# THE BOT-SHOT

Task:

- The goal in this competition is to get the maximum number of coloured balls from your side of the arena to the opponent's side, using your robot.
- Each participating team is allowed a wheeled robot which will be provided with a fixed number of table tennis balls in the arena.
- The side with the least number of balls at the end of each round wins

Arena:

1. The arena consists of two sides, separated by a wall 15 cm high.
2. The walls surrounding the arena will be 15 cm high.
3. There will be two bots at a time in the arena during the game. One bot on each side.
4. Arena division of each bot will be 4ft*4ft. The total arena will be 8ft*4ft.
5. Each division will have a fixed number of table-tennis balls.
6. One team will be given orange balls and the other team will be given white balls. Colour choice will be the random.
7. The surface of the arena will be level, flat and hard.
8. Sample Arena:(for visual purposes only)
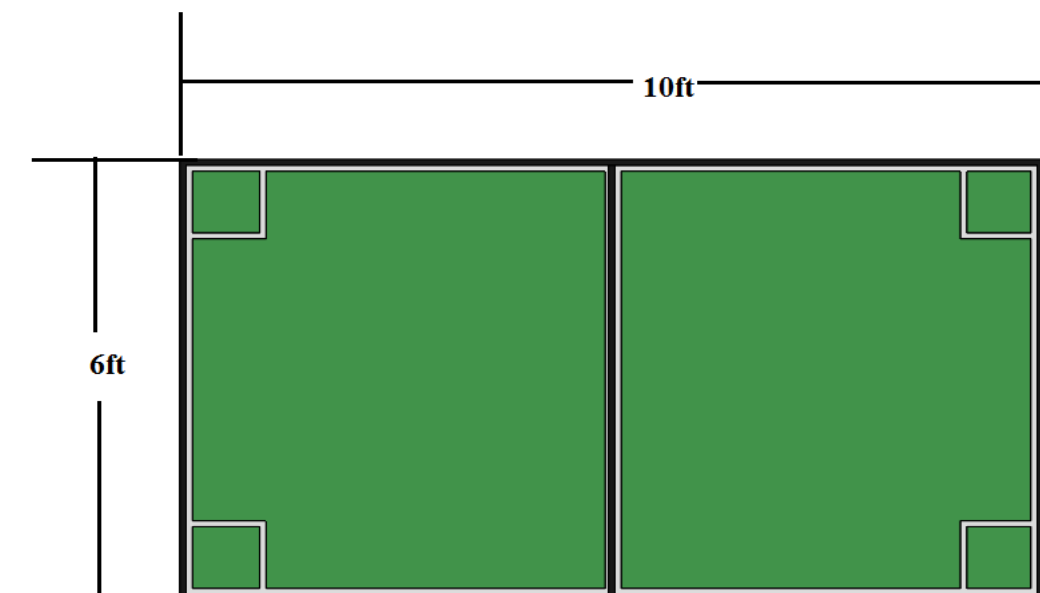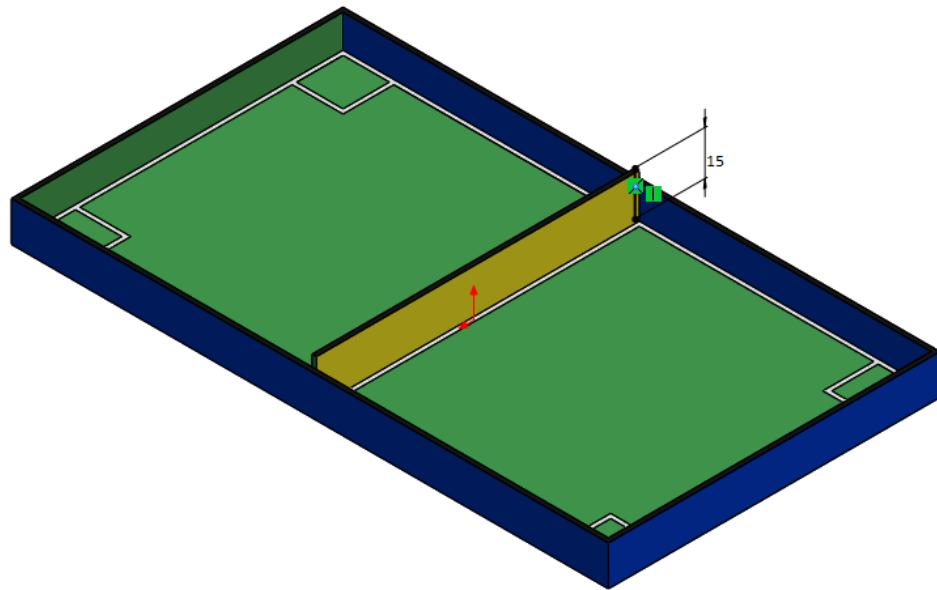
Bot Specifications:

