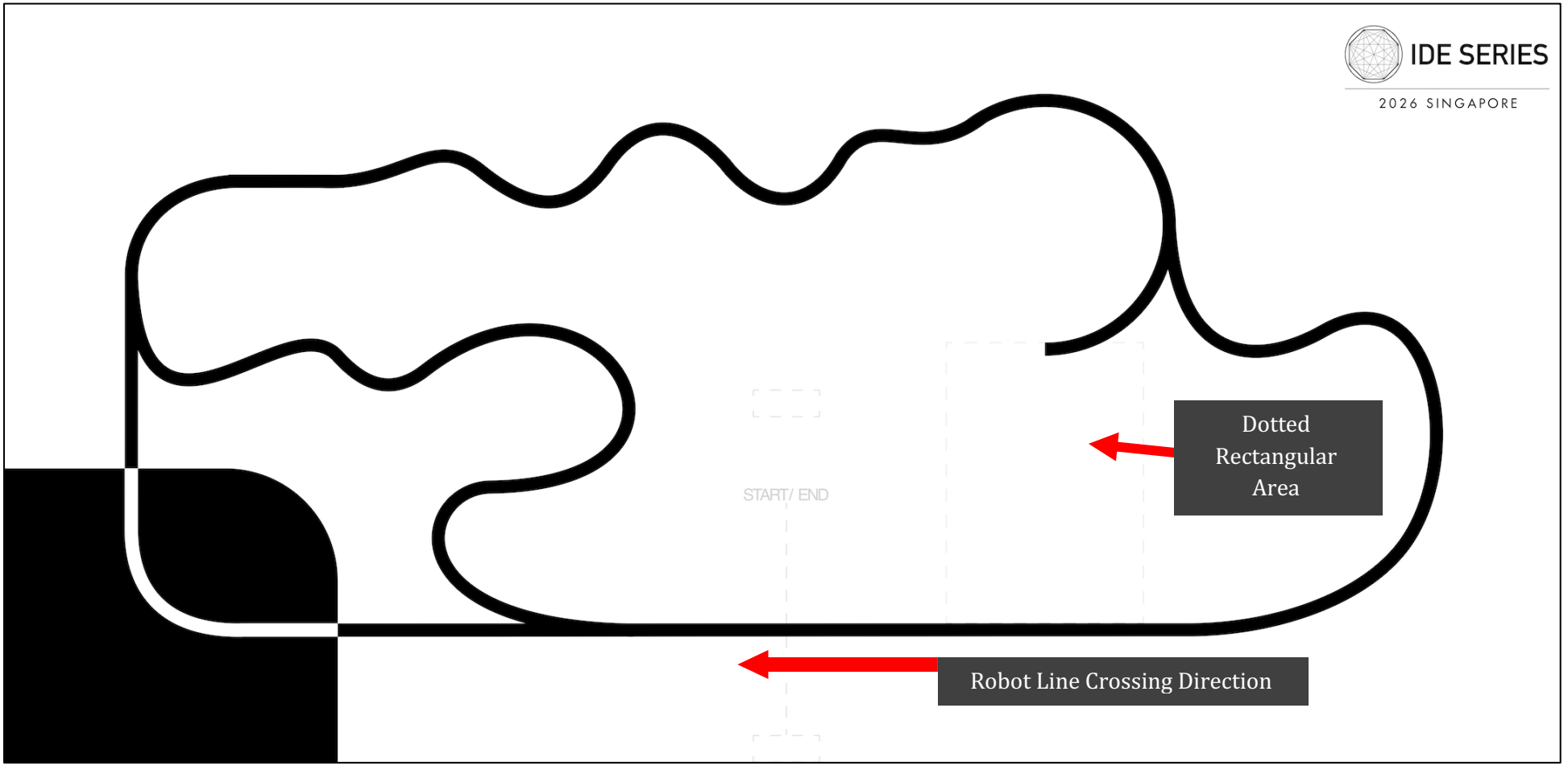
Updated: 1 March 2026

Event Organiser:

NULLSPACE®

vm EDUCATION

IDE SPRINT 2026 PLAYFIELD



NOTE: The area in the dotted rectangle will be different on the competition day. Teams are expected to adapt their code to enable the robot to continue following the line path during the competition run. In the bottom left playfield design, the path is continued by the white line, and not the perimeter of the black area.

