INDIAN ROBOTICS OLYMPIAD

Missions Description

Version: 14 March 2026

ROBO Adventures

EXPLORERS | INNOVATORS | TECHIES

SEASON 2026

Organized By

ROBO-G
Learn to Build, Design and Program Robot

Indian Robotics Olympiad 2026

Missions Description

ROBO Adventures

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INDIAN ROBOTICS OLYMPIAD

ROBO-G
Learn to Build, Design and Program Robot

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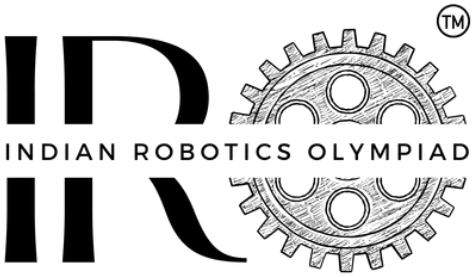


The **Indian Robotics Olympiad (IRO)** is a prestigious competition that showcases the innovation and technical prowess of young minds across India. It serves as a platform for students to demonstrate their skills in robotics, programming, and problem-solving.

IRO, an initiative pioneered by **ROBO-G**, is exclusively organized by ROBO-G itself. Additionally, ROBO-G serves as the official training partner for IRO.

IRO 2026 Theme - Smart Amusement Park

The theme for IRO 2026 is **"Smart Amusement Park".**

This year, young innovators will reimagine the future of amusement parks through robotics, coding, automation, and intelligent systems. From designing smart ride operations and automated safety checks to managing crowd flow and creating interactive robotic attractions, participants will explore how technology can make amusement parks safer, smarter, and more exciting.

The Smart Amusement Park theme is designed to spark creativity, strengthen engineering skills, and encourage real-world problem-solving — all while having fun building innovative robotic solutions.

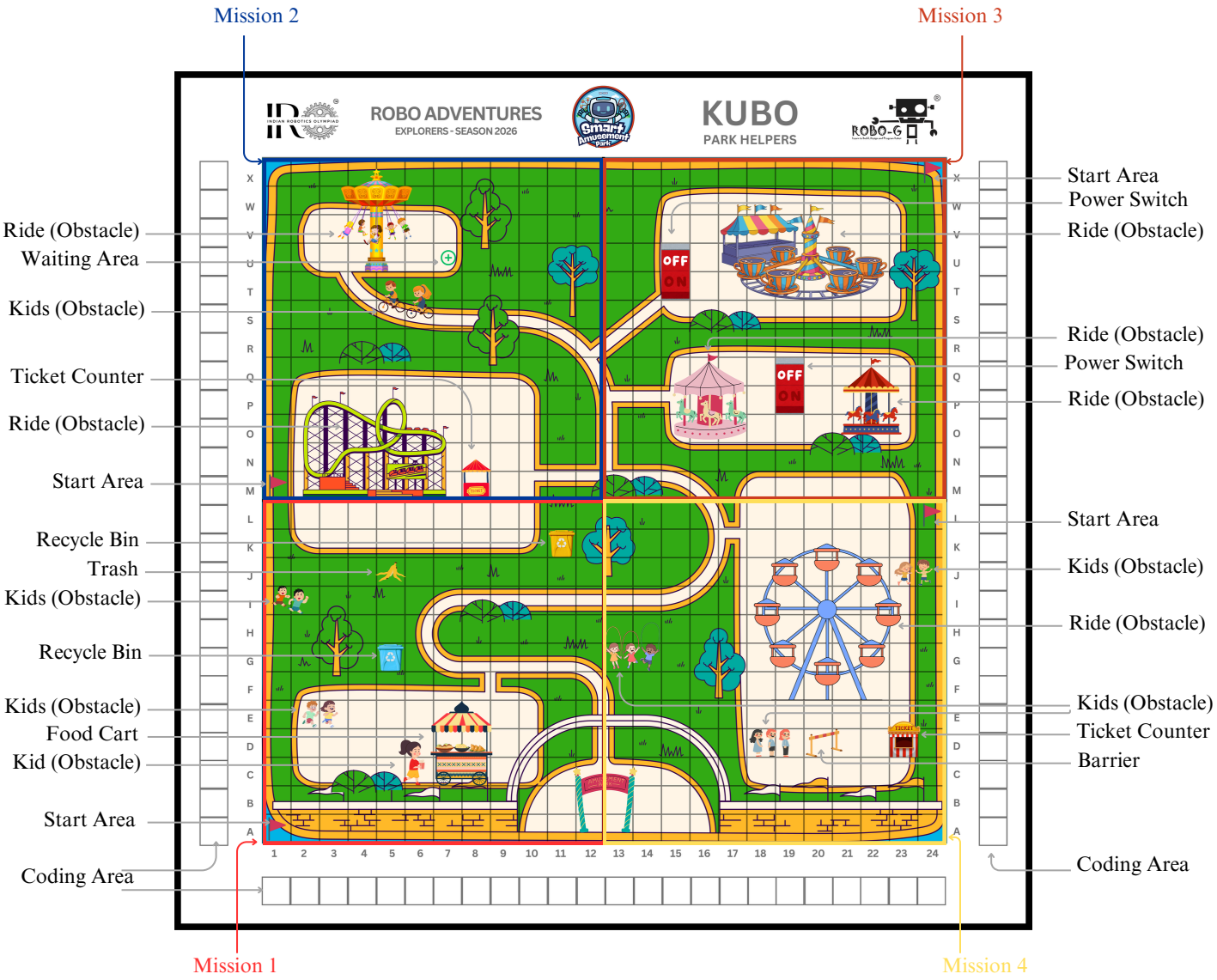
1. Robo Adventures - Explorers (Aged 5 - 7 Years)

1.1 Challenge Introduction

Kubo the Park Helper has taken on the mission of transforming the park into a Smart Amusement Park, and he needs your help to make it smarter, safer, and more exciting! Let's assist Kubo in this journey by managing smart ride operations, ensuring automated safety checks, optimizing crowd flow, and maintaining park cleanliness with innovative robotic solutions.

