



COZMO CLENCH

Aim:

It is said that change is the law of nature. But today, technology is the ruler of our lives. Technological advancements have always tried to minimize the human efforts and to channelize the energy into the right direction. Likewise, the pick n place robots find their roots from the pulleys for drawing water from wells by Indian ladies who used to travel miles away from their homes. From sowing seeds to harvesting, everything has become automated these days.

So, keeping this flavor of the Indian culture in our minds and connecting to our Mother land, let's get some cool pick n place robots into the arena and see how well can the ease our lives.

The team has to build a manually controlled bot which can do the simple task of gripping blocks and putting them in target zones by overcoming the obstacle in its path.

Description:

There are two rounds. The bot has to complete the route and the tasks by overcoming the various obstacles in its path. The bot can be wired or wireless.

ROUND - 1

ARENA

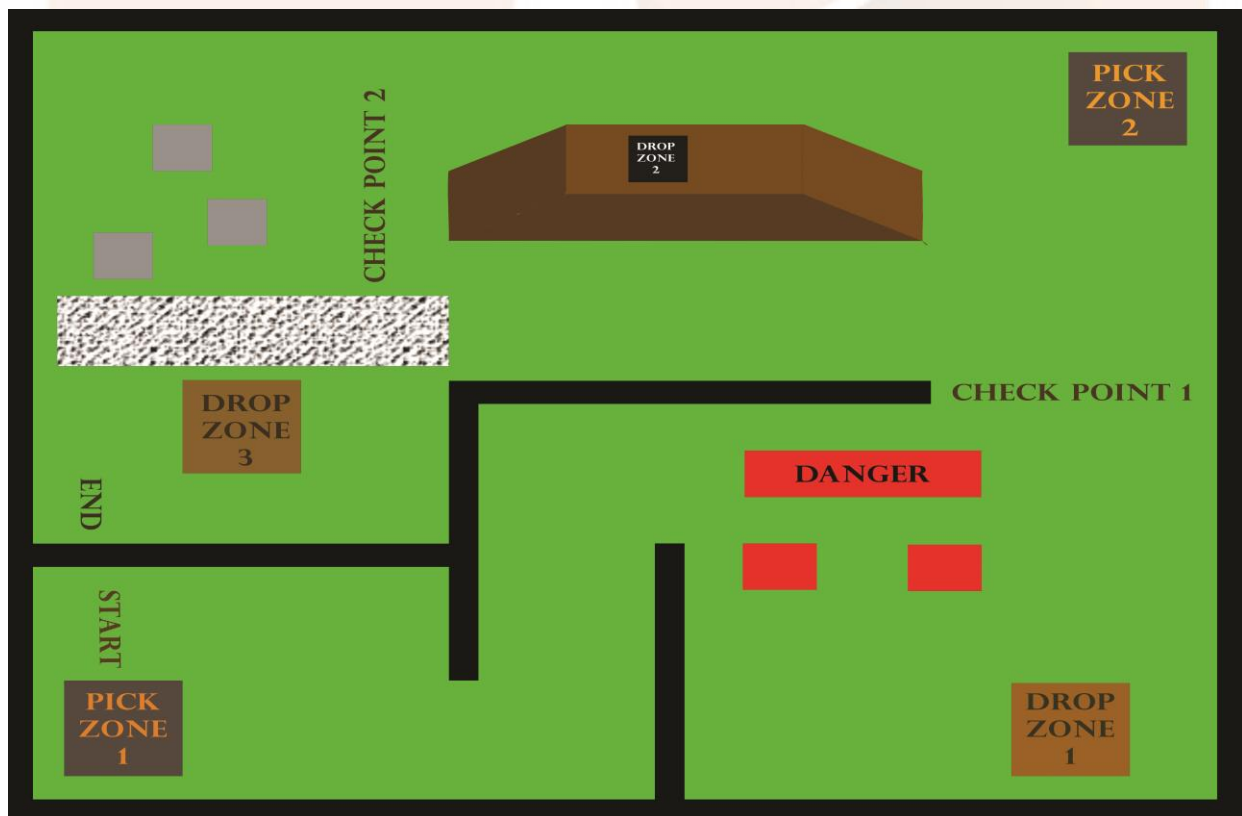
It consists of the following:

- Blocks with each of dimensions 150mm X 150mm X 100mm (l x b x h).
- There are three pick up zones “**Pick Up Zone 1**” “**Pick Up Zone 2**” and “**Pick Up Zone 3**” and three deposit zones “**Drop Zone 1**” “**Drop Zone 2**” and “**Drop Zone 3**”.
- Ramp assembly with an inclination of 20 degrees and a declination of 30 degrees.
- Pebble zone.
- “Checkpoints” 1,2 are shown in orange colour.
- “START” and “END” of dimensions 400mm x 100mm are shown in brown colour.



Gameplay

- The bot must start from the 'START' mark.
- There is danger zone and the bots have to arrive at 'Drop Zone 1' by avoiding danger zone.
- The bot has to put 'Block 1' in the 'Drop Zone 1'.
- The bot has to arrive at the 'Checkpoint 1' after crossing the 'Drop Zone 1'.
- After that, it has to pick up the 'Block 2'. The 'Block 2' has to be placed in the 'Drop Zone 2' that is in the ramp which has inclination of 20 degrees and declination of 30 degrees.
- There will be pebbles in arena. The bot has to pick a block and should not drop it while crossing the pebbles. In case block gets dropped then you have to start from 'Checkpoint 2' again.
- After that, the bot has to pick up the 'Blocks' and place it in the 'Drop Zone 3' repeatedly and has to form stack.
- A stack is of maximum three blocks.
- Then the bot has to arrive at the 'END'.





GAME RULES:

- The bot would be checked for safety before starting and will be disqualified if found unsafe for other participants.
- Only one team member is allowed to handle the bot. No other team member is allowed to enter the arena.
- The bot will be liable for disqualification if it causes any kind of damage to the arena.
- The bot is not allowed to slide the blocks against the ground except for fine adjustments in the Drop Zone.
- Any damage done to the blocks will lead to immediate disqualification.
- Maximum of 8 minutes will be given for each team.
- The arena has 2 checkpoints. In case the bot gets stuck at any place, then the block it is carrying (if any) will be repositioned at its initial position and the bot will be kept in the checkpoints corresponding to that zone. There will be no penalty for this.
- The blocks which are correctly deposited in deposit zones/pushed from ramp won't be disturbed.
- The timer won't be stopped during this process.
- In case of any disputes/discrepancies, the organizer's decision will be final and binding.
- The organizer's reserve the rights to change any or all of the above rules as they deem fit.
- **Change in rules, if any will be highlighted on the website and notified to the registered teams.**

JUDGING:

- 30 points will be awarded for successfully crossing hurdles between the START mark and the Checkpoint 1.
- 10 points will be awarded for picking the block.
- 30 points will be awarded for placing the Block in the Drop Zone 1.
- 10 points will be deducted for touching the danger zone.
- The participants may voluntarily skip any step and can move forward but in this case penalty of -60 points will be imposed on the team.
- 10 points will be awarded for crossing the Checkpoint 1.
- 30 points will be awarded for placing the Block in the Drop Zone 2 and crossing the wedge, points will be awarded only once for crossing the wedge. Points will not be awarded if the bot crosses the wedge multiple times.
- 10 points will be awarded for crossing the Checkpoint 2.
- 20 points will be awarded for placing the 1st Block in the Drop Zone 3.
- 50 points will be awarded for placing the 2nd Block in the Drop Zone 3 on top of 1st block.
- 100 points will be awarded for placing the 3rd Block in the Drop Zone 3 on top of 2nd block.
- Similar marking scheme for 2nd stack of 3 blocks.
- 10 points will be deducted for touching the border line of arena/path.



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Scoring & Penalties:

- A = Points scored
- P