IDE SPRINT

Scope of Competition

IDE Sprint is a fast-paced robot racing competition using the LEGO® Robotics platform. Teams will perform calibration and adjust their programs to create the fastest line tracing robot. Primary and Secondary teams will compete within their own categories.

Objective and Surprise Rule

The playfield line path will remain the same except for the dotted rectangular area. This area will feature line(s) that will be different on the actual competition playfield, and this will only be revealed on the competition day.

The robot will be required to complete as many laps as possible within 2 minutes. Each lap's requirement is that it has to go past the start line from the right to the left as shown above, and the robot has to follow the line. There will not be a designated path that the robot has to follow during the competition day.

Format:

- A total of 1.5 hours will be given for the robot preparation and testing. No additional robot runs are allowed after the preparation time.
- 2 competition robot runs, maximum time of 2 minutes each. If the robot makes a failed lap, the last completed lap and its timing will be awarded. If no laps are completed, a maximum time of 2 minutes will be awarded.

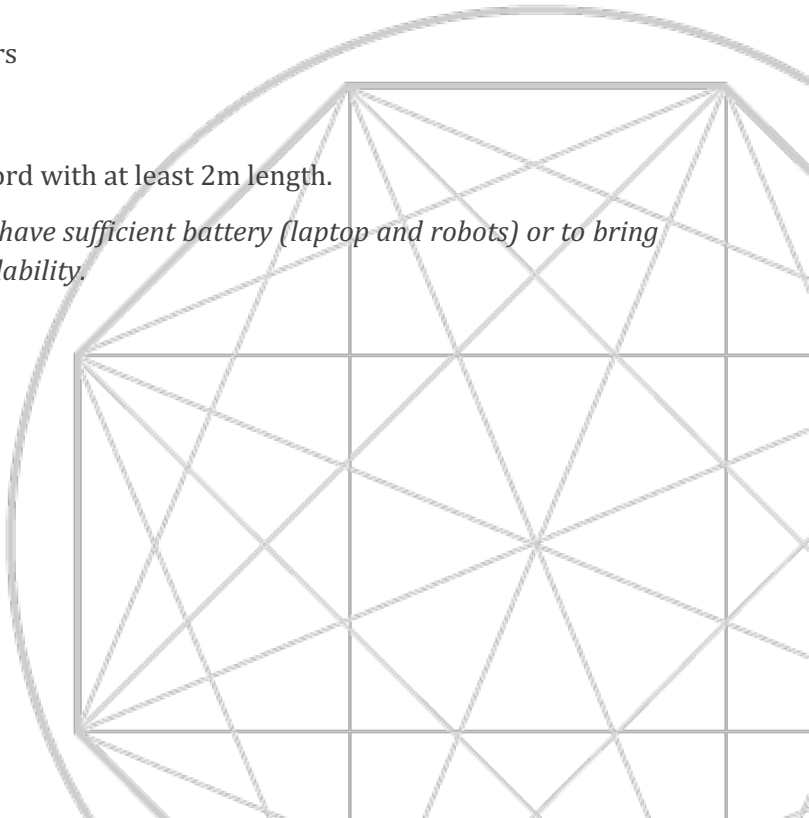
Scoring

The highest number of completed laps out of the 2 competition runs will be the determining factor in the score. In the event of a tie, the time taken for the completed laps will be used to break the tie. Time taken by the laser timer will be accurate to the millisecond. Partial laps will not be recorded.

