Tabletop Classic Challenge

(rule version 20250320)

This event is a challenge not a contest, and as such denotes an accomplishment of the robot builder.

Objective: The robot begins behind a starting line that is 18 inches from the length edge of the table. The contest consists of three classic tasks, and a fourth task unique to DPRG. The first task is to drive to the opposite end of the table and have some part of the robot stick out beyond the edge and then return past the starting line and have some part of the robot stick out beyond the edge of the end closest to the start line. The second task is to knock a soda can off the table. The third task is to push a soda can into a box that is placed 12 inches from the far end of the table and return to the starting line. The fourth task tis to drop a can into a box hanging along the edge of the table at a specific location (see diagram). All the soda cans used will be non-modified empty 12 oz soda cans. The tabletop will have no edge protection, so robots must take measures to avoid falling off. The more tasks completed the higher the robot's score.

Robot: Competing robots must run autonomously but are <u>not</u> required to be self-contained. All sensors must be mounted on the robot. Robot length and width is limited to 18x18 inches and may not become larger than this size at any stage of the contest. Maximum robot weight is 5 pounds.

Self-Contained Definition: Self-contained means that all computing power used to run the robot is carried on the robot platform.

Run Definition: A run starts when the robot is placed behind the start line of the table, given a signal from the judge, and moves. If the robot fails to move, the competitor can remove the robot and try again at the end of the round. If the robot doesn't move when given this 2nd chance, its run is forfeited. The run ends whenever the robot completes the tasks, or malfunctions after moving, or falls off the table, or 5 minutes has elapsed. Each robot is allowed 1 run per challenge round.

Round Definition: A round consists of a single run by each competing robot. The challenge consists of 3 rounds.

Play: At the start of the challenge, the robot may be placed anywhere behind the starting line. The robot may be turned to any angle when initially placed. There will be no cans or boxes on the table. After the completion of the first task, the judge will add a can or a can and box so that tasks two and three can be completed. At the start of task four, the judge will remove the box from task three and place a can on the table. The robot will be placed at the starting line at the beginning of each task.

The locations of cans and boxes will be marked with small pieces of blue tape so that all competitors see the same field.

The robot must perform 4 tasks:

1. Cross the table and hang a portion of the robot over the edge opposite the starting line, then return past the starting line and hang a portion of the robot over the edge.
2. Knock a soda can off the table.

3. Place a soda can into a box placed 12 inches from the opposite end of the table with respect to the starting line.
4. Place a soda can into the box hanging along the edge of the table (see diagram).

Beacons or other navigational aids either in or outside of the arena are not allowed.

Course: The arena is a tabletop. The judge will select a table at the time of the challenge. The ideal table is an 8ft by 2.5ft table. The table should be at least 6ft long and 2ft wide. The box for task three which is placed on the table should be no wider than 1/3 of the width of the table. The depth should be deep enough to hold a soda can. An approximately 14x9x5 inch box (size of large shoe box) is hung at the opposite corner of the starting area 12 inches from the enc of the table is used in task 4. The 14-inch side of the box is located along the side of the table. See diagram for layout details.

Can Specifications: The cans used in this contest are empty standard 12-ounce aluminum soda cans. A contestant can replace the non-modified soda cans with DPRG competition cans, which are covered in orange, fluorescent tape. The pull tabs may or may not be removed.

Scoring: A robot's run score is the sum of the number of tasks completed. Every robot that completes all 4 tasks will be certified as having completed the Tabletop Challenge. They will be rewarded with the equivalent of a third-place winner in the competition. A robot owner is only eligible for this prize once in their lifetime. However, they may compete in the challenge as many times as they desire.

Robots that complete all or some of the tasks will be certified as having completed those tasks in the Tabletop Challenge in the DPRG Hall of Fame, https://www.dprg.org/the-dprg-roborama-hall-of-fame/.

A perfect score is 4.

Judging: One or more judges will referee the challenge. They will ensure the rules are followed. A robot deemed unsafe or not complying with the rules will be removed from the challenge. The decisions of the judges are final.

Acknowledgment:
This contest is a modified version of a challenge originated by the Home Brew Robotics Club, https://www.hbrobotics.org/ .