1.2 Challenge Mat

The following graphic shows the challenge mat with the different areas.

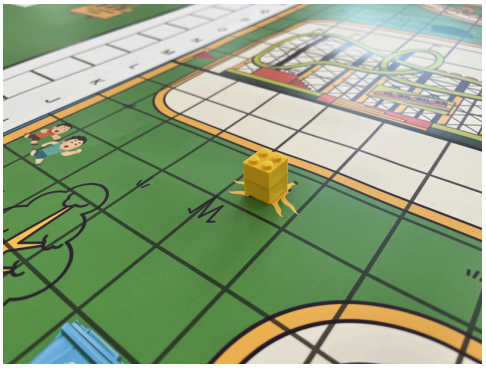


1.3 Challenge Objects and Positioning

Trash (1×)

There is one trash on the mat. It will be placed on the “banana” icon in Mission 1.

Trash (1)



Start position of object on the field

Visitor (1×)

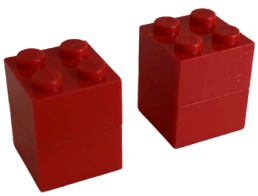
There is one visitor on the mat. It will be placed on the waiting area (“+” icon) in Mission 2.

Visitor (1)

Start position of object on the field

Power Switch (2×)

There are two power switches on the mat. They will be placed on the two switch icons, one on each, in Mission 3.



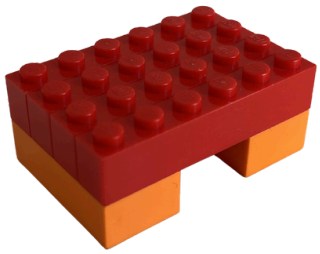
Power Switch (2)

Start position of object on the field

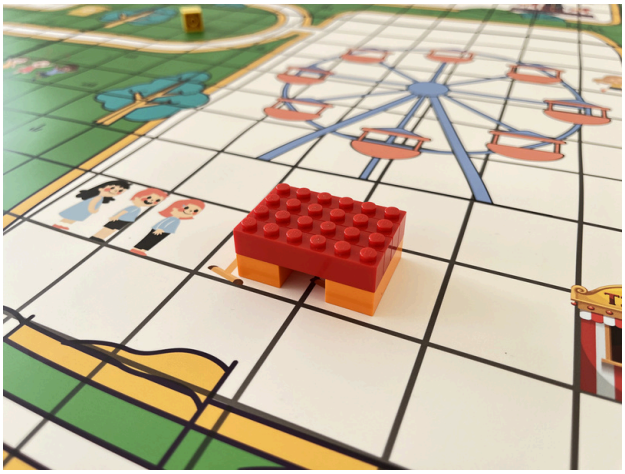
Start position of objects on the field

Barrier (1×)

There is one barrier on the mat. It will be placed on the barrier icon in Mission 4.



Barrier (1)



Start position of object on the field

Start position of objects on the field

1.4 Robot Missions

For a better understanding, the missions will be explained in multiple sections. The team can decide in which order they will do the missions.

1. Cleaning the Park
Kubo, the Park Helper, must collect the trash from the park and properly dispose of it in the recycle bin.

2. Transporting the Visitor
The robot must pick up the visitor from the waiting area located near the first ride and transport him to the Ticket Counter located near the other ride.

3. Turning OFF the Power Switches
The robot must turn OFF two power switches of the rides.

- This must be done by moving the LEGO brick from one side of the switch to the other side.
- Moving the LEGO brick from the OFF side to the ON side will be considered as successfully activating the OFF mode.
- After the brick has been moved from OFF to ON, if it slightly or completely shifts out of the printed switch image while the robot is turning or moving, the task will still be considered completed and points will be awarded.

4. Removing the Barrier
The robot must completely remove the barrier from the Starting Grid area so that kids can access the Ticket Counter.

- The barrier must be pushed only from its broader side.
- Pushing from the shorter side is not allowed.

Note:

- While navigating on the mat, the wheels of the Kubo robot may move over the side grids. However, only the grid beneath the central body of the robot will be considered for positioning and scoring.
- The robot's wheels may pass over the printed images of kids and rides on the mat, and this will not result in any penalty. However, the wheels must not touch, move, or disturb any challenge elements constructed from LEGO bricks. Any contact with LEGO challenge elements will be considered a rule violation.
- The robot must avoid disturbing the kids and rides while navigating in the park. In other words, it should not move over the kids and rides images printed on the mat.
- For each challenge the robot should start from the Start Area (red flag).

