

Radio Control

Mine Removal Challenge

Game Overview:

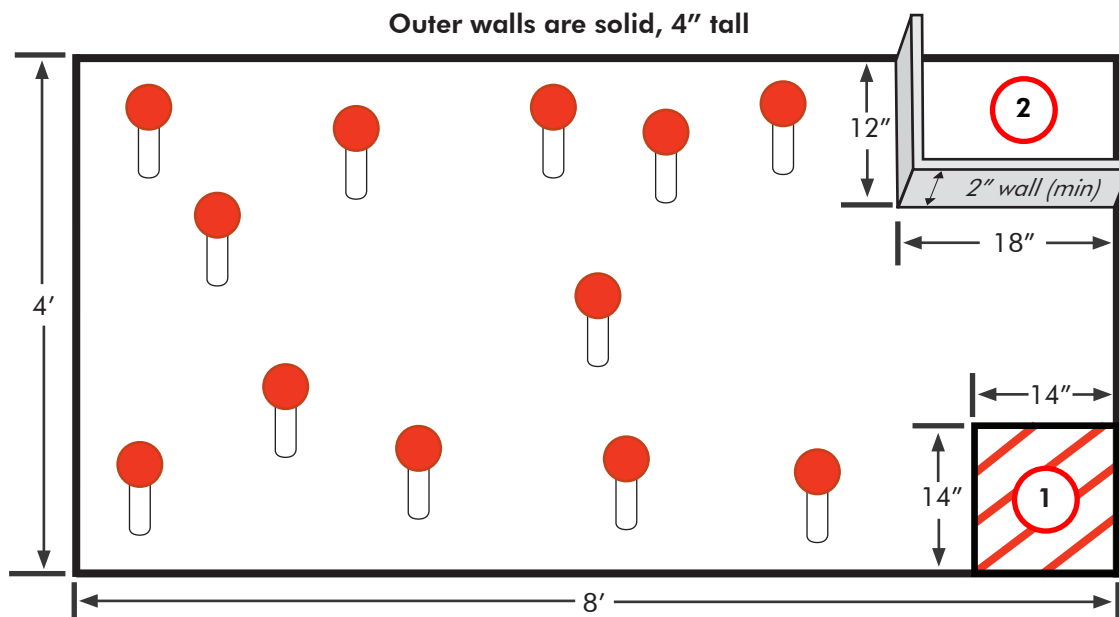
In this game, 12 “mines” have been marked on the board. Your robot’s task is to safely remove and transport the mines to a designated disposal area. Each game lasts 2 minutes. Points will be awarded based on how many mines are safely collected and disposed of at the end of the 2 minute period.

Board:

The basic board is an 8’ by 4’ solid wooden frame with 4” high walls. The central playing area is covered by a piece of tile board (whiteboard) cut to fit.

A mine consists of a plastic ball resting atop a pedestal (cardboard tube or PVC pipe). 12 such mines are placed at different locations around the board. Their exact placement may change between rounds. A small rectangular bin (small storage bin or additional walled-off section) in the corner of the board is designated as a drop-off point for the mines after the robot has picked them up.

- Black electrical tape
- Red electrical tape
- Scissors (or cutting tool)
- Ruler (or straight edge)
- 12 Cardboard or PVC tubes (4.5” tall standing)
- 12 Plastic Balls (3” diameter)
- Tile board (whiteboard material)
- 2x4” dimensioned lumber



- 1 Robot must begin here at the start of the game.
- 2 Mines must be moved into this box to earn “disposed of” points.

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Scoring:

Each mine must be removed from its “trigger” pedestal and transported to a designated disposal bin on the board, where it can be dropped or unloaded by hand. The mines may also be “disarmed” for partial points by simply knocking them off their pedestals. Knocking over the pedestal itself, however, will set off the mine, and incur a penalty.

- Mines disarmed but not disposed of: +2 points each
- Mines properly disposed of: +20 points each
- Pedestals knocked over: -7 points each

All scoring is determined based on the state of the board at the end of the 2-minute run.

Mines on the table surface or off the board will be counted as 2 points, pedestals not standing upright will count as -7 points, mines in the disposal bin will give 20 points.

Time Limit:

The robot must automatically shut down and come to a complete stop after the designated 2 minute time limit has passed as measured from the starting signal. Robots that do not fully disable themselves (putting down the Transmitter is not sufficient, the robot must actually stop accepting commands) will be disqualified for the round in which the violation occurred.

Additional Notes and Rules:

- **No movement** by the robots (even accidental) is allowed **prior to the start of the match**. Once on the field, any movement other than the “startup twitch” will result in the offending robot being disqualified for the round.
- Any physical contact between a human and the robot once the round has started will result in a 10 point **“touching penalty”** being assessed against the human’s team. This includes touching the robot to turn it on after the starting signal. A Transmitter command should be used to start the robot at the beginning of the round instead.
- Mines will always be **spaced** in such a way that all of them can potentially be reached by a 12” square robot (i.e. mines will not be clustered so that some are completely blocked off).
- **“Chain reaction”** point loss may occur if a knocked-over pedestal or mine causes other pedestals to fall over.
- Mines may be removed from the robot **by hand** for full disposal points once the midpoint of the ball has passed over the disposal bin wall. The operator **may not touch the robot**, only the mine. Contact (even accidental) between the human and robot will incur the 10 point touching penalty.
- When a measurement dispute occurs, “on top of the line” will count in the team’s favor.
- Time permitting, every team will be allowed to run their robot three times (“rounds”) with the ability to make changes between every round. The team’s final score will be the best of their three individual round scores.
- Within a given round, all teams will play with the mines in the same positions (i.e. mines will continue to be replaced as close to their original positions as possible until the round is over, at which time they may be re-arranged for the next round).