

Above The Challenge

IDE2015

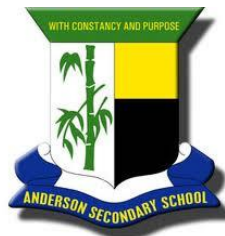
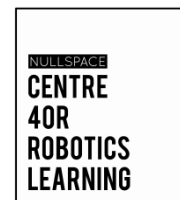
Against All Odds

Innovation, Design & Engineering 2015
IDE LEGO® Robotics 2015

Challenge Announcement

20th March 2015

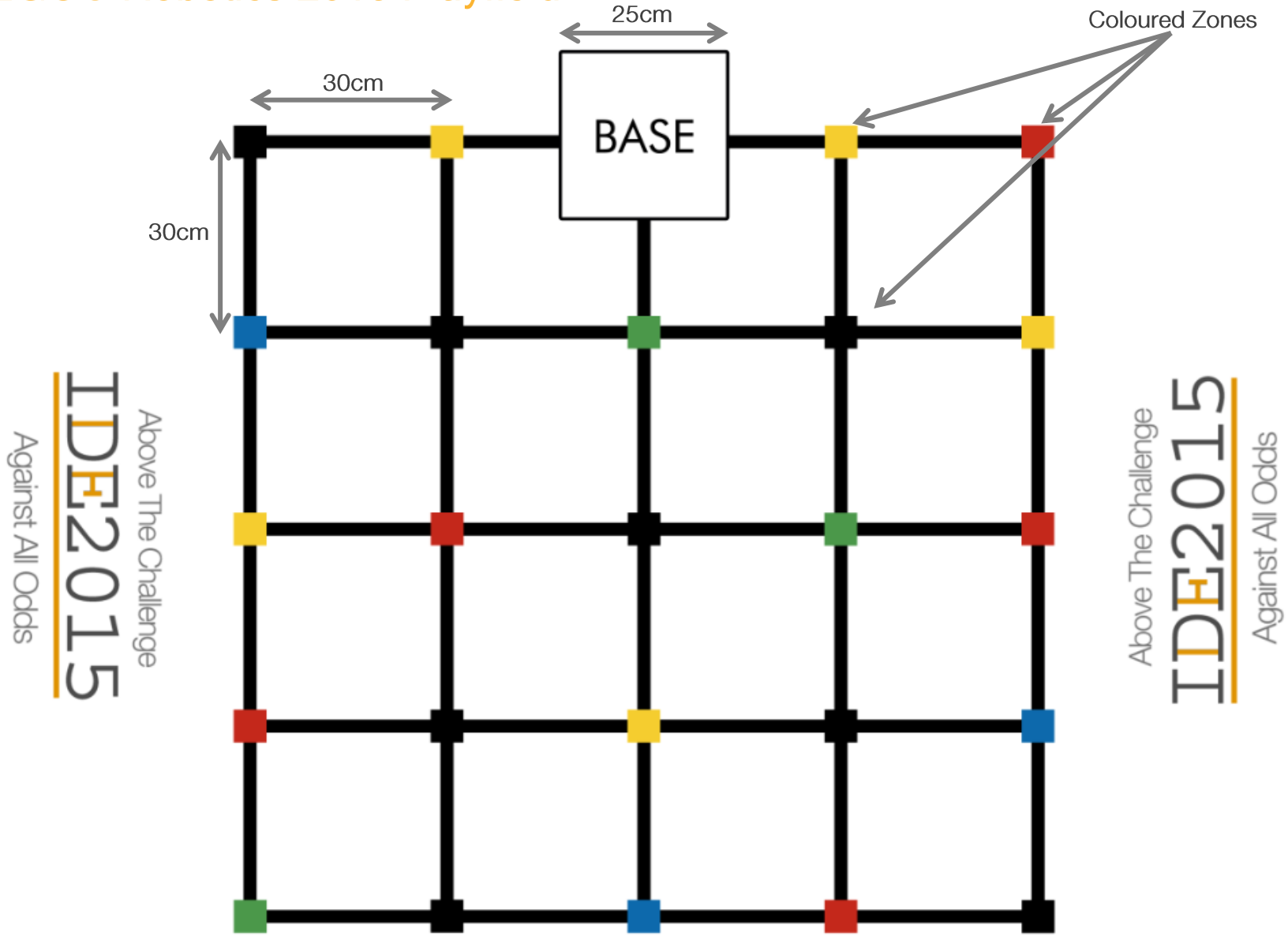
Jointly Organised By:



