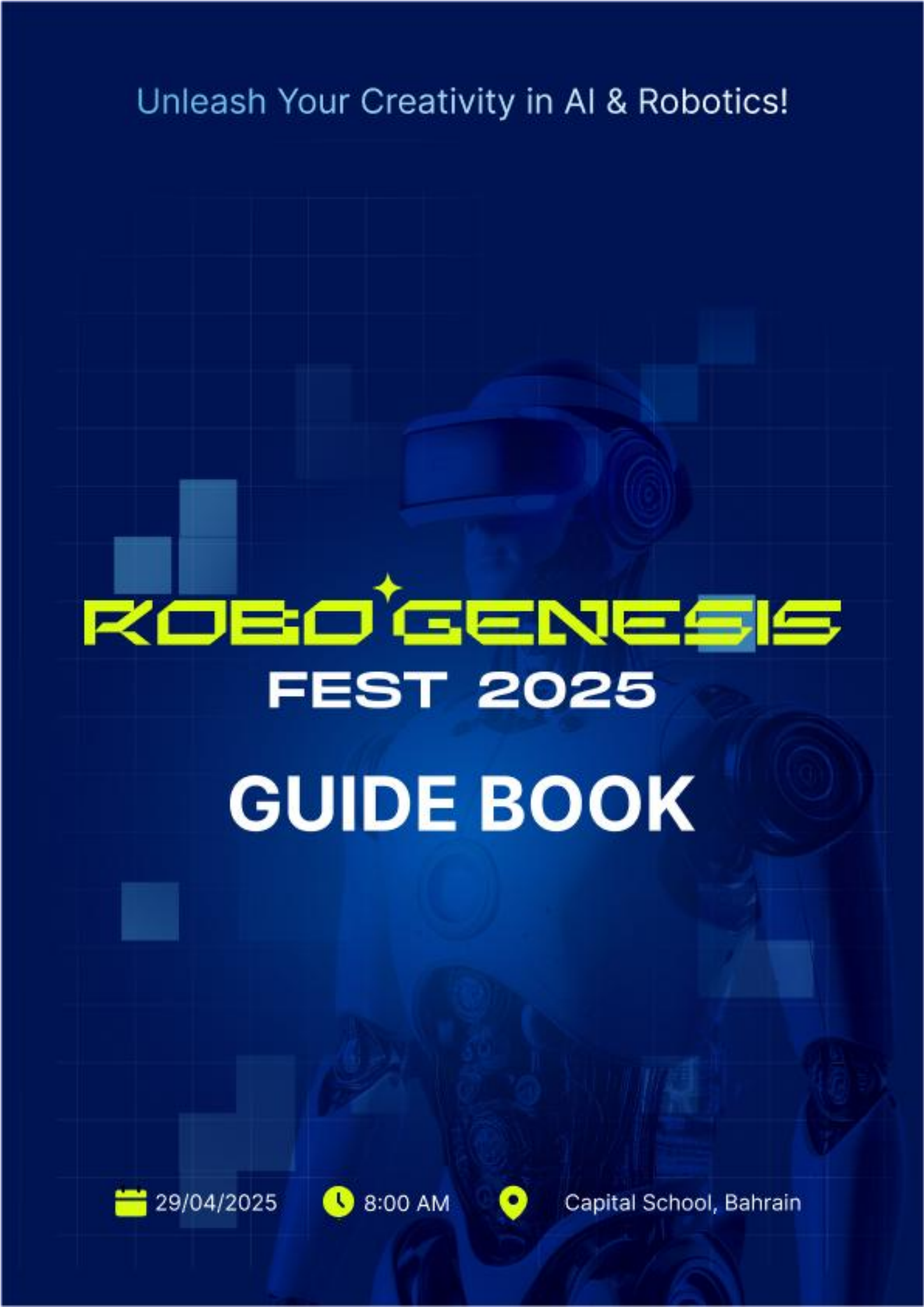
Unleash Your Creativity in AI & Robotics!



# ROBO GENESIS

## FEST 2025

# GUIDE BOOK

29/04/2025 | 8:00 AM | Capital School, Bahrain

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# 1. INTRODUCTION

Robogenesis Fest 2025 is **Bahrain's premier national-level AI & Robotics festival**, bringing together students, educators, and technology enthusiasts to **compete, play, and explore** the advancements in **automation, AI & Robotics**. This event serves as a **platform for innovation, hands-on learning, and STEM excellence**, supporting Bahrain's vision for technological progress.

