General Rules

HARVEST HEROES

ROBO Adventures

EXPLORERS | INNOVATORS | TECHIES
SEASON 2024

Organized By

ROBO-G
Learn to Build, Design and Program Robot

Domain Partner

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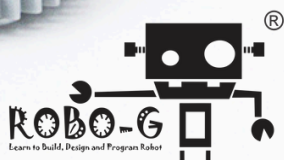
Hosted By

VIDYASHILP ACADEMY

Indian Robotics Olympiad 2024

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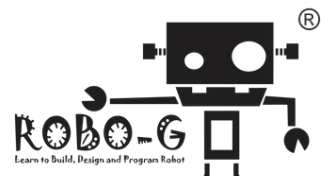
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1. Team and age groups definitions

1.1   Students can participate individually or in teams of two.
1.2   Each student or team must be guided by a coach.
1.3   A team can consist of one student and one coach.
1.4   A student may only participate in one of the IRO categories during a season.
1.5   A student may only be a part of one team.
1.6   The minimum age for a coach is 18 years old.
1.7   Coaches are allowed to work with more than one team.

Explorers: students 5–7 years old in season 2024: born years 2017–2019

Innovators: students 7–10 years old in season 2024: born years 2014–2017

Techies: students 10–15 years old in season 2024: born years 2009–2014

2. Responsibilities and team's own work

2.1   Students should play fair and show respect towards other teams, coaches, judges,   and competition organizers.
2.2   The construction and coding of the robot must be done solely by the team members.
2.3   Students are not allowed to communicate in any way with people outside of the competition area while the competition is running. If communication is necessary, a judge may permit team members to communicate with others under the supervision of a judge.
2.4   Students are not allowed to bring or use mobile phones or any other communication devices in the competition area.
2.5   The judge on competition day has the final say in all decisions.

3. Robot material & regulations

3.1 Explorers category

3.1.1 Each team uses one KUBO robot to solve the missions on the field.

3.1.2 Students are allowed to use only one KUBO robot and coding TagTile® pieces from the KUBO Coding Starter Set.

3.1.3 Any number and combination of KUBO TagTile® pieces may be used to program the KUBO robot.

3.1.4 Teams are allowed to decorate the KUBO robot based on the theme if needed.

3.1.5 Teams are allowed to bring and use only one KUBO robot and sufficient TagTile® pieces during practice time or robot runs.

3.1.6 Students or teams are not allowed to perform any actions or movements to interfere with or assist the robot after it has started its run.

3.1.7 Challenge mat and objects will be provided on the competition day. You need to bring your own Kubo coding starter set.

3.2 Innovators category

3.2.1 Each team builds one robot to solve the challenges on the field. The maximum robot dimensions before the robot starts a run are 250 mm x 250 mm x 250 mm, including any cables. After the robot has started, its dimensions are no longer restricted.

3.2.2 Teams are allowed to use only the LEGO Education WeDo 2.0 kit or LEGO Education SPIKE Essential kit, along with their official motors, sensors, and batteries to build the robot.

3.2.3 Only LEGO® branded elements are allowed in the construction of the robot.

3.2.4 The number of motors and sensors that can be used is not restricted.

3.2.5 A team is allowed to bring and use only one controller during practice time or robot runs.

3.2.6 During an attempt, the robot may be operated autonomously under programmed control, by remote control, or through a combination of both methods. The robot can be controlled by any compatible device using WeDo 2.0/SPIKE Essential compatible software or with a remote controller built from WeDo 2.0/SPIKE Essential elements.

3.2.7 During an attempt, the team is allowed to touch or grab the robot when any part of the robot, such as a wheel, touches a Home Area.

3.2.8 The team is also allowed to move the robot from one Base Area to another Base Area. However, only the robot may be moved, not the game objects.

3.2.9 During an attempt, team members are not allowed to touch any game object outside of Base Areas. If a team touches a game object outside a Base Area, the judge will place the touched item at its original location on the field, in the state it was in when touched.

3.2.10 Team members are not allowed to touch the robot unless it is touching a Base Area. If a team touches a robot that is not in contact with a Base Area, the judge will place the robot in the nearest Base Area.

3.2.11 Any software may be used to code the robot, and teams can prepare the code before the competition day.

3.2.12 Challenge mat and objects will be provided on the competition day. You need to bring your own robot and parts to build and program it.

3.2.13 Teams can bring the robots assembled to the competition. They do not need to re build the robots on the competition day.

3.2.14 A team should prepare and bring all the equipment, sufficient spare parts, software, and portable computers it needs during the tournament.

3.3 Techies category

3.2.1 Each team builds one robot to solve the challenges on the field. The maximum robot dimensions before the robot starts a run are 250 mm x 250 mm x 250 mm, including cables. After the robot has started, its dimensions are no longer restricted.

3.2.2 Teams are allowed to use only the LEGO Education NXT kit, LEGO Education EV3 kit, or LEGO Education SPIKE Prime kit, along with their official motors, sensors, and batteries to build the robot.

3.2.3 Only LEGO® branded elements are allowed in the construction of the robot.

3.2.4 The number of motors and sensors that can be used is not restricted.

3.2.5 A team is allowed to bring and use only one controller during practice time or robot runs.

3.2.6 The robot must be autonomous and complete the missions by itself. Any form of radio communication, remote control, or wired control systems is not allowed while the robot is running.

3.2.7 A team is not allowed to perform any actions or movements to interfere with or assist the robot after it has started its run.

3.2.8 Any software may be used to code the robot, and teams can prepare the code before the competition day.

3.2.9 Challenge mat and objects will be provided on the competition day. You need to bring your own robot and parts to build and program it.

3.2.10 Teams can bring the robots assembled to the competition. They do not need to re build the robots on the competition day.

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4. Challenge mat and equipment

4.1 In this category, the robot solves missions on a field. Each age group has its own mat, as the missions vary by age group.

4.2 The dimension of the IRO **Explorers category** mat is 1200 mm x 1200 mm and the IRO **Innovators and Techies categories** mats are 2362 mm x 1143 mm each.

4.3 The challenge objects are built from the LEGO Bricks.

4.4 It is not allowed to damage challenge objects. If challenge object is damaged, a potential score of the challenge object does not count.

4.5 **On competition day, the challenge mat will be placed directly on a flat surface with no surrounding walls.**

4.6 **Explorers category:** The robot should start from the start area (flag icon) for each mission.

4.7 **Innovators category:** The robot should start from one of the four home areas and must be completely inside the home area at the start.

4.8 **Techies category:** The robot should start from the start and finish area and must be completely inside this area at the start.

5. Robot attempt

5.1 Explorers category

5.1.1 On the competition day, teams will have two robot attempts.

5.1.2 Teams will be given one practice run before each actual attempt.

5.1.3 Teams will have 10 minutes to solve each mission.

5.1.4 In the first attempt, teams will have 20 minutes to solve the first two missions. In the second attempt, teams will have another 20 minutes to solve the last two missions. Time begins when the judge gives the signal to start.

5.1.5 The ranking of the teams is based on the combined score of all four missions. If competing teams have the same score, the ranking will be decided by the record of time.

5.1.6 A robot attempt will end when either the 20-minute time limit has expired, or a team member shouts "STOP" and the robot ceases to move. If the robot is still moving, the attempt will end once the robot stops by itself or is stopped by the team or judge.

5.1.7 Once the robot attempt has ended, time is stopped, and the judge scores the attempt. The scores are recorded on a score sheet, which the team must sign to confirm the score.

5.2 Innovators & Techies category

5.2.1 On the competition day, teams will have two robot attempts.

5.2.2 Teams will be given one practice run before each actual attempt.

5.2.3 Each robot attempt lasts 2 minutes and 30 seconds. Time begins when the judge gives the signal to start.

5.2.4 The ranking of the teams is based on the best score from the two robot attempts. If competing teams have the same score, the ranking will be decided by the time record.

5.2.5 A robot attempt will end when either the 2 minutes and 30 seconds have elapsed, or a team member shouts "STOP" and the robot ceases to move. If the robot is still moving, the attempt will end once the robot stops by itself or is stopped by the team or judge.

5.2.6 Once the robot attempt has ended, time is stopped, and the judge scores the attempt. The scores are recorded on a score sheet, which the team must sign to confirm the score.

6. Awards

6.1 In each IRO category—Explorers, Innovators, and Techies—the teams placing first, second, and third will receive trophies, medals, and ranking certificates.

6.2 All other participating teams will receive participation certificates.

Indian Robotics Olympiad 2024 Theme

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