Equipment Required:

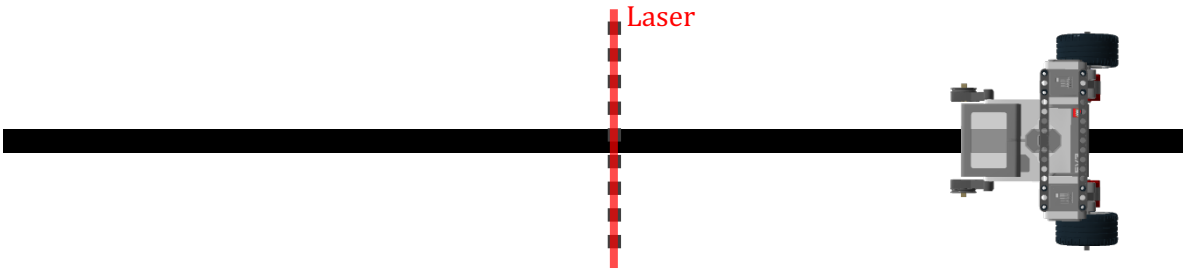
- Robotics set with
    - Light sensors and/or colour sensors
    - 2-4 Motors
- Laptop for programming
- Each team is to bring 1 power extension cord with at least 2m length.

** Note that teams are expected to ensure that they have sufficient battery (laptop and robots) or to bring their own chargers. Charging points subject to availability.*



How the competition will be conducted

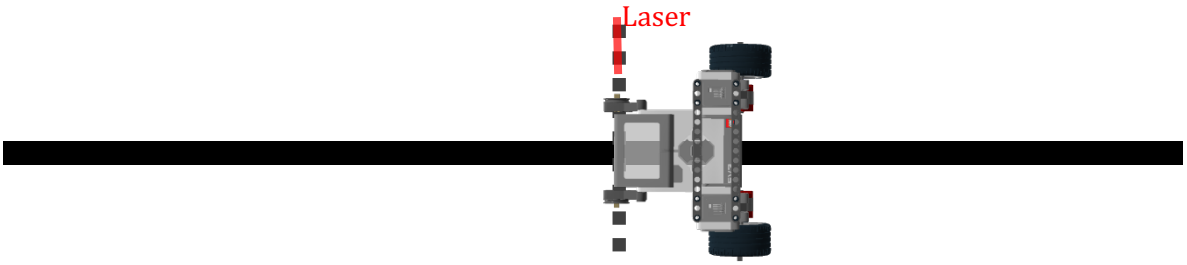
Time in the IDE Sprint competition will be done using a laser timer. Robot Operators must start the robot from a distance behind the start line to avoid prematurely activating the timer.



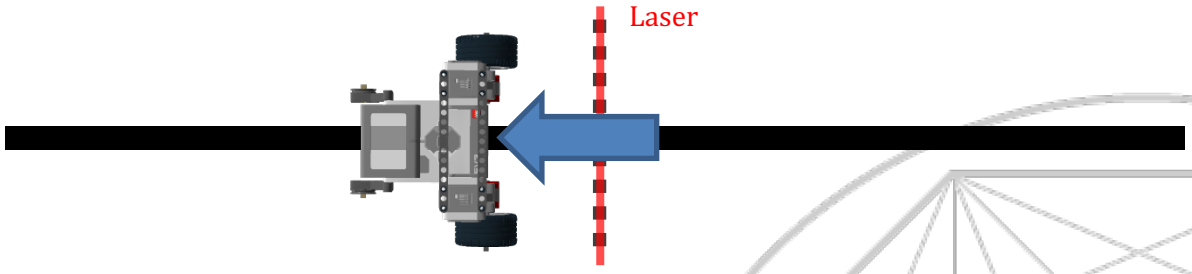
Start line

Robot Operator starts the robot a distance behind start line

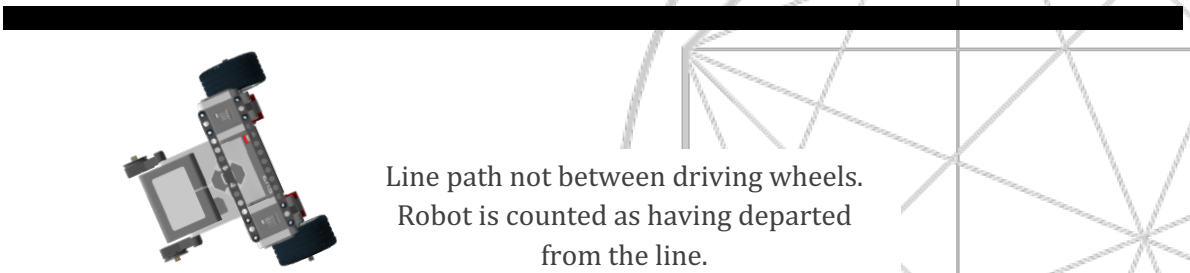
The timer will automatically start when the front of the robot crosses the Start/End line and blocks the laser beam.