Supporting Partners:

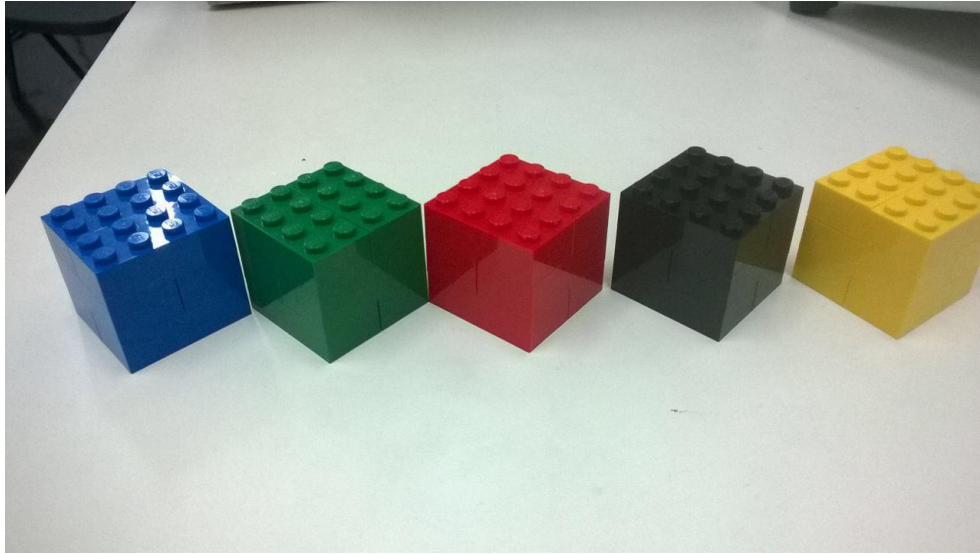


IDE LEGO® Robotics 2015 Playfield



Game Play

Scoring Elements



For both Primary and Secondary categories, coloured LEGO® bricks (Blue, Green, Red, Black, Yellow) will be used. Each coloured brick is 3 brick high, and measures 4 studs length and 4 studs width.

Primary School Category

Total time allowed for each run is 2 minutes 30 seconds. Each coloured zone on the playfield will have a brick corresponding to the colour of the coloured zone on it. The team’s objective is to bring back the coloured bricks back to base, while avoiding shifting the black bricks out of the black coloured zone. Once a coloured brick is **fully within base**, the robot operator may choose to remove it from base.

Objective	Score	Max Score
Scoring		
Bring blue brick back to base	20	60
Bring red brick back to base	20	100
Bring green brick back to base	10	30
Bring yellow brick back to base	10	50
End the run with robot in base	10	10
Penalty		
Black brick out of alignment	-20	-160
Robot restart (Up to 2)	-20	-40
Maximum Possible Score:		250

Scoring (Secondary):

Total time allowed for each run is 2 minutes 30 seconds. Teams will be given the coloured bricks before the start of the run. The black bricks, however, will already be placed in the black coloured zone. The team’s objective is to place the coloured bricks into their respective coloured zones, while avoiding shifting the black bricks out of the black coloured zone. Only one coloured brick per coloured zone is allowed.

Objective	Score	Max Score
Scoring		
Place blue brick fully within blue zone	20 (10 if not fully within blue zone)	60
Place red brick fully within red zone	20 (10 if not fully within red zone)	100
Place green brick fully within green zone	10 (5 if not fully within green zone)	30
Place yellow brick fully within yellow zone	10 (5 if not fully within yellow zone)	50
End the run with robot in base	10	10
Penalty		
Black brick out of alignment	-20	-160
Robot restart (Up to 2)	-20	-40
Maximum Possible Score:		250

Competition Rules

General:

1. During the competition, all teams must look after their own personal property, team construction and materials. Any member(s) of the competition who are caught in the act of sabotage, theft or mischief, whether to cause harm to other participating teams or not, will be dealt with by the competition organisers and may subject the team to disqualification.
2. No external help is to be rendered in this competition. This includes receiving direction, contribution, construction of any kind from any party or person not belonging to the team or TM. Failure to comply with this rule will be dealt seriously and may subject the team to disqualification.
3. Teams should prepare and bring all the equipment, software and portable computers they need during the tournament.
4. There will be trial fields set up for practice prior to the competition. Students are advised to queue up in an orderly manner and to refrain from hogging the fields as a standard practice of gracious professionalism.
5. All decisions by the competition officials and organising parties are final.