1.5 Scoring

Tasks	Each	Total	#	Total
Cleaning the Park				
The trash is completely removed from its starting position (not touching the grid where it was placed initially)		**5**		
The robot did not disturb the kids while navigating within the park	**5**	**15**		
The trash is completely or partially inside any one of the recycle bins		**5**		
Total Score in this mission				
Time in full seconds				
Transporting the Visitor				
The visitor is picked up from its starting position (not touching the grid where it was placed initially)		**5**		
The robot did not disturb the rides while navigating within the park	**5**	**10**		
The robot did not disturb the kids while navigating within the park		**5**		
The visitor is completely or partially inside the ticket counter		**5**		
Total Score in this mission				
Time in full seconds				
Turning OFF the Power Switches				
The power switch is turned off	**5**	**10**		
The robot did not disturb the rides while navigating within the park	**5**	**15**		
Total Score in this mission				
Time in full seconds				
Removing the Barrier				
The barrier is completely removed from its starting position (not touching the grids where it was placed initially)		**5**		
The robot did not disturb the rides while navigating within the park		**5**		
The robot did not disturb the kids while navigating within the park	**5**	**15**		
Total Score in this mission				
Time in full seconds				
Maximum Score		**100**		
Total Score (Addition of all four missions)				
Time in full seconds (Addition of all four missions)				

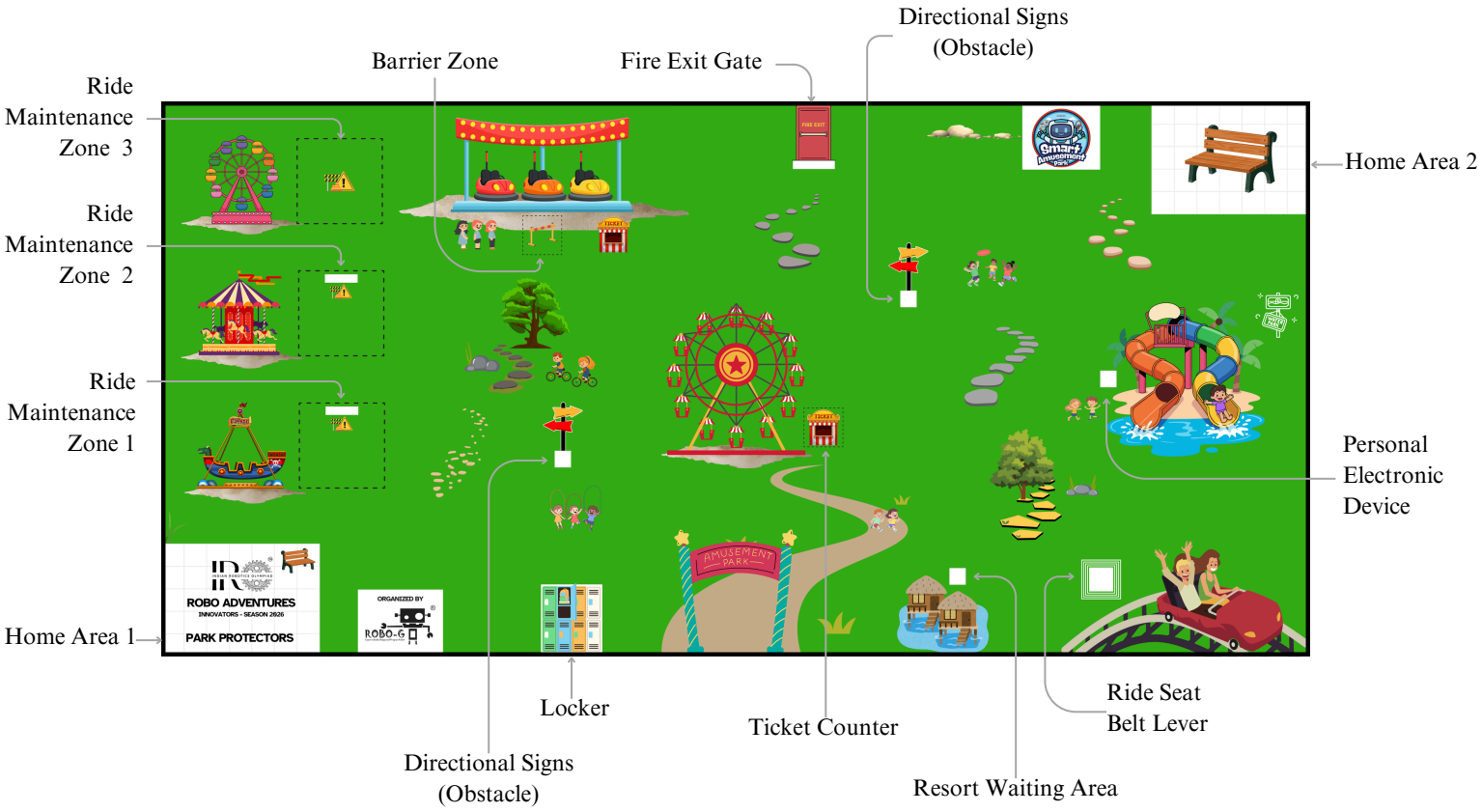
2. Robo Adventures - Innovators (Aged 7 - 10 Years)

2.1 Challenge Introduction

Your mission is to design, build, and program a park protector robot to escort the engineer to the ride maintenance zone, install the safety barrier, transport the visitor from the resort to the amusement park, place the items in the locker, activate the ride's seat belt system, and open the emergency gate during the dry run.

2.2 Challenge Mat

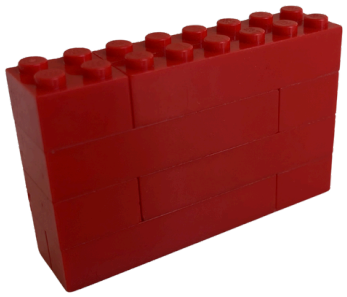
The following graphic shows the challenge mat with the different areas.



