INNOVATE-IT

Robotics Primary Challenge
Innovate-IT Showcase, Spring 2024

Primary Challenge Overview

For the 2024 IT Showcase, you must program your robot to complete an 'agility course'. This is based on a K-9 agility course but with modifications. This will be the culmination of your learning throughout the last year and will be an excellent way to show off the skills you have developed.

Rules and Guidelines:

Objective: To program a PETOI robotic dog to complete a series of proposed agility tasks. Each task is timed, and the team with the lowest cumulative time wins.

Team Composition: Each team should have 2-4 members. Teams are responsible for programming and controlling their PETOI robotic dog.

Equipment needed: PETOI robotic dog, a programming interface (e.g., a laptop or tablet), and any necessary peripherals.

Timekeeping: Time for each task starts when the dog begins the task and ends when it completes the task. Time between tasks is not counted.

Fair Play: Teams must work independently. Sharing code or receiving external help is not permitted.

Safety: Participants must ensure their programs do not cause the robotic dog to behave dangerously or damage the equipment.

Judging Criteria: Performance is judged based on the completion time of each task and the overall time. Additional points for creativity or innovative programming solutions can be considered.

Malfunctions: If a robot malfunctions due to a programming error, the team must correct it without external help. Hardware malfunctions will be addressed by the event organizers.

Disqualification: Teams not adhering to the rules, demonstrating unsportsmanlike conduct, or damaging equipment intentionally will be disqualified.

Requirements

Bring your robot/robotic platform and whatever else you need (ex. Laptop, posters, props, etc.)

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Finally, a note on the appropriateness of your creations: Your robot and the tasks it performs should be appropriate for both your age group (high school) and venue (a public event containing people of many backgrounds and beliefs). Your creation is required to be appropriate for both categories.

Proposed Tasks:

These are the proposed tasks for the primary challenge agility course. Each task will have an accompanying document on the website with more information about the specific task.

1. **Weave Poles**: Program the robot to weave through a line of poles spaced at regular intervals.
2. **Jump**: Make the robot jump over a series of low hurdles.
3. **Fetch and Retrieve**: Program the robot to locate, pick up, and return an object to a designated area.
4. **Flat Table**: Program the robot to climb onto a raised platform, pause for a set number of seconds, and then dismount.
5. **Trick Performance**: Program the robot to perform a unique trick or sequence (e.g., a dance, a simulated 'bark', a spin).