Robo War

Problem Statement – Preliminary Round

Obstacle Race

Problem Statement:

To build a wired robot that can score the maximum points during a track run that has different tasks to be accomplished.

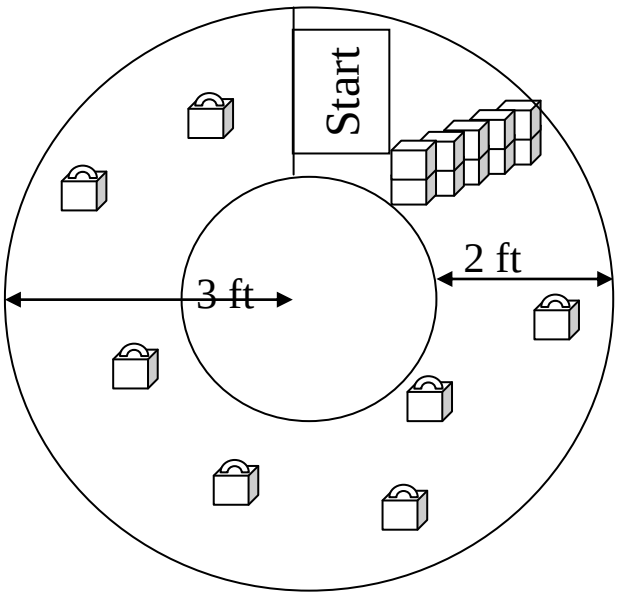
Problem Description

The objective of the robot is to score maximum points during a track run. The track consists of various objectives. Each objective has a different score point.

1. The duration of the Arena Run is 4 minutes only. There are no re-runs.
2. The arena consists of a circular track with no walls.
3. The robots need to cover maximum laps of the circular track.
4. The robot scores each time it crosses the finish line.
5. There are 7 boxes with scattered on the track. The robot can lift the boxes and drop them into the center hole of the track to gain extra points.
6. There is a wall of boxes 6 inches before the Start/ Finish line. The robot needs to break this wall in order to reach the finish line for every lap.
7. The robot with the maximum score wins.

Arena

1. The diameter of the track is 6 ft.
2. The width of the track is 4 ft.
3. The boxes will have clamps for lifting them. The size of a box is 5inch x 5 inch x 5 inches. The weight of the boxes is 50 grams.
4. The wall is made up of boxes of same size and weight as described above.
5. The robot will start the race from the Start position at the arena.
6. A power source of 12V DC will be provided at the arena through an adaptor.



Scoring

1. The timer starts as soon as the judge gives his signal.
2. The robot gets 1 minute of trial run before the arena run.
3. The robot gets 4 minutes to complete maximum number of laps during the arena run.
4. The score for each lap is calculated as follows:

Action	Score Generated
On completing a lap	+15
On dropping a box in the hole	+5

5. The total score *S* for a robot that covers *N* laps is calculated with the given formula:

   *S= (L*15) + (B*5)*

   Where,

   S is the total score

   L is the number of laps covered during the run

   B is the number of boxes dropped in the hole.
6. The top 6 teams will move to the mains round.
7. In case of a tie, the decision of the judges will be final.

Rules for Robot Design

1. Each team will consist of a maximum of 4 members.
2. Robots damaging the Arena shall be liable for disqualification.
3. Uses of chemical/combustible/other harmful substances are prohibited.
4. Failure to observe any of the above rules may lead to immediate disqualification and the decision of the judges/organizers in this regard shall be final and binding.
5. The judges reserve the right to stop a robot from running, declare disqualification, or give instructions when necessary (e.g., if the Arena is jeopardized by the operation of the bot).
6. Only the wires, power source (if necessary) and remote control will be allowed outside the bot. All other circuitry should be placed on the bot.
7. Off the shelve LEGO kits are not allowed.

Rules for Arena Run

1. Each team will be given a first call 7 minutes prior their allocated time.
2. The second call for a team will be 3 minutes prior their allocated time.
3. If the team fails to report to the arena at the second call, it will be **disqualified.**
4. After the second call for the team, a test run time of 1 minute will be provided.
5. The Arena Run for each team will be of 4 minutes.
6. In case the robot does not change its position for 1 minute during the arena run, the team is **disqualified.**
7. **Robots falling outside the track are disqualified.**
8. Robots can move any number of boxes at a time during the arena run.
9. Robots damaging the Arena shall be liable for disqualification.
10. The judges reserve the right to stop a robot from running, declare disqualification, or give instructions when necessary (e.g., if the Arena is jeopardized by the operation of the bot)