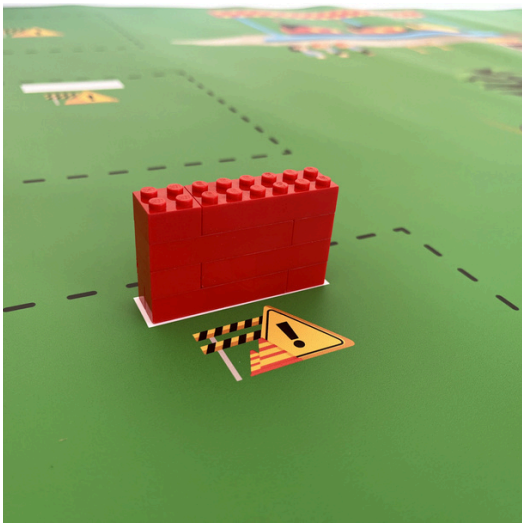
2.3 Challenge Objects and Positioning

Wall (1×)

There is one wall on the mat. It will be placed randomly on one of the white rectangles inside ride maintenance zone 1 or 2.



Wall (1)



Start position of object on the field
(One possible randomization)

Engineer (1×)

There is one engineer in the home area 1. The engineer is standing inside the area in any location and orientation.

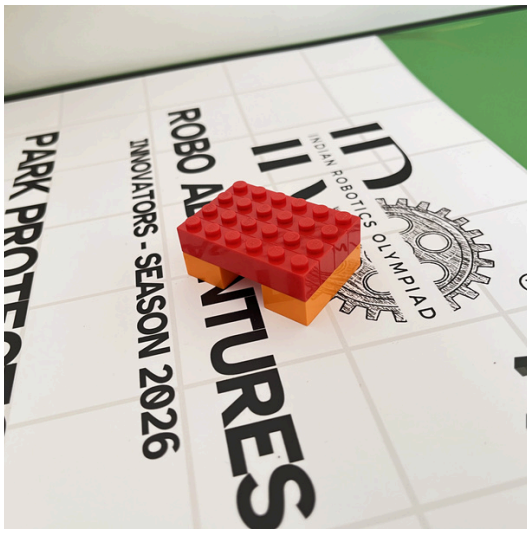
Engineer (1)

Start position of object on the field

Crowd Control Barrier (1×)

There is one crowd control barrier in the home area 1. The barrier is standing inside the area in any location and orientation.

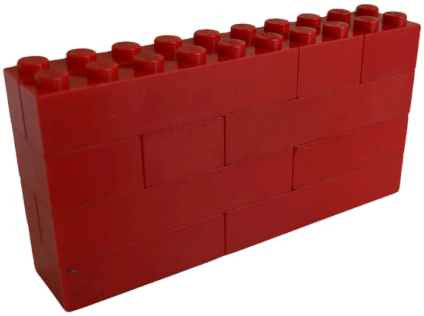
Crowd Control Barrier (1)



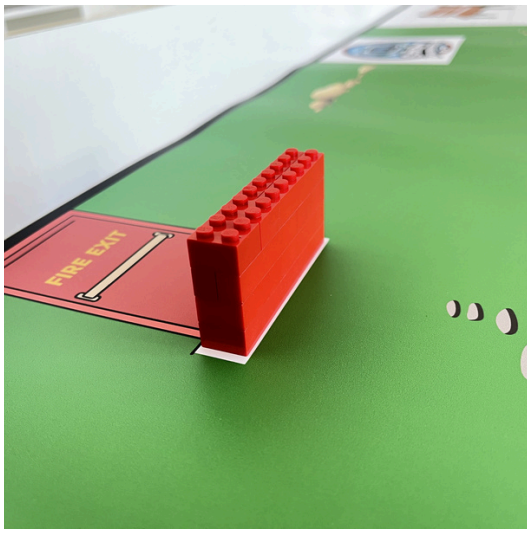
Start position of object on the field

Fire Exit Gate (1×)

There is one fire exit gate on the mat. It will be placed on the white rectangle near the fire exit area.



Fire Exit Gate (1)



Start position of object on the field

Personal Electronic Device Box (1×)

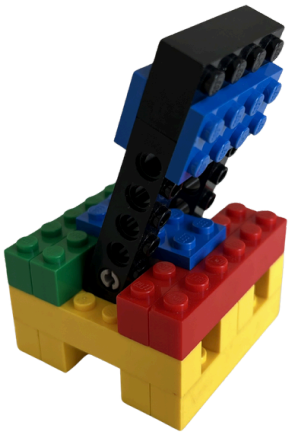
There is one personal electronic device box on the challenge mat. It will be placed on the white square near the water park.

Personal Electronic Device Box (1)

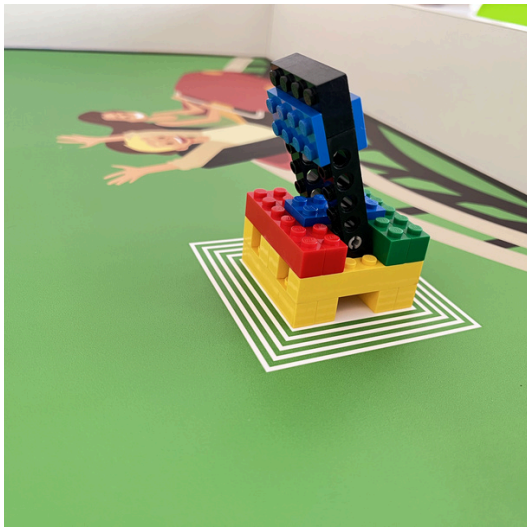
Start position of object on the field

Lever (1×)

There is one lever on the challenge mat. It will be placed on the white square near ride seat belt lever area. It can be in two different states: On (Green) and off (Red).



Lever (1)



Start position of object on the field (Note that the lever starts in the off position)

Visitor (1×)

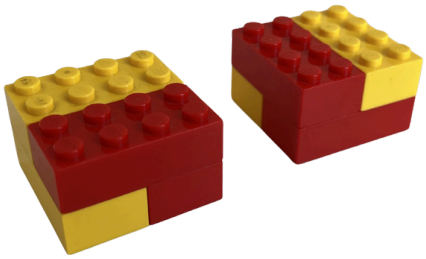
There is one visitor on the challenge mat. The visitor will be placed on the white square near the resort.