The fest comprises **three major segments**:

1. **AI & Robotics Competition** – A national-level challenge where participants put their skills to the test in three exciting competitions: **RG Challenger, RG Explorer, and RG Innovators**, pushing the limits of robotics, problem-solving, and automation.
2. **Robotic Games** – A fun and interactive arena featuring thrilling games like **Robo Race, Robo Ball, and Robo Balloon Popping Challenge**, where attendees can engage in hands-on robotic challenges.
3. **AI & Robotics Exhibition:** A dynamic display of AI & robotics innovations, featuring:

    - **Tech Horizon** – A showcase of cutting-edge advancements and future technology in AI and robotics.
    - **Innovatech Pavilion** – A platform for young innovators and startups to present their groundbreaking robotics and AI projects.
    - **Smart Minds Challenge** – A **quiz competition** designed to test participants' knowledge of AI, robotics, and emerging technologies.
    - **Workshops** – Hands-on sessions conducted by industry experts, offering deep insights into robotics programming, AI applications, and automation.

Robogenesis Fest 2025 is more than just a competition—it's a **celebration of creativity, innovation, and the limitless potential of AI & Robotics**.

# 2. Competition Overview

## 2.1 Participation Criteria

Students are to participate in teams with a mentor. The categories and age groups for participation are as follows:

### RG Challenger

- Age Group: 8-15 years
- Team Composition: 1-2 members

### RG Explorer

- Age Group: 8-15 years
- Team Composition: 2-4 members

### RG Innovators

- Age Group:8-15 years
- Team Composition : 2-6 members

Note:

- A team is guided by a coach.
- 1 team member and 1 coach are not considered a team and cannot participate.
- A team may only participate in one of the RG categories in a season.
- Any student may participate in one team only.
- The minimum age of a coach at an international event is 18 years old.
- Coaches may work with more than one team.

## 2.2 Registration & Preparation

Participating in the competition involves several steps, from initial registration to preparing for the event and acquiring necessary equipment. This section provides a detailed guide to help teams navigate the registration process, prepare adequately, and purchase required kits.

### Registration

1) Visit the Registration Website:
    - Go to the official competition website: Robogenesis Fest 2025.
    - Navigate to the Registration section.
2) Selection of Registration
   Participants and visitors can register for Robogenesis Fest 2025 through two options:
    - Register for Entry – For those who wish to explore the event, experience AI & Robotics exhibitions, attend workshops, and enjoy robotic games.
    - Register for Competition – For participants who want to compete in AI & Robotics Competitions (RG Challenger, RG Explorer, RG Innovators).
3) Complete the Registration form
    - Fill in the required details such as team members names, contact information, school name.
    - Fill in any other details that are required in the form.
4) Submit Registration Fee:
    - Entry Fees: **BD 2 per student**.
    - Competition Fees: **BD 10 per team**
    - Students participating in the competition are not required to pay the entry fee.

### Preparations

1) Select and purchase Kits
    - Choose the appropriate kit for your competition category. MC4.0, LEGO® Education MINDSTORMS® NXT or EV3; LEGO® Education SPIKE™ PRIME; LEGO® MINDSTORMS® NXT, EV3 or Robot Inventor.
    - Only motors from the platforms/sets mentioned at “Controller”.
    - From the platforms/sets mentioned at “Controller”.
    - Only official LEGO rechargeable batteries (no. 9798 or 9693 for NXT, no. 45501 for EV3, no. 45610 or no. 6299315 for SPIKE/Robot Inventor).
    - Maximum for 4 DC motors with a rated voltage of 6-12V.
    - If you don't have a robotics kit, you can contact us for a complete robotics kit featuring the MC4.0 microcontroller.

2) Kit assembly and Testing
    - Test all components to ensure they are functioning correctly before the competition day.

## 2.3 Competition Procedure

The competition procedure section outlines the steps and activities that will occur on the day of the competition. This section provides a detailed schedule to help teams understand the f low of events and ensure they are prepared for each phase of the competition day.

### Arrival & Check-In

- Participants arrival to the competition venue.
- Team's check-in at the registration desk.
- Teams receive their badges, schedules.

### Opening Ceremony

- Welcome speech by the event organizers.
- Introduction of judges and volunteers.
- Overview of the day's schedule and important announcements.

### Robot Inspection

- Robots must pass inspection to compete.
- If a robot fails, it must be adjusted and re-inspected.

### Teams Preparation

- Teams set up their workstations in the designated areas.
- Last-minute preparations and testing of robots.
- Teams ensure their equipment and software are functioning properly.

