PathMaster Pursuit: Precision Line Following Challenge

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1. Introduction

1.1 About the Competition

The PathMaster Pursuit: Precision Line Following Challenge is a robotics competition that challenges teams to design and program autonomous robots capable of precisely following a marked line on the ground.

1.2 Objective

The primary objective of the competition is to promote robotics education and innovation by simulating real-world scenarios where robots must accurately navigate along a designated path.

1.3 Eligibility

The competition is open to students and robotics enthusiasts of all ages. Each team can have a minimum of 2 members and a maximum of 4 members.

1.4 Competition Dates and Location

The competition will take place on [Date] at [Venue]. Detailed schedules and event information will be provided to registered teams.

1.5 Organizers and Sponsors

The competition is organized by [Organizing Entity], in collaboration with [Sponsors]. The organizers are committed to providing a fair and exciting competition environment.

1.6 Contact Information

For inquiries and additional information, please contact [Contact Name] at [Contact Email] or [Contact Phone].

2. Competition Overview

2.1 Track Design

The competition track will feature a precisely marked path on the ground. The path may include straight sections, curves, intersections, and challenges that test the robots' line-following abilities.

2.2 Robot Specifications

- Robots must be autonomous and pre-programmed before the competition.

- Robots should fit within a [Dimensions] size limit and weigh no more than [Weight Limit].

- Sensors, cameras, and other technologies can be used to detect and follow the line.

- Robots should be equipped with mechanisms to adjust their course based on line detection.

2.3 Team Composition

Each team can have a minimum of 2 members and a maximum of 4 members. Teams are responsible for designing, building, and programming their robots.

3. Rules and Guidelines

3.1 Robot Design and Build Rules

- Teams are responsible for designing and building their own robots.

- Robots should not exceed the specified size and weight limits.

- Robots must be safe to operate and should not pose a danger to participants, spectators, or judges.

3.2 Line Following Techniques

- Robots must autonomously follow the marked line on the track.

- Different line-following techniques and algorithms are allowed.

3.3 Sensors and Technologies

- Teams can use a variety of sensors, cameras, and technologies to detect the line and adjust course.

3.4 Interaction with Track

- Robots must follow the line without damaging or altering the track.

- Robots should not interfere with other robots' paths.

3.5 Scoring and Objectives

- Points are awarded for accurately following the line and completing challenges.

- Bonus points may be awarded for precise turns, intersections, and challenges.

- Scoring is based on points earned and completion time.

3.6 Safety Regulations

- Safety of participants, spectators, and judges is a top priority.

- Robots should not pose any danger to people or other robots.

3.7 Fair Play and Conduct

- Teams are expected to follow the competition rules and exhibit good sportsmanship.

- Any attempts to gain an unfair advantage may result in disqualification.

3.8 Referees and Judge Decisions

- Referees oversee the matches and enforce the rules.

- Judges evaluate robots based on their performance and adherence to rules.

3.9 Penalties and Disqualifications

- Penalties may be applied for rule violations or unsafe behavior.

- Serious violations may lead to disqualification from the competition.

4. Competition Rounds

4.1 Match Structure

- Each team gets multiple attempts to follow the line and complete challenges.

- The team's robot starts from a designated starting point.

4.2 Starting Point and Robot Activation

- Robots are activated from the starting point using pre-programmed instructions.

4.3 Line Following and Navigation

- Robots must autonomously follow the marked path on the ground.

4.4 Completion and Time Limit

- Robots are scored based on their completion time and accuracy.

5. Scoring and Rankings

5.1 Scoring Criteria

- Points are awarded for accurately following the line and completing challenges.
- Higher points are awarded for precise turns, intersections, and challenges.

5.2 Bonus Points

- Bonus points may be awarded for exceptional line-following techniques.
- Bonus points may be awarded for completing challenges in less time.

5.3 Tiebreaker Rules

- In case of tie scores, the team with the shortest completion time wins.

5.4 Announcement of Winners

- Winners will be announced at the award ceremony.

6. Safety and Regulations

6.1 Participant Safety

- Participants must adhere to safety guidelines and instructions.

- Proper attire and safety gear are required in designated areas.

6.2 Robot Safety

- Robots must be designed to operate safely in the competition environment.
- Robots should not pose any danger to participants, spectators, or judges.

6.3 Emergency Procedures

- In case of emergencies, participants must follow instructions from event staff.

7. Registration and Participation

7.1 Team Registration

- Teams must register for the competition by the specified deadline.
- Registration details and forms can be found on the official website.

7.2 Team Responsibilities

- Teams are responsible for their own transportation, accommodation, and equipment.

7.3 Robot Inspection

- Robots must undergo an inspection to ensure compliance with the rules.
- Inspection checklist and requirements will be provided to teams.

8. Judging and Evaluation

8.1 Judging Panel

- Referees and judges evaluate robots based on performance and adherence to rules.

8.2 Evaluation Criteria

- Scoring is based on accuracy, completion time, and bonus challenges.

8.3 Transparency and Appeals

- Referees' decisions are final, but appeals may be considered based on merit.

9. Prizes and Awards

9.1 Prize Categories

- Prizes will be awarded to top-performing teams in various categories.

9.2 Award Ceremony

- The award ceremony will take place after the competition rounds.

10. Media and Documentation

10.1 Media Coverage

- Participants may be photographed or filmed during the competition for media coverage.

10.2 Documentation Requirements

- Teams are required to submit documentation detailing their robot's design and algorithms.

11. Code of Conduct

11.1 Professionalism and Respect

- Participants are expected to behave professionally and treat others with respect.

11.2 Sportsmanship

- Good sportsmanship is expected throughout the competition.

12. Appendices

12.1 Glossary of Terms

- Definitions of key terms used in the rule book.

12.2 Track Diagram

- Diagram illustrating the layout of the competition track.

12.3 Robot Inspection Checklist

- Detailed checklist for robot inspection.

[End of Rule Book]