Visitor (1)

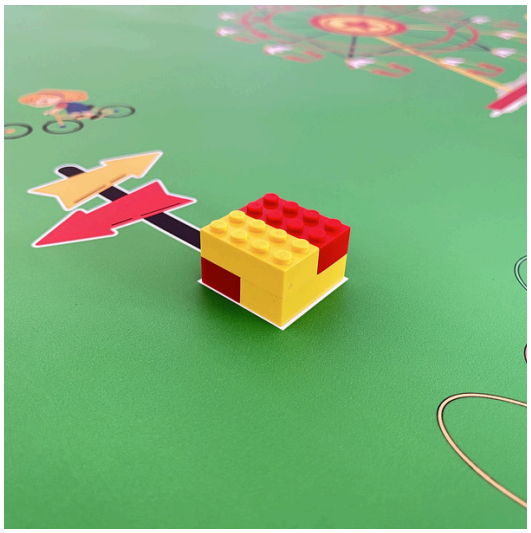
Start position of object on the field

Directional Sign (Obstacle) (2×)

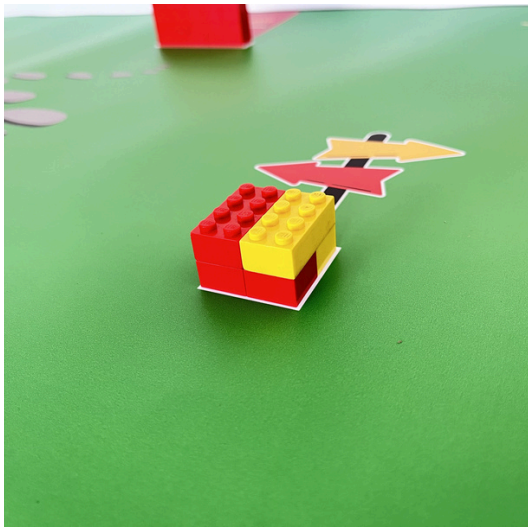
There are two directional signs (obstacle) on the challenge mat.



Directional Signs (Obstacle) (2)



Start position of object on the field



Start position of object on the field

2.4 Robot Missions

For a better understanding, the missions will be explained in multiple sections. The team can decide in which order they will do the missions.

1. Transport the Engineer to the Ride Maintenance Zone
Several rides are not operational due to regular maintenance. The robot must transport the engineer to one of the Ride Maintenance Zones by detecting the wall placed in one of the maintenance zones. The robot must not move the wall from its initial position.

2. Install the Crowd Control Barrier
The robot must transport the barrier from the Home Area to the Barrier Zone to control the crowd in one of the ride areas.

3. Open the Fire Exit Gate
During a dry run practice, the robot must open the Fire Exit Gate by removing the LEGO-built gate completely from its starting position.

4. Store Electronic Devices in the Locker
Before entering the water park, some visitors wish to store their personal electronic devices in the locker. The robot must transport the device box and place it completely inside the Locker.

5. Activate the Ride Seat Belt Lever
The robot must ensure that the seat belts are activated before the ride begins. The robot must turn ON the Ride Seat Belt Lever.

6. Transport the Visitor to the Ticket Counter
A visitor is waiting at the Resort Waiting Area to enter the amusement park. The robot must pick up the visitor and drop the visitor at the Ticket Counter.

7. Avoid the Directional Signs (obstacle)
Drive carefully without moving the directional signs (obstacles) to earn bonus points.

8. Park the Robot
Finish the run by parking the robot completely or partially inside either of the two home areas.

Note:

- The Home Areas include the white rectangles with the bench image located at the top-right corner and bottom-left corner of the mat.
- If an object is required to be completely inside an area, it means that no part of the challenge object extends beyond the border of that area or touches the border line.

2.5 Scoring

Tasks	Each	Total	#	Total
Transport the Engineer to the Ride Maintenance Zone				
The engineer is completely inside the correct ride maintenance zone		**10**		
The engineer is partially inside the correct ride maintenance zone		5		
The wall placed inside the maintenance zone has not been moved from its initial position.		**10**		
Install the Crowd Control Barrier				
The crowd control barrier is completely inside the barrier zone.		**10**		
The crowd control barrier is partially inside the barrier zone.		5		
Open the Fire Exit Gate				
The LEGO-built gate is completely removed from its starting position (not touching the white rectangle)		**10**		
The LEGO-built gate is partially removed from its starting position (touching the white rectangle)		5		
Store Electronic Devices in the Locker				
The device box is completely inside the locker		**10**		
The device box is partially inside the locker		5		
Activate the Ride Seat Belt Lever				
The lever is not moved completely outside its designated white square where it was initially located and turned ON		**10**		
Transport the Visitor to the Ticket Counter				
The visitor is completely inside the ticket counter		**10**		
The visitor is partially inside the ticket counter		5		
Avoid the Directional Signs (obstacle)				
The directional sign has not been moved from its initial starting position	**10**	**20**		
Park the Robot				
Robot completely or partially stops within the home area		**10**		
Maximum Score		**100**		
Total Challenge Mat Score				
Time in full seconds				