### Awards Ceremony

- Announcement of winners in various categories.
- Presentation of awards and certificates.

# 3. Common Rules

### Registration & Entry

- All participants must complete the registration process at the designated desk.
- Only pre-registered or spot-registered participants will be permitted entry.

### Respectful Conduct

- All attendees, participants, and staff are expected to maintain respectful and professional behavior at all times.
- Any form of harassment, discrimination, or disruptive behavior will not be tolerated and may result in immediate disqualification.

### Safety Regulations

- Participants must adhere to all safety guidelines when using tools, machinery, or electronic equipment.
- Hazardous materials or dangerous devices are strictly forbidden.

### Time Management

- Adherence to the event schedule is mandatory.
- Participants must complete setup, practice, and presentations within the allotted time slots.
- Late arrivals may be disqualified from their respective competitions.

### Setup & Practice

- Participants are required to complete their setup during the designated reporting and practice times.
- Any technical issues should be reported immediately to the event coordinators.

### Respect for Venue & Equipment

- All equipment, display areas, and event facilities must be treated with care.
- Any damage or tampering will result in penalties or disqualification.

### Judging & Evaluation

- The decisions of the judging panel are final.

## Media & Photography

- Official media photography and video recording will be conducted by designated event personnel only.
- Participants, their parents, and mentors are strictly prohibited from taking any photos or videos during the event.
- Violation of this rule may result in disqualification or other penalties at the discretion of the organizers.

## Reporting for Competition Members and Mentors

- Competition members and their mentors are required to report at **7:30 AM** (morning) at the designated competition area for final instructions and setup.

# 4.RG Challenger

## 4.1 Description

Design and build a robot that autonomously follows a line. Precision and speed are key! This challenge tests your ability to create a robot that can maintain control and follow a designated path, all while navigating with accuracy. It's a great way to showcase your technical skills and problem-solving abilities as you compete against other robots in real-time!

Equipment Specifications: This section details the necessary tools, software, and hardware required for participating in the competition. This includes the technical requirements for the robots, the software applications used for programming and control. By adhering to these specifications, teams can ensure their projects are compatible with competition standards in order to perform during the event.

| Category | Specification |
|---|---|
| **Controller** | MC4.0, LEGO® Education MINDSTORMS® NXT or EV3; LEGO® Education SPIKE™ PRIME; LEGO® MINDSTORMS® NXT, EV3 or Robot Inventor, Aurdino boards, Rasberry-pi boards, MRT. |
| **Motors** | Only motors from the platforms/sets mentioned at "Controller". |
| **Sensors** | From the platforms/sets mentioned at "Controller". |
| **Batteries** | Only official LEGO rechargeable batteries (no. 9798 or 9693 for NXT, no. 45501 for EV3, no. 45610 or no. 6299315 for SPIKE/Robot Inventor).<br>Rechargeable 18650 Li-ion Battery Pack. With a rated voltage of 6-12V. |
| **Construction Materials** | Plastic, aluminum, or composite materials 3D-printed components Laser-cut parts from wood, acrylic, or similar materials Fasteners such as screws, nuts, and bolts |
| **Programming Languages** | Support for both block-based and script-based programming (Python) |

## 4.2 Robot Game Procedure

### Preparation Phase (1 Minutes)

- Teams arrive at the competition area and prepare their robots at the starting point.
- Robots are inspected to ensure compliance with competition rules.
- Teams place their remote devices, laptops, or any controllers in the designated area.
- Referee checks all equipment, sensors, and robot functionalities.

### RG Challenger Competition (2 matches)

### Match 1 (4 Minutes)

- Referee announces, "Match 1 will start in 3, 2, 1, go!" and starts the timer.
- Robots navigate the line track autonomously, following the pre-programmed instructions.
- Referee keeps track of progress and gives a 1-minute warning before the end of the match.
- At the end of the 4 minutes, the referee announces, "Match 1 is over. Stop your robots."

### Match 2 (4 Minutes)

- Referee announces, "Match 2 will start in 3, 2, 1, go!" and starts the timer.
- Robots navigate the line track autonomously, following the pre-programmed instructions.
- Referee keeps track of progress and gives a 1-minute warning before the end of the match.
- At the end of the 4 minutes, the referee announces, "Match 1 is over. Stop your robots."

### Finalizing Scores (2 Minutes)

- Referee and scoring officials review and verify each team's performance during both matches.
- Points are awarded based on the robot's ability to:
  - Stay on the line.
  - Navigate curves, intersections, or obstacles.
  - Complete the track within the time limit.
- Referee announces, "We are now finalizing the scores."
- Teams may verify results and actions, and the final scores are recorded.
- Teams sign the score sheet to confirm results.

## 4.3 Scoring Criteria

Total Points: 100 (for successful completion)

Penalty: -5 points per error

Scoring Breakdown:

1. **Task Completion**:
   - Successfully completing the challenge: 100 points
2. **Error Deductions (-5 points each):**
   - Going off-track
   - Incorrect sensor readings/actions
   - Delay in task execution (exceeding time limit)
   - Manual intervention or restart
   - Skipping checkpoints
   - Any other rule violation

   Final Score Calculation: Final Score = 100 - (Total Errors × 5)
   Example:

   • If a participant makes 3 errors, the final score will be 100 - (3 × 5) = 85.
   • If a participant makes 10 errors, the final score will be 100 - (10 × 5) = 50.

## 4.4 Additional Notes

- Track Setup: The track should include straight lines, curves, and intersections for challenge variety.
- Scoring Criteria: Points can be awarded for specific milestones, such as:
  - Completing the track without errors.
  - Accurate line following.
  - Time efficiency.
- Tie-Breaker Rule: In case of a tie, a sudden death round or a timed race on a simplified track can determine the winner.
- No video recording is allowed by the parents or the mentors.
- Parents and mentors should remain in the designated areas, and no arguments should be made with the judges. The judges' decision will be final.

## 4.5 Scorecard

Team Name: _____ Match _____

| Tasks | | Max points | Allocated points | Match 1 | Total |
|---|---|---|---|---|---|
| 1. | Checkpoint1 | 10 | | | |
| 2. | Checkpoint2 | 10 | | | |
| 3. | Checkpoint3 | 10 | | | |
| 4. | Checkpoint4 | 20 | | | |
| 5. | End position + Stop | 40+10 | | | |
| Errors | | Max Negative Points | No of times | | |
| 1. | Going off Track | -5 | | | |
| 2. | Delay in task | -5 | 1 | | |
| | | | Total score in this Run | | |
| | | | Time in full seconds | | |
| | | | | | |

Team Captain Signature: _____

Judge Signature: _____

Date: _____

## 4.6 Rules and Regulations

### Robot Specifications

#### Size and Weight

- Maximum dimensions: 25cm x 16cm x 10cm
- 1-1.5kg, but the robot must comply with size restrictions

#### Design Requirements

- Robots must be autonomous.
- The robot should use line-sensing mechanisms (e.g., IR sensors).
- The robot must not cause damage to the track.

#### Power Supply

- Robots must have an onboard power source.
- Batteries should not exceed a voltage of 12V.

### Track Specifications:

#### Track Design

- The track will be a continuous black line on a white or light-colored surface.
- Line width: 2 cm – 3 cm.

#### Challenges on Track

- The track may include sharp turns, intersections, and gentle slopes.
- Obstacles such as dead ends or loops may be present for advanced levels.
- Leaving the line may result in penalties.

### Competition Rules

#### Starting Point

- The robot must be placed at the designated starting line by the participant.

#### Robot Control

- Once the robot starts, no manual interference is allowed.
- Any attempt to touch or control the robot manually will result in penalties.

#### Time Limit

- Each team will have a maximum of 4 minutes to complete the track.

### Track Completion

- The robot must complete the track in one continuous attempt.
- A robot is considered to have successfully completed the track if it reaches the finish line without manual assistance.

## Team and Robot Eligibility

### Team Size

- Each team can have a maximum of 2 members.

### Robot Design Ownership

- The robot must be designed and assembled by the team. Pre-built robots(from online) are not allowed.
- PID controller is not allowed.

### Age Groups

- Competition is open to students of age (8-15). Divisions may be made based on age or school levels.

## Disqualification Criteria

- Tampering with the track.
- Robots that damage the track or other equipment.
- Failure to follow the competition guidelines.
- Disrespect with judges.

# 5. RG Explorer

## 5.1 Description

In **RG Explorer**, participants must navigate their robot through a **maze** using a **remote control**, maneuvering past turns, intersections, and obstacles to reach the **end section** and park successfully. The challenge is to complete the maze in the **shortest time** while maintaining control and accuracy.

Equipment Specifications: This section details the necessary tools, software, and hardware required for participating in the competition. This includes the technical requirements for the robots, the software applications used for programming and control. By adhering to these specifications, teams can ensure their projects are compatible with competition standards in order to perform during the event.

| Category | Specification |
|---|---|
| **Controller** | MC4.0, LEGO® Education MINDSTORMS® NXT or EV3; LEGO® Education SPIKE™ PRIME; LEGO® MINDSTORMS® NXT, EV3 or Robot Inventor. Aurdino boards, Rasberry-pi boards, MRT. |
| **Motors** | Only motors from the platforms/sets mentioned at "Controller". |
| **Sensors** | From the platforms/sets mentioned at "Controller". |
| **Batteries** | Only official LEGO rechargeable batteries (no. 9798 or 9693 for NXT, no. 45501 for EV3, no. 45610 or no. 6299315 for SPIKE/Robot Inventor).<br>Rechargeable 18650 Li-ion Battery Pack. With a rated voltage of 6-12V. |
| **Construction Materials** | Plastic, aluminum, or composite materials 3D-printed components Laser-cut parts from wood, acrylic, or similar materials Fasteners such as screws, nuts, and bolts |
| **Programming Languages** | Support for both block-based and script-based programming (Python) |

## 5.2 Robot Game Procedure

### Preparation Phase (2 Minutes)

- Teams arrive at the competition area and prepare their robots at the starting point.
- Robots are inspected to ensure compliance with competition rules.
- Teams place their remote devices, laptops, or any controllers in the designated area.
- Referee checks all equipment, sensors, and robot functionalities.

### RG Explorer Competition (2 matches)

### Match 1 (4 Minutes)

- The referee announces, "Match 1 will start in 3, 2, 1, go!" and starts the timer.
- Robots should navigate the path controlled by the participant and must reach the destination.
- The referee keeps track of progress and gives a 1-minute warning before the end of the match.
- At the end of 4 minutes, the referee announces, "Match 1 is over. Stop your robots."

### Match 2 (4 Minutes)

- Referee announces, "Match 2 will start in 3, 2, 1, go!" and starts the timer.
- Robots should navigate the path controlled by the participant and must reach the destination.
- Referee keeps track of progress and gives a 1-minute warning before the end of the match.
- At the end of the 4 minutes, the referee announces, "Match 1 is over. Stop your robots."

### Finalizing Scores (2 Minutes)

- Referee and scoring officials review and verify each team's performance during both matches.
- Referee announces, "We are now finalizing the scores."
- Teams may verify results and actions, and the final scores are recorded.
- Teams sign the score sheet to confirm results.

## 5.3 Scoring Criteria

Total Points: 100 (for successful completion)

Penalty: -5 points per error

Scoring Breakdown:

1. Task Completion:
    - Successfully completing the exploration challenge: 100 points
2. Error Deductions (-5 points each):
    - Navigation Errors: Deviating from the designated path
    - Collision: Hitting obstacles or walls
    - Missed Checkpoints: Failing to explore required checkpoints
    - Incorrect Sensor Readings: Misinterpretation or failure in detecting objects
    - Exceeding Time Limit: Taking longer than the allotted time
    - Manual Intervention: Touching or resetting the robot
    - Rule Violations: Any action against the challenge rules

Final Score Calculation: Final Score = 100 - (Total Errors × 5)
Example:

• If a participant makes 3 errors, the final score will be 100 - (3 × 5) = 85.
• If a participant makes 10 errors, the final score will be 100 - (10 × 5) = 50.

## 5.4 Additional Notes

- Track Setup: The track should include straight lines, curves, and intersections for challenge variety.
- No video recording is allowed by the parents or the mentors.
- Parents and mentors should remain in the designated areas, and no arguments should be made with the judges. The judges' decision will be final.

## 5.5 Scorecard

Team Name: _____ Match _____

| Tasks | | Max points | Allocated points | Remarks | Total |
|---|---|---|---|---|---|
| 1. | Checkpoint1 | 10 | | | |
| 2. | Checkpoint2 | 10 | | | |
| 3. | Checkpoint3 | 10 | | | |
| 4. | Checkpoint4 | 20 | | | |
| 5. | End position + Stop | 40+10 | | | |
| Errors | | Max Negative Points | No of times | | |
| 1. | Going off Path | -5 | | | |
| 2. | Collision | -5 | | | |
| 3. | Missed Checkpoints | -5 | | | |
| 4. | Exceeding Time Limit | -5 | | | |
| 5. | Manual Intervention | -5 | | | |
| | | | | Total score in this Run | |
| | | | | Time in full seconds | |

Team Captain Signature: _____

Judge Signature: _____

Date: _____

## 5.6 Rules and Regulations

### Robot Specifications

#### Size and Weight

- Maximum dimensions: 25cm x 16cm x 10cm
- 1-1.5kg, but the robot must comply with size restrictions

#### Design Requirements

- Robots must be controlled by a remote.
- The robot must not cause damage to the track.

#### Power Supply

- Robots must have an onboard power source.
- Batteries should not exceed a voltage of 12V.

### Track Specifications:

#### Track Design

- It will be a maze with a green patch on it .
- Path width: 24 cm – 24 cm.

#### Challenges on Track

- The track may include sharp turns, u-turns, Humps, Rocks , Mud etc.
- Obstacles such as dead ends or loops may be present for advanced levels.
- Leaving the path may result in penalties.

### Competition Rules

#### Starting Point

- The robot must be placed at the designated starting line by the participant.

#### Time Limit

- Each team will have a maximum of 4 minutes to complete the maze.

#### Runs Allowed

- Teams will be allowed two attempts

#### Track Completion

- The robot must complete the track in one continuous attempt.
- A robot is considered to have successfully completed the track if it reaches the finish line without manual assistance.

## Team and Robot Eligibility

### Team Size

- Each team can have a maximum of 3 members.

### Robot Design Ownership

- The robot must be designed and assembled by the team. Pre-built robots (from online) are not allowed.
- PID controller is not allowed.

### Age Groups

- Competition is open to students of age (8-15). Divisions may be made based on age or school levels.

## Disqualification Criteria

- Tampering with the track.
- Robots that damage the track or other equipment.
- Failure to follow the competition guidelines.
- Disrespect with judges.

# 6. RG Innovator

## 6.1 Description

The RG Innovators Innovators competition is designed to challenge participants to apply their skills in robotics, AI, IoT, and STEAM to solve real-world problems creatively and effectively. Participants will demonstrate their projects, which should align with the annual theme, showcasing their innovation and technical skills. The competition emphasizes the integration of AI and IoT technologies and encourages participants to think critically about sustainable development and technological advancement.

### Theme: Automation for Sustainability

Inspire innovation in robotics and automation to address critical challenges in sustainability, including environmental conservation, resource management, and climate change mitigation.

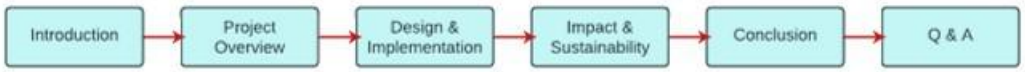
## 6.2 Equipment Specification

| Category | Specification |
|---|---|
| **Controller** | MC4.0, LEGO® Education MINDSTORMS® NXT or EV3; LEGO® Education SPIKE™ PRIME; LEGO® MINDSTORMS® NXT, EV3 or Robot Inventor Aurdino boards, Rasberry-pi boards, MRT. |
| **Motors & Actuators** | Maximum of 4 DC motors with a rated voltage of 6-12V.<br>Servos with a torque of up to 10kg-cm<br>Stepper motors with a resolution of at least $1.8^0$ step |
| **Sensors** | Any sensors upto 5 |
| **Construction Materials** | Plastic, aluminum, or composite materials 3D-printed components Laser-cut parts from wood, acrylic, or similar materials Fasteners such as screws, nuts, and bolts |
| **Programming Languages** | Support for both block-based and script-based programming (Python) |
| **Poster Dimensions** | 100cm x 100cm |

## 6.3 Project Demonstartion

This section outlines the process for the project demonstration phase of the RG Innovators competition. It details the steps teams should follow to ensure a clear, engaging, and informative presentation of their projects. The project demonstration is the most important aspect of the RG Innovators competition. It provides teams with the opportunity to showcase their innovative projects, explain their design and implementation processes, and demonstrate the impact of their solutions.

### Presentation Structure




### Introduction

- Briefly introduce the team members and the project.
- Provide an overview of the project's objective, inspiration, and relevance to the competition’s annual theme.

### Project Overview

- Describe the project in detail, including the problem it addresses and the solution proposed.

### Design and Implementation

- Discuss the design process, including brainstorming, planning, and development stages.
- Highlight the technologies used, particularly AI and IoT integrations.
- Demonstrate the functionality of the project, showcasing key features and components.

### Impact and Sustainability

- Explain the potential impact of the project on the target community or environment.
- Discuss the project's sustainability and scalability.

### Conclusion

- Summarize the key points of the presentation.
- Reiterate the significance of the project and its contribution to the theme.

### Q&A Session

- Judges will ask questions to gain a deeper understanding of the project.
- Teams should be prepared to answer questions related to their design choices, technical challenges, and project impact.

## 6.4 Scoring Criteria

| Criteria | Description | Max Points |
|---|---|---|
| **Innovation & Creativity** | Novelty, uniqueness, and originality of the idea. | 20 |
| **Technical Implementation** | Effective integration of AI, IoT, and robotics. | 20 |
| **Relevance to Theme** | How well the project aligns with "Automation for Sustainability." | 15 |
| **Functionality & Performance** | Proper working model with minimal errors. | 15 |
| **Impact & Practicality** | Real-world application and potential benefits. | 10 |
| **Presentation & Communication** | Clarity, organization, and explanation of the project. | 10 |
| **Sustainability & Ethical Considerations** | Focus on environmental impact and responsible AI use. | 10 |
| **Total Score** | **Maximum possible score** | **100** |

## 6.5 Scorecard

| **Team Name:** | | | **Total Members:** |
|---|---|---|---|
| **Sr No** | **Criteria** | **Description** | **Points** |
| 1 | Innovation & Creativity | Novelty, uniqueness, and originality of the idea. | |
| 2 | Technical Implementation | Effective integration of AI, IoT, and robotics. | |
| 3 | Relevance to Theme | How well the project aligns with "Automation for Sustainability." | |
| 4 | Functionality & Performance | Proper working model with minimal errors. | |
| 5 | Impact & Practicality | Real-world application and potential benefits. | |
| 6 | Presentation & Communication | Clarity, organization, and explanation of the project. | |
| 7 | Sustainability & Ethical Considerations | Focus on environmental impact and responsible AI use. | |
| | Total Score | | |

Team Captain Signature: _____

Judge Signature: _____

Date: _____

## 6.6 Rules and Regulations for RG Innovators

### Team Composition:

- Each team can have 2 to 4 members. Collaboration and teamwork are encouraged.

### Project Requirements:

- The project must be an original idea or an improvement of an existing concept.
- It must have a functional prototype or a well-structured concept with detailed execution plans.
- The project should incorporate robotics, automation, or AI elements.

### Allotted Space:

- Each team will be provided with a display area of 180cm x 70cm to set up their project.
- Participants must ensure their project fits within the allotted space and does not exceed the boundaries.
- Power supply and additional equipment must be requested in advance if needed.

### Disqualification Criteria:

- Any form of plagiarism or copying an existing project without significant improvement.
- Exceeding the time limit without prior approval.
- Disruptive or unsafe demonstrations.

# 7. AI & Robotics Exhibition

## 7.1 Description

This exhibition is designed to inspire and educate everyone—whether you're a tech enthusiast or just curious about the future of innovation. Join us at the AI & Robotics Exhibition and embark on a fascinating journey into the world of technology. Explore Tech Horizon to discover the latest breakthroughs and emerging trends in AI & Robotics. Visit Innovatech Pavilion to see groundbreaking projects from young innovators and startups pushing the boundaries of what's possible. Test your knowledge in the engaging Smart Minds Challenge quiz, and dive into interactive Workshops led by industry experts that cover the essentials of robotics programming, AI applications, and automation. Whether you're here to learn, compete, or simply marvel at modern technology, this exhibition offers something for everyone.

## 7.2 Tech Horizon

Tech Horizon offers an immersive experience with informative boards, hands-on workshops, and robotic kits featuring the MC4.0, empowering attendees to explore the future of robotics. It's a space to learn, innovate, and create with cutting-edge technology

### Information Boards:

- Simplified explanations on AI & Robotics.
- Emerging technologies like AI-driven automation, robotics in healthcare, and IoT integration.

### Workshop:

- Kit MC4.0 for beginners and advanced users.
- IoT-enabled robotics kits for real-world applications.
- Mecanum wheel kits for omnidirectional robotics.
- Educational opportunities and career paths in AI & Robotics.
- Sensors: Ultrasonic, PIR, gesture, and light sensors for various tasks.

### Future Vision

- Encourage young minds to innovate using AI and Robotics.
- Identify and nurture talent for international-level robotics competitions.
- Build awareness about the real-world impact of AI, Robotics, and IoT.
- Nvidia certification

## 7.3 Innovatech Pavilion

It's an immersive and interactive space to showcase innovative projects leveraging AI & Robotics, inspiring creativity and technological curiosity among students, educators, and professionals. It's an exciting opportunity to school students to showcase their AI & Robotics projects at the fest! Students are invited to present any project in these fields—whether it's an innovative concept, a design for robotic components, or projects built on platforms like Arduino, Raspberry Pi, and more. In addition to awarding exciting prizes to the best project, every participant will receive a certificate of participation and the opportunity to engage with industry experts through exclusive workshops and mentoring sessions.

### Innovative Project Showcase

- Display real-world applications of AI and Robotics.
- Examples of showcased projects:
    - AI-powered home automation systems (e.g., voice-controlled smart homes).
    - Autonomous robots for various applications (e.g., delivery, agriculture).
    - IoT-enabled smart systems (e.g., air quality monitoring, automated irrigation).
    - Gesture-controlled robots and human-following robots.
- LED panels showcasing videos of cutting-edge AI and Robotics projects.
- Real-time demonstrations of AI models or robot movements.

## 7.4 Smart Minds Challenge: Quiz Competition

The Smart Minds Challenge is a fast-paced quiz competition designed to test students' knowledge, critical thinking, and quick decision-making skills. It's an exciting opportunity for young minds to showcase their brilliance in a single or multiple high-energy rounds.

### Competition Details

- Format: Single or multiple round quiz competition
- Time Limit: Limited to a specific duration (e.g., 30 minutes)
- Age Group: 8–15 years
- Participation: Individual or team (up to 2 members)

### Rules and Regulations

- Eligibility: Open to students aged 8–15 years.
- Time Limit: Participants must answer all questions within the given time.
- Fair Play: Use of external help or electronic devices is strictly prohibited.

- Winner Selection: The participant(s) with the highest score at the end of the round will be declared the winner.
- Judges' Decision: All decisions made by the judges are final and binding.

### Why Participate?

The Smart Kids Challenge is an excellent opportunity to:

- Test your knowledge in a time-sensitive, competitive environment.
- Gain recognition for your quick thinking and intellectual skills.
- Win exciting prizes!

## 7.5 Fun Interactive Games

Fun Interactive Games is to spark interest in robotics and technology through engaging and playful activities. These games aim to inspire creativity, teamwork, and curiosity in a fun-filled environment.

### Robo Race

- Description: Participants will control their robots through a timed race track filled with twists, turns, and obstacles. The goal is to navigate through the course as quickly as possible without hitting any barriers.
- Objective: Speed and precision in navigating the course will determine the winner.

### Robo Ball

- Description: In this game, participants will guide their robots to carry or push a ball into a goal. The challenge lies in maintaining control of the ball while avoiding other competitors.
- Objective: Score the most points by getting the ball into the goal within a set time.

### Robo Balloon Popping Challenge

- Description: Robots will be equipped with tools or attachments to pop balloon within a designated area. The goal is to pop the balloon by passing through all hurdles.
- Objective: The robot that pops the balloon will win the game.

# 8. Competition Prizes

We are thrilled to announce the exciting prizes for all competitions at Robogenesis Fest 2025.

### Winner's Prize

Each competition winner will get MC4.0 Base Kit.

### Runner-Up Prize

Each runner-up will be awarded a voucher, which can be redeemed for robotics equipment or AI and Robotics Club membership.

### Special Mention

All participants will receive certificates of participation to recognize their effort and enthusiasm for robotics and innovation. Those who win the games and quiz challenges will receive attractive prizes.

# 9. Innovatech Pavilion Project Prizes

To acknowledge and celebrate outstanding efforts, we are proud to present the following awards:

### Best School Project Award

Awarded to the school that demonstrates excellence in creativity, innovation, and execution in AI & Robotics.

### Best Student Project Award

Recognizing an individual student's exceptional project that showcases technical skills, problem-solving, and innovative thinking.

### Certificate Of Participation

Every participant will receive an official **Certificate of Participation** for their contribution to the event.

# 10. Summary

Robogenesis Fest 2025 marks a milestone in the celebration of innovation, learning, and the spirit of collaboration. This event will not only showcase the immense potential of AI & Robotics but it will also create lasting memories and connections. With hands-on workshops, informative boards, and cutting-edge MC4.0 robotic kits, we've provided a platform for exploration and growth. The exciting competitions and interactive games have inspired creativity and fostered teamwork among participants. As we continue to inspire and empower future generations of creators, we look forward to the incredible possibilities that lie ahead in the world of robotics. Let's continue to dream, innovate, and build the future together