Parts and Size Restrictions

1. Teams are expected to bring their own LEGO® EV3, NXT or RCX sets, batteries and laptops.
2. The robots must use parts solely from LEGO® Sets. Teams are allowed to use only one controller (EV3, NXT or RCX). However, the number of motors and sensors is not restricted. The number of parts is not limited as long as they are LEGO® parts.
3. Mixing of parts from all 3 platforms (RCX / NXT / EV3) is allowed
4. Before each run, an inspector will check the robots for any non-LEGO® accessories. Team may face possible disqualification or point deduction if the parts cannot be removed.
5. The size of the robot and its extension as a whole will be strictly limited to **25cm x 25cm x 25cm**. If any robot with its extension attached is found to exceed this dimension, the exceeded part of the robot must be removed.
6. No form of remote control is allowed during the course of the run of the robot.
7. Only NI Labview, Robolab™ and LEGO® Mindstorms® EV3 or NXT programming platforms are accepted.

Game Play Rules

1. Each team will get 2 competition runs. The higher score of the two runs will be taken as the team's overall result. In case of tie in scoring, the lower score will be used as a tie breaker.
2. A maximum of 2 restarts are allowed during the run but time will still continue. Teams who choose to restart their run will not forfeit their current scores but will incur a penalty instead.
3. During a restart, only the robot will go back to base. All scoring elements attached to, captured or on the robot will be left in a similar position as if the robot was not there.
4. The robot and its attachments must start in the start base fully.
5. When a robot returns to base, at least ½ of the RCX/NXT/EV3 must be in the start area for the robot to be considered "in base".
6. Students are allowed to handle their robot (switch programs / attachments) only when robot is "in base".

Operational Rules

1. Once the competition preparation time is over, all robots must be quarantined with the competition officials, and no further work or modifications may be done to the robot.
2. Failure to quarantine the robot at the stated time will result in disqualification.
3. During each run, only a maximum of two members of each team will be allowed in the designated playfield area as designated robot operators.
4. During a run, only the designated robot operators may operate the robot.
5. A re-match may be held if the robot cannot complete the course due to an outside interference, such as a referee accidentally obstructing the path of the robot, or collision with a robot who emerges from the neighbouring playing field. Or a malfunction of the playing field occurs.
6. To request a re-run, the designated robot operator must notify the referee before leaving the playing area. **Battery failure will not be constitute a reason for rematch.** Durability of a team’s robot will not constitute a reason for a rematch.

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. If a referee disqualifies a team, the robot is turned off for the remainder of the match and will not score any points for the match.
3. A team may not win a match through an advantage gained by breaking a rule, even accidentally.
4. If one team intentionally damages another team’s robot they will be disqualified. If the damaged team’s robot is considered poorly built due to a decision flaw, the other team may not be disqualified. The ultimate decision lies with the Chief Referee.
5. Deliberately damaging the playing field, robot, or altering the LEGO® pieces is strictly illegal and will result an immediate disqualification.
6. Team members, except for the operator(s), are not allowed in the designated playing area until the referees have completed the scoring procedures.
7. Team members must not interfere or assist the robot in any way during its run. No robot communication is allowed in this competition. Violations of it will result in immediate disqualification of the entire school.

Awards

Primary and Secondary Category

	Singapore Round
Best Robot Performance (Based on competition score)	First: \$100 Voucher with Trophy & Medals
	Second: \$60 Voucher with Trophy & Medals
	Third: \$40 Voucher with Trophy & Medals
	Fourth to Fifth Position: Medals
	Sixth to Tenth Position: Ranking Certificates