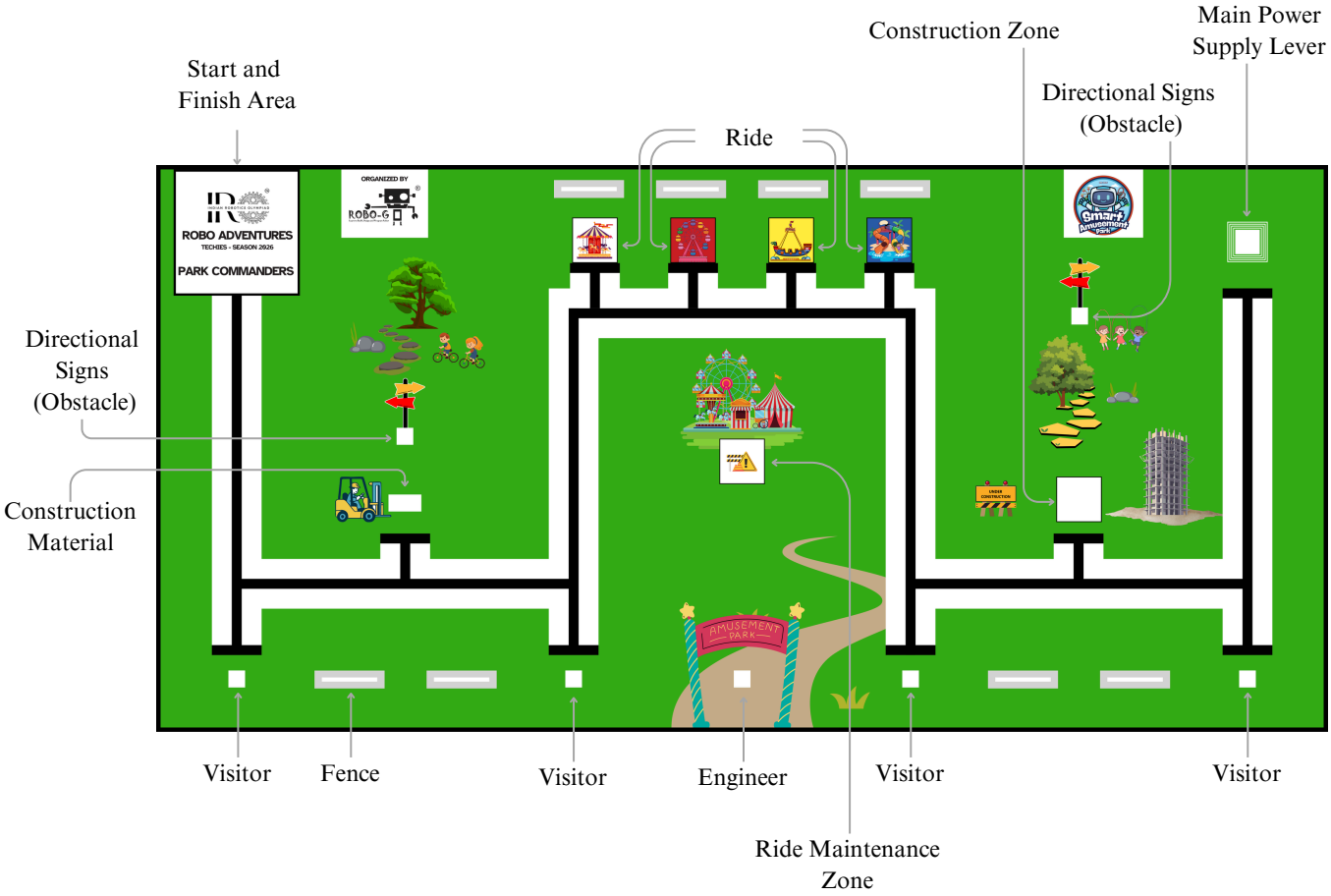
3. Robo Adventures - Techies (Aged 10 - 15 Years)

3.1 Challenge Introduction

Your mission is to design, build, and program a park commander robot to transport visitors to the rides, move construction materials to the designated construction zone, escort the engineer to the maintenance zone, and turn off the main power lever of the amusement park at the end of the day.

3.2 Challenge Mat

The following graphic shows the challenge mat with the different areas.

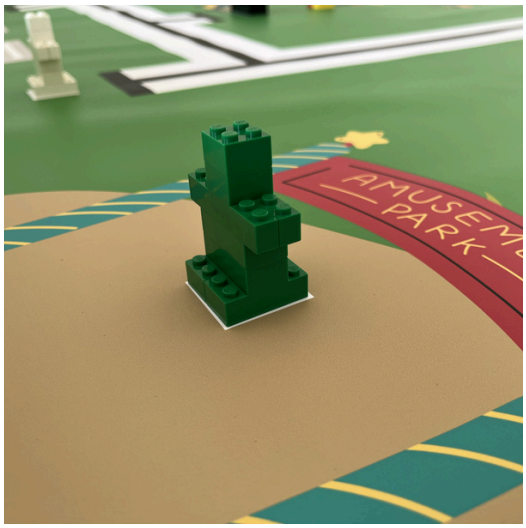


3.3 Challenge Objects and Positioning & Randomisation

Engineer (1×)

There is one engineer on the challenge mat. The engineer will be placed on the white square at the enginner position.

