Robot Rover-board!

The Goal
It may not be an Olympic sport, but the fans are still lining up to see what these robots can do! Your goal: Design, build, and program a robot capable of moving 5 beanbags from the GRID AREA to the appropriate colored strip of the SCORING AREA within 2 minutes.

Game Details
The playing field contains three distinct areas. The HOME AREA, the GRID AREA, and the SCORING AREA. All parts of your robots must begin entirely within the HOME AREA. Five beanbags are placed on the designated starting positions in the GRID AREA. When the emcee yells "GO!" your robot must pick up each beanbag, move it to the SCORING AREA, and attempt to leave it within the SCORING STRIP that is the same color as the beanbag. Your robot may return to the HOME AREA as many times as necessary. While in the HOME AREA you may manipulate your robot in any way. You may not touch the beanbags except to return them to their starting position in the GRID AREA. Doing so is considered a "beanbag rescue." If you touch your robot when it is not in the HOME AREA, it is a "robot rescue" and the robot must be returned to the HOME AREA before continuing with the task. The timekeeper will call time after 2 minutes. For scoring purposes, only the final locations of the beanbags count. The location of the robot does not matter. If your robot completes the task before time is called, yell "DONE!" and the scorekeepers will record your finishing time.

Rules of Play
- The robot must begin with all parts entirely within the HOME AREA.
- The beanbags starting positions in the GRID AREA will be marked on the playing field. They will be placed in their starting position during the Challenge Release, and will be in those same positions during the Challenge Events.
- Robots must work autonomously after leaving the HOME AREA. You may "rescue" your robot if it has gone astray, but the clock will not pause or reset.
- Your robot may return to the HOME AREA as many times as necessary and while in the HOME AREA you may manipulate your robot in any way.
- Returning to the HOME AREA is defined as any time any part of your robot touches the playing field in the HOME AREA.
- The beanbag must leave the surface of the playing field and travel at least 8 centimeters before it can score any points.
- A robot rescue is defined as any time a team member touches the robot, in any way, when it is not in the HOME AREA.
- Any time a robot is rescued it must be returned to the HOME AREA before continuing with the task.
- A beanbag has <u>reached</u> the SCORING AREA if any part of the beanbag is touching the playing field in the SCORING AREA.
- A beanbag is <u>touching</u> a SCORING STRIP if any part of the beanbag is touching that strip.
- A beanbag is <u>within</u> a SCORING STRIP if the only part of the playing field that the beanbag is touching is the

SCORING STRIP.

- Scoring is cumulative so that a single beanbag can score in multiple categories.
- Any time a team member touches a beanbag it must be returned to its marked starting position in the GRID AREA and any points that beanbag has scored are negated. (Your robot can, however, make another attempt at scoring with that beanbag.)
- For scoring purposes, only the beanbag's final position counts.
- Bonus points are awarded to robots that have returned to the HOME AREA and stopped their motors before time is called.
- Only two team members may be on stage during a Challenge Event and they must remain behind the Engineer-line on the stage.
- Beanbag Scores, Return Home Bonus, and Rescue Penalties are added together for a total score.
- Time begins when the MC's yells "GO!" and continues until one of your team members shouts "**Done!**" or when 2 minutes elapse.

Beanbag Scoring

(5)   Beanbag reached the SCORING AREA (each)

(7)   Beanbag is touching the same colored SCORING STRIP (each)

(7)   Beanbag is within the same colored SCORING STRIP (each)

Return Home Bonus

(5)   Robot is in the HOME AREA with motors stopped when time is called.

Rescue Penalties

(-5)   Each robot rescue

(-2)   Each beanbag Rescue

In the Event of a Tie

1st tiebreaker—The robot that scored points with the most beanbags advances to the next round

2nd tiebreaker—The robot that completed the round in the shortest amount of time advances to the next round.