

# CEENBoT Showcase

Event Rules

February 19, 2011

# Ball Course:

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**DESCRIPTION:** Using robots, participants will maneuver three different sizes of balls into holes on a bot-course.

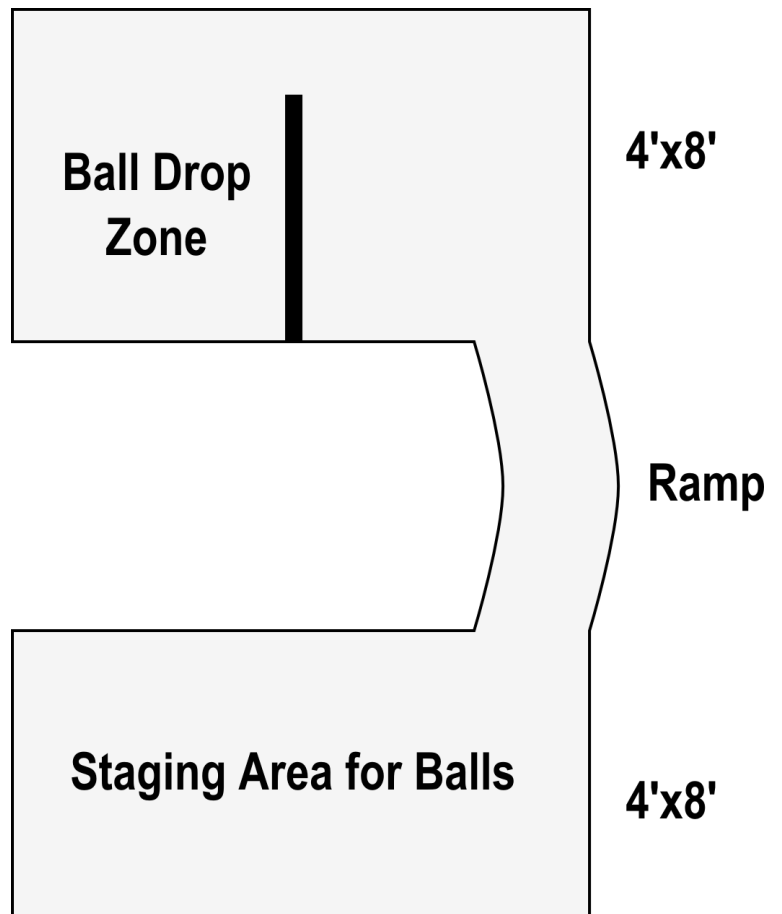
- There will be 2 of each size ball, small, medium and large. (small - golf ball, medium - racquetball, large - softball).
- All balls will be placed in the staging area of the arena.
- Teams can modify the CEENBoT/TekBot to be able to move the balls using any materials they have available.

## Rules

1. Participants will have 4 minutes to move as many balls into respective holes as possible.
2. Balls going into the wrong hole will be moved back to the staging area.
3. Balls going into the correct hole will be awarded appropriate points.
4. Drivers will need to switch every minute or however they feel appropriate.
5. In case of a tie - total time will be used to determine a winner.

## Scoring

Small Ball:	3 points (each)
Medium Ball:	2 points (each)
Large Ball:	1 point (each)
<b>12 total points possible</b>	



# Team Driving:

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**DESCRIPTION:** Team Driving involving two people (or more) with only one not being able to see the course.

- The course will consist of a series of 4 locations of varying dimensions where the robot must stop. The locations will be paper laid on the floor. There will also be a bonus task. The bot must pop a balloon attached to a movable barricade. There will also be movable barricades that accompany each location. These will be altered between each team. The barricades for each location will remain in the same relative position as the location.
- The team will be divided into two roles, pilots and navigators. Pilots will be wearing a blindfold.

## Rules

1. Participants will have 4 minutes to complete the course.
2. The pilot must not be able to see the driving course.
3. The pilot/navigator team must switch every 2 minutes (if applicable)
4. The bot must navigate to the each location.
5. Partial credit will be given for reaching the location but not having the bot fully on the location.
6. To receive full credit the bot must stop fully on the location with no parts outside of the location.
7. The team must get at least partial credit on all locations before attempting the bonus task.
8. In case of a tie - total time will be used to determine a winner.

## Scoring

	Full	Partial
Location 1 - 12x12	4 points	2 points
Location 2 - 12x12	4 points	2 points
Location 3 - 12x12	4 points	2 points
Location 4 - 12x12	4 points	2 points
<b>Bonus</b>	<b>Pop the balloon (3 points)</b>	

# Driving Course:

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**DESCRIPTION:** Balancing, carrying an object up and down ramps and over terrain.

## Rules

1. At the start of the course, an object will be placed on the robot. The participants will have 1 minute to make sure that the object is balanced before they begin.
2. The participants will drive their robot up and down ramps and around obstacles, and over different terrains. At “checkpoints” along the route, the driver will switch with another member of their team.
3. This event will be timed with the winner being the fastest to get through the course.
4. When the object falls off the robot, teams will be allowed to place it back on their robot. However, they will be assessed a 5 second penalty for each time this occurs. This penalty will be added to their overall score.

# Autonomous driving courses: GPI, TI, API:

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**DESCRIPTION:** Autonomous programming of the robot.

## Rules

1. Participants will have up to 5 minutes to complete the course.
2. Participants may modify the robot to assist in completion of tasks.
3. Participants will be given the exact dimensions of the course and the tasks prior to the event so that it can be programmed to complete the tasks.
4. The robot will begin at the starting line and work its way around the course.
5. Once the robot begins a course, it should not be touched.

If the participant chooses to move the bot for slight course modification, the following penalties will be enforced. All wheels must remain in contact with the ground. (Judge's discretion)

Slight course modifications: 1st 20 sec. penalty, 2nd 30 sec. penalty, 3rd 40 sec. penalty 4th - start over.

6. Participants will be allowed to reprogram the robot during the competition within the 5 minute limit and start the course over. Once the five minutes have expired, the best score will be counted.
7. Participants will have the opportunity to complete the course a second time after all teams have had an opportunity to complete the course.
8. Participants will be allowed to restart the course as many times as they can during the allotted time. The best score and time will be used for final scoring and ranking.
9. In case of a tie the team that completes the course in the shortest amount of time will be the winner.

## Scoring

Teams will get points for completing various tasks along the way.

- **Task 1:** Park the Car - enter the course, move to the garage, enter the garage, turn around, park in the garage for 10 seconds = 10 points
- **Task 2:** Plow the Street - clear the street of all obstacles = 2 points per obstacle (total of 10 points)
- **Task 3:** Cruise Around Town - move through the maze = 15 points.
- **Task 4:** Bounce on Out - detect the wall (must use bump sensor), turn around and exit the course = 15 points.

**Total points possible: 50 points**

**See diagram on next page->**