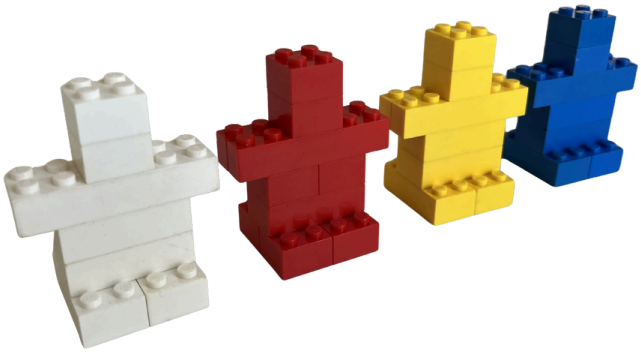
Engineer (1)



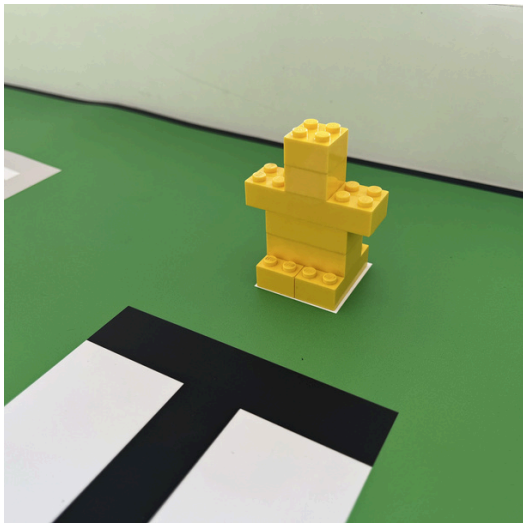
Start position of object on the field (on white square)

Visitor (4×)

There are four visitors (white, red, yellow, and blue) on the challenge mat. They will be placed randomly on the white squares at the visitor positions.

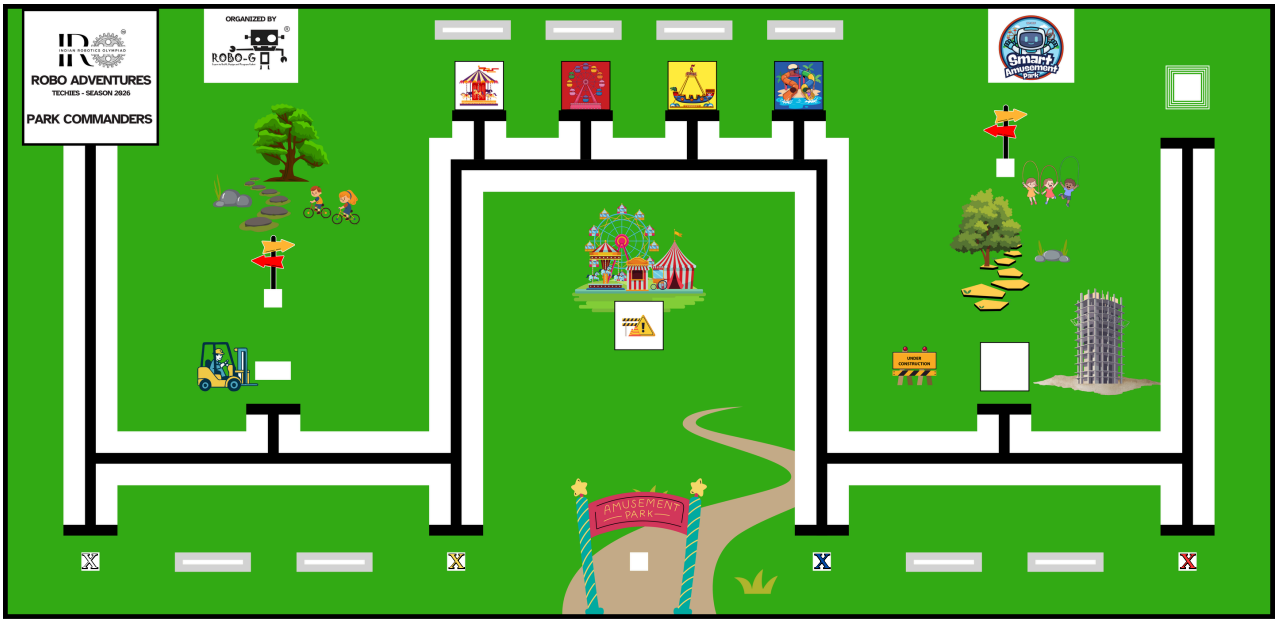


Visitor (4)



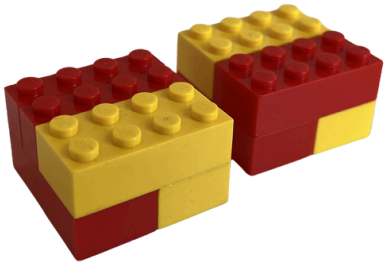
One possible start position of the object on the field (on white square)

One possible randomization you can see here (white X for white visitor, red X for red visitor, yellow X for yellow visitor, blue X for blue visitor):

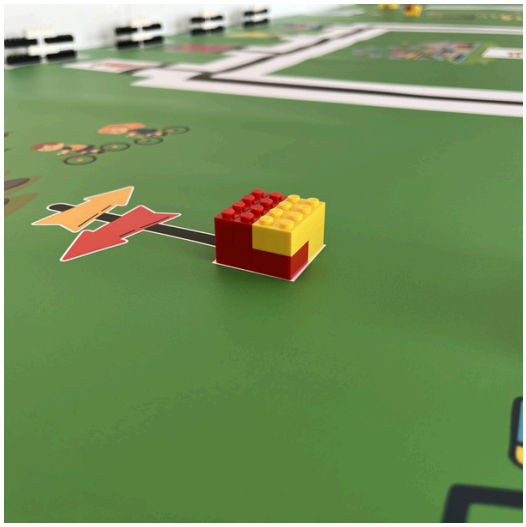


Directional Sign (Obstacle) (2×)

There are two directional signs (obstacle) on the challenge mat.



