RescueBot Quest: Disaster Response Challenge

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1. Introduction

1.1 About the Competition

The RescueBot Quest: Disaster Response Challenge is a robotics competition that challenges teams to design and program autonomous robots capable of navigating through simulated disaster scenarios, locating and rescuing "victims" (objects), and avoiding obstacles.

1.2 Objective

The primary objective of the competition is to promote robotics education and problem-solving skills by simulating disaster response scenarios and encouraging the development of innovative rescue robots.

1.3 Eligibility

The competition is open to students and robotics enthusiasts of all ages. Participants can form teams with a minimum of 2 members and a maximum of 4 members per team.

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 Scenario Description

The competition arena will replicate a disaster-stricken environment, featuring obstacles, debris, and hazards commonly found in disaster scenarios. Teams' robots are tasked with locating and rescuing "victims" (objects) representing survivors, while navigating through the arena and avoiding obstacles.

2.2 Arena Setup

The competition arena is a [Dimensions] area with a realistic disaster-themed layout. The arena will include various types of obstacles, simulated disaster debris, and challenging terrains.

2.3 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 victims and navigate obstacles.

- Robots should be equipped with mechanisms to pick up or interact with victims.

2.4 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 Autonomy and Pre-Programming

- Robots must operate autonomously during the competition rounds.

- Pre-programming should be done before the start of each match.

3.3 Sensors and Technologies

- Teams can use a variety of sensors, cameras, and technologies to detect victims and navigate the arena.

3.4 Arena Interaction Rules

- Robots must stay within the designated arena boundaries.

- Robots should not damage the arena or cause debris.

3.5 Rescue Tasks and Scoring

- Robots are tasked with locating and "rescuing" victims placed throughout the arena.

- Points are awarded for each victim successfully rescued.

- Bonus points may be awarded for reaching victims in challenging locations.

- Scoring is based on points earned, completion time, and efficiency.

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