1. Each team is allowed to have only one bot.
2. The robot may be autonomous or manually controlled. Wireless as well as wired control of the robot is allowed.
3. The bot (just chassis and wheels without the throwing/flicking/ball picking mechanism) must fit into a cuboid of 300 mm x 300mm x 300mm (l*b*h).
4. If the robot has an extendable part/mechanism then the robot will be measured while all parts in retracted position, provided robot is able to retract all the parts automatically, at the end of the game.
5. The robot should not exceed 5kg in weight in case of onboard power supply and 4kg in the case when power supply is not on board.
6. The maximum potential difference between any two points on the bot should not exceed 12 volts. The power supply may or may not be on board.
7. The bot mechanisms should stay well inside the arena and should not cross over to the arena division of the opponent.
8. Bots are allowed to have any kind of mechanical setup for the throwing/flicking/picking up of the ball.
9. Ready-made robots(commercially available) are not allowed.
10. The Bots are allowed to have any wireless RF modules which can work on FHSS or DSSS or any other kind of wireless control algorithm using which multiple frequency can be switched.
    This is to avoid RF interference. You may use BLUETOOTH , WIFI , nrf , Zigbee.

Gameplay:

1. The game will consist of multiple levels of increasing difficulty.

2. Qualification to a higher level will be based on winning the match in the previous level.
3. Each match will be played between two teams and consist of 2 rounds.
4. Each round will have a time limit of 5 minutes.
5. At the end of 5 minutes, the team with lesser number of balls in their side of the arena, shall win the round.
6. A team can call for the end of a round prior to the time limit, if there are no balls left on their side. In that case, that particular team will be considered the winner in that round.
7. In case of a tie, a third round will be allowed.
8. Team pairing for the matches will be random and the organizer's decision will be final.
9. The actual number of levels in the competition will depend on the number of participants.
10. The first level will be the "elimination zone" and will be different from the other rounds in that:
    - Qualification to level 2 will be based on points scored in level one and not solely on winning the match.
    - Each ball from a team's arena moved to the opponent's arena fetches points for that team. The no of balls will be counted only at the end of a round.
    - Winning a round gets bonus points.
    - There will be no tie-breaker round in level one.
    - An even number of teams, from the top scorers will qualify to level 2.
    - In case of non-even number of participants, the top scoring teams in level one may have to play more than one match, if the organizers ask for it.

11. In all other levels, no such points will be awarded, and winning matches will be the sole criterion for clearing the level.

Game Rules:
1. The participants will get 10 minutes of setup time for calibration and testing prior to the competition, according to a schedule that will be made available at the start of the event.
2. Any team that is not ready at the specified time will be disqualified from the competition.
3. The machines will be checked for their safety before the run and discarded if found unsafe for other participants and spectators.
4. The bot must be placed in the box marked on the arena, at the beginning of each round.

5. Participants will not be permitted to enter the arena or touch any balls inside or outside the arena, during a match.
6. The bot can put/throw/remove/dump/flick balls from its arena to its opponent's arena.
7. The bots are allowed to bounce-off/return the balls that are flicked by the opponent into their division of arena.
8. A bot can carry with it only 2 balls at a time.
9. If a ball is tossed outside the arena by a bot, the ball will still be counted against that bot, at the end of the round.
10. Any part of the bot during the game play should not create a permanent or temporary fixture. The bot should not block the other team's bot from delivering balls.
11. Bots are allowed to touch any boundary of arena in its division, but should not cross the arena division over to the opponent's side.
12. If a ball is tossed onto the opponent's robot, and does not fall on the arena floor till the end the game, that ball will not be counted against either bots.
13. The robots can come in contact with the walls but should not damage it.
14. If a bot damages the arena in any way the team will be disqualified from the competition.
15. Organizers will not be responsible for any minor scratches left by the previous machines, on the arena.
16. Participants should not dismantle their robots before the competition results are announced as the machines might need to be verified by the organizers at a later stage to ensure that the participants have not violated any of the rules.
17. The organizers reserve the right to change any of the above said rules, at any time. Changes will be notified on the website and Facebook page . It is the participant's responsibility to stay updated.
18. In case of any dispute, the decision of the judges will be held final.

PARTICIPATION:
1. Participants can register in teams of 1-4 people.
2. Students from different educational institutes can form a team.
3. All participants must have a valid ID card from their educational institute.

For more information: -
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