



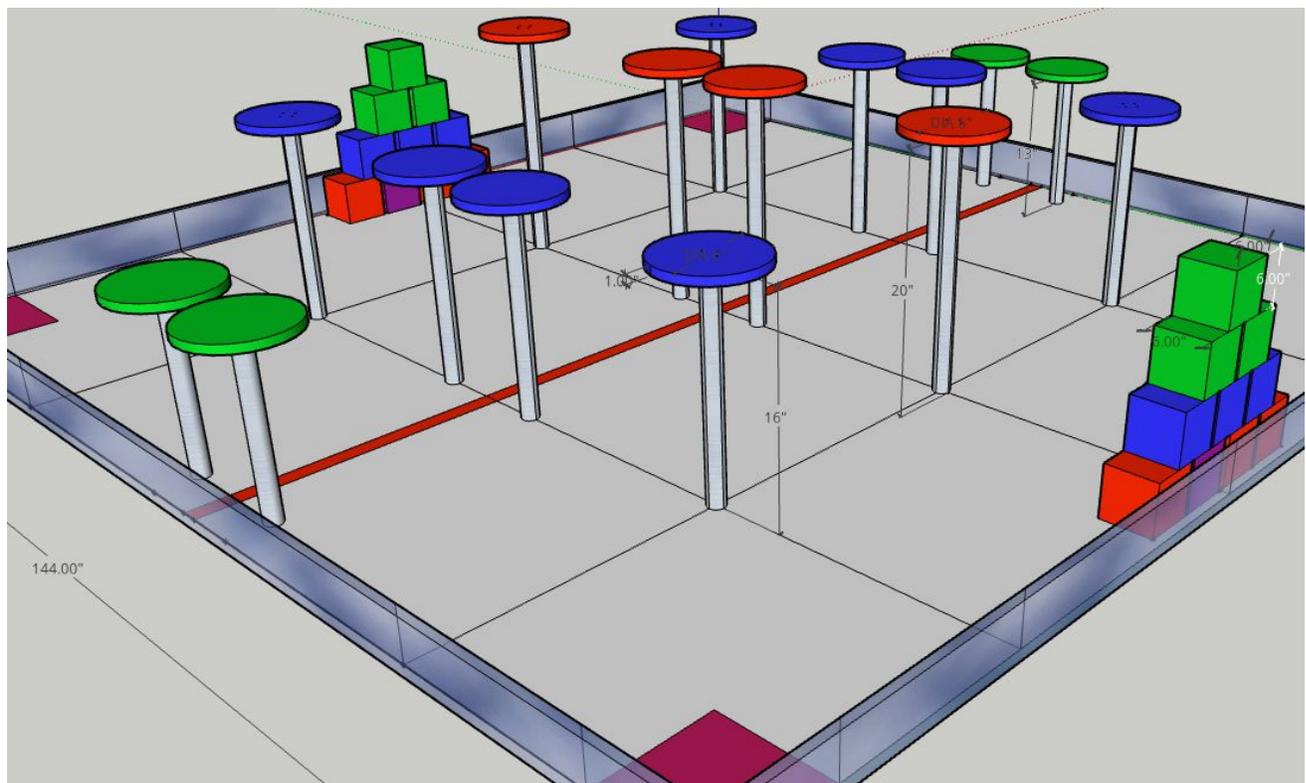
STACK-IT-UP PROBLEM STATEMENT

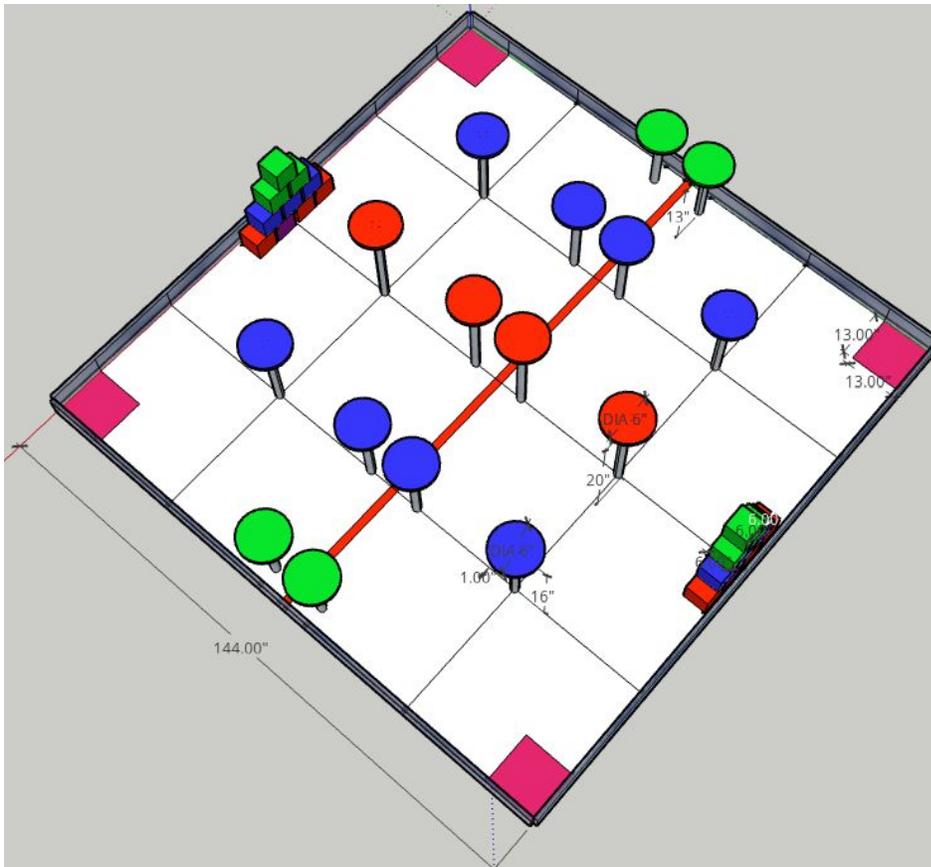
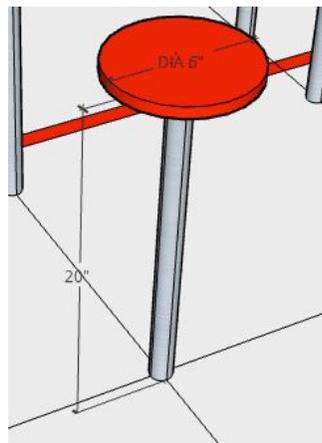
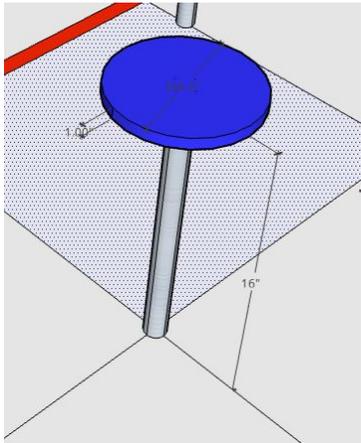
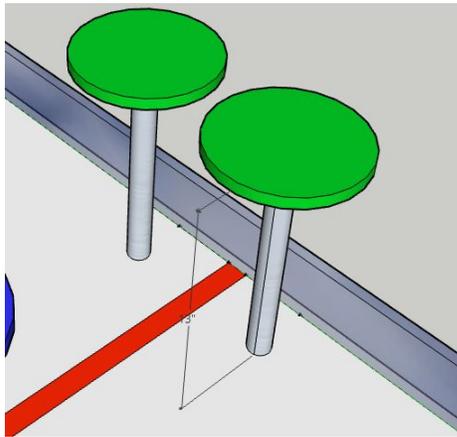
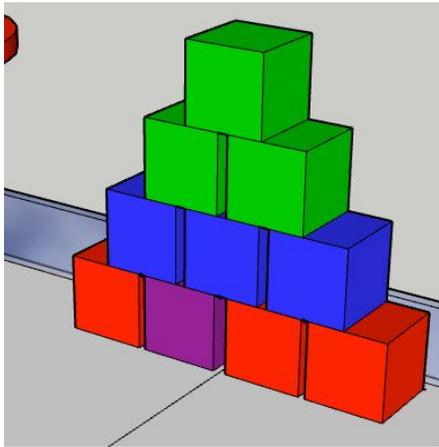
AIM:

To design a manually controlled robot that can lift cubes and place them on towers of different heights.

ARENA:

1. The arena is 12 by 12 ft. in size.
2. The normal cubes weight 150 grams(+5g or -5g), but a special cube weight 300 grams(+5g or -5g).
3. All the cubes are 6 inches wide.
4. There are three types of towers with different heights 20 inches, 16 inches, and 13 inches.
5. The platform on the top of each tower is a circle of 6 inches with no boundaries.







GAMEPLAY :

1. The robot begins the task from the starting region.
2. There are blocks of different colours, which correspond to the respectively coloured tower.
3. The blocks will be spread all over the arena.
4. The bot has to lift the block and then carry it to the respective tower assigned for a particular coloured block.
5. There are four different coloured blocks, three (red, blue, green) of which corresponds to the respective tower and the fourth (purple) is a special block.
6. Further, successfully place the block on the tower.
7. There will be construction time of 2 minutes where the respective teams can place the blocks on the respective tower and then there will be 30 seconds of destruction time where the teams can cross the red line and displace the placed blocks of the opponent. 5 such rounds will be conducted and the points will be calculated.

RULES:

1. The single run can be of a maximum of 2 minutes 30 seconds.
2. Any team member is not allowed to touch the bot in between the arena run.
3. The team members can only touch the bot when placed in the starting region.
4. In case of a technical problem, the team can take a maximum of two retries, and the points scored in that round will be considered.
5. The timer will not stop while repositioning the bot to the starting point.
6. Damaging the arena or the props will lead to disqualification.
7. In case of any inconsistency, the decision of the referee is final.
8. There is no hook or groove to lift the blocks. So, the bot has to grab the block.
9. Placing the special block on any tower doubles the score achieved for that particular height tower.
10. The base of the bot is everything except the arms used to pick the block. And as mentioned it should not be more than 12 inches.
11. Keep the length and breadth in accordance with the arena.
12. You can use multiple arms and controllers if you wish to but the arena should not take any damage.

SCORING:

- | | |
|--|----------|
| 1. For successfully lifting the cube (special cube) | +2 |
| 2. For successfully placing the respective cube (special cube) on tallest tower | +10(+20) |
| 3. For successfully placing the respective cube (special cube) on medium tower | +9(+18) |
| 4. For successfully placing the respective cube (special cube) on smallest tower | +8(+16) |
| 5. For successfully placing any normal cube on tallest tower | +6 |
| 6. For successfully placing any normal cube on medium tower | +5 |
| 7. For successfully placing any normal cube on smallest tower | +4 |
| 8. For touching the robot during runs | -2 |
| 9. For displacing the cube from its place | +1 |



RANKING CRITERIA :

1. Team with maximum points wins.
2. In the case of clashing points, the team with the maximum cubes on tower wins.
3. In case of further draw rerun of 3 minutes will decide the winner.
4. For further clashing points, the teams will be given equal position.

BOT SPECIFICATIONS :

1. The maximum weight of the robot including the battery is 5 kilograms.
2. The robot should not consist of any Lego or readymade assembly kits.

TEAM SPECIFICATION :

1. A team can have a maximum of 5 members.
2. Participants from different educational institutions may also form a team.

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