Directional Sign (Obstacle) (2)



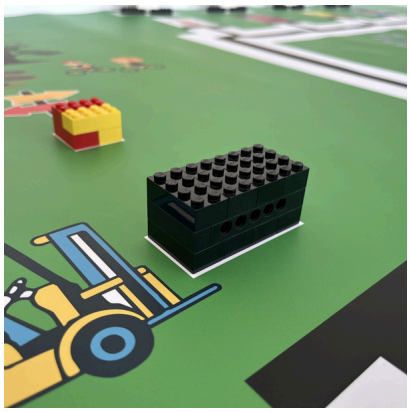
Start position of object on the field (on white square)

Start position of object on the field (on white square)

Construction Material Box (1×)

There is one construction material box on the challenge mat. It will be placed on the white rectangle as shown in the image below.

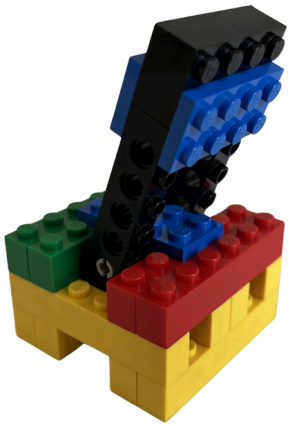
Construction Material Box (1)



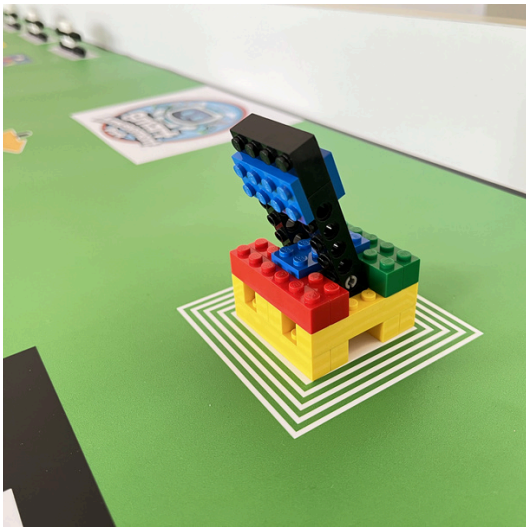
Start position of object on the field

Main Power Supply Lever (1×)

There is one lever on the challenge mat. It will be placed on the white square as shown in the image below. It can be in two different states: On (Green) and off (Red).



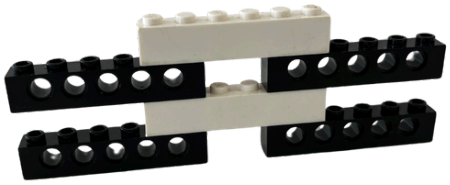
Main Power Supply Lever (1)



Start position of object on the field (Note that the lever starts in the off position)

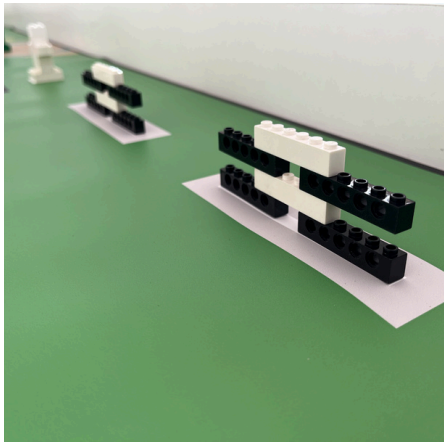
Fences (8×)

There are 8 fences on the field that should not be moved or damaged. A fence is placed on the white line inside a grey area.



Fence (8)

Start position of object on the field



Start position of object on the field

3.4 Robot Missions

For a better understanding, the missions will be explained in multiple sections. The team can decide in which order they will do the missions.

1. Transport the Visitors to the Rides
Visitors are waiting to enjoy the rides. The robot must pick up the visitors and drop them into their respective colored ride boxes.

2. Escort the Engineer to the Ride Maintenance Zone
The robot must pick up the engineer and drop him inside the ride maintenance zone.

3. Move Construction Materials
The robot must transport the construction materials to the designated construction zone, where they will be used to build new rides.

4. Turn OFF the Main Power Supply Lever
At the end of the day, the robot must ensure that the main power supply is turned OFF by moving the lever from the green side to the red side.

5. Avoid the Directional Signs (obstacle)
The robot must navigate carefully without moving any directional signs (obstacles) to earn bonus points. No points will be awarded if any obstacle is moved from its original position.

6. Park the Robot
The mission is complete when the robot returns to the Start & Finish area, comes to a complete stop, and the projection of the robot (top view) is partially or completely within the Start & Finish area.

7. Get Bonus Points
Bonus points will be awarded if the fences are not moved or damaged during the run.

Note:

- If an object is required to be completely inside an area, it means that no part of the challenge object extends beyond the border of that area or touches the border line.

3.5 Scoring

Tasks	Each	Total	#	Total
Transport the Visitors to the Rides				
The visitor is completely inside the correct ride	**10**	**40**		
The visitor is partially inside the correct ride	5	20		
Escort the Engineer to the Ride Maintenance Zone				
The enginner is completely inside the ride maintenance zone		**10**		
The enginner is partially inside the ride maintenance zone		5		
Move Construction Materials				
The construction material box is completely inside the construction zone		**10**		
The construction material box is partially inside the construction zone		5		
Turn OFF the Main Power Supply Lever				
The lever is not moved completely outside its designated white square where it was initially located and turned OFF		**15**		
Avoid the Directional Signs (obstacle)				
The directional sign has not been moved from its initial starting position	**10**	**20**		
Park the Robot				
Projection (top view) of the robot is partly or completely in the Start & Finish Area		**15**		
Get Bonus Points				
Fence that is not moved or damaged	**5**	**40**		
Maximum Score		**150**		
Total Challenge Mat Score				
Time in full seconds				

Notes

Indian Robotics Olympiad 2026 Theme

INDIAN ROBOTICS OLYMPIAD

ROBO-G
Learn to Build, Design and Program Robot