Thereafter, robots have a maximum of **10 seconds to cross/exit the start line**. Failure to do so will result in a failed run, where the maximum time of 2 minutes will be awarded for the team's run, and no points will be awarded for this run. The timer will stop automatically when the robot comes back and crosses the laser in the same direction. **Note that the robot must cross the laser in this direction only. Reversing or U-turning to cross the laser will result in a failed run.**



If the robot should stray/depart from the line, this run will be regarded as a failed run. The robot is counted as having strayed if the line is not between both driving (or motorised) wheels.



Line path not between driving wheels. Robot is counted as having departed from the line.

COMPETITION RULES

General:

1. No external help is to be rendered in this competition. This includes receiving direction, contribution, construction of any kind from the team mentor or any party or person not registered as a member of the team. Failure to comply with this rule will be dealt seriously and may result in the team's disqualification.
2. Teams should prepare and bring all the equipment, software and portable computers they need during the tournament.
3. Testing playfields will be set up for practice prior to the competition. Teams will queue up in an orderly manner and refrain from hogging the playfields.
4. Teams will not touch or tamper with another team's equipment without permission. Teams in violation of this may be disqualified.
5. All decisions by the competition officials and organising parties are final.

Parts and Size Restrictions

1. Teams are expected to use their own LEGO® Spike Prime or EV3 sets, batteries and laptops.
2. The robots must use parts solely from LEGO® Sets. Teams are allowed to use only one controller (SPIKE Prime or EV3). The number of motors or sensors is restricted only by the number which the controller/hub can handle (e.g., 4 Motors and 4 Sensors for EV3, or 6 motors/sensors for Spike Prime). Multiplexers will not be allowed. The number of parts is not limited as long as they are LEGO® parts.
3. Mixing of parts from all 3 platforms (NXT / EV3 / SPIKE Prime) is allowed.
4. Robots will be inspected before each run. Teams with parts which do not comply to the rules will be disqualified.
5. The size of the robot and its extension as a whole will be strictly limited to **250mm x 250mm x 250mm**.
6. No form of remote control or wireless programming is allowed during the course of the run of the robot.
7. Only LEGO® Mindstorms® EV3, EV3 Classroom, SPIKE Prime, or Pybricks programming platforms are accepted.
8. **HiTechnic sensors are not allowed.**
9. **Use of LEGO® Powered Up electric motors are allowed.**
10. List of Approved Sensors and Motors (Table 1)

 EV3 Large Motor	 EV3 Light/Color Sensor	 EV3 Touch Sensor	 EV3 Ultrasonic Sensor	 EV3 Gyro Sensor
 EV3 Medium Motor	 Force Sensor	 Large Motor	 Medium Motor	 Color Sensor
 Distance Sensor	 Large Motor (Powered Up)	 Medium Motor (Powered Up)		

Operation Rules

1. All teams will take turns to make testing runs of maximum 2 minutes each during the preparation time.
2. During the testing run, students may make quick measurement calibrations before their run.
3. Students may not make programming changes at the playfield.
4. After the preparation time is up, teams will take turns to make their 2 competition runs with no adjustment time in between.
5. Robot program must be activated manually via EV3/SPIKE Prime screen options. No form of wireless programming or operation is allowed during the competition run.
6. Robot run is limited to 2 minutes. The time will be taken by the laser timer. When the time hits 2 minutes, team will be awarded the maximum 2 minutes for that attempt.

Violations

1. The Referee(s) have the ultimate authority during the competition. Their decisions are final. Referees will not review recorded replays after a match is completed.
2. No modifications may be made to the playfield or LEGO® props, or LEGO® pieces from which the robot is made. Violations to these will result in disqualification.
3. Team members must not interfere or assist the robot in any way during its run. No wireless robot communication is allowed. Teams found in violation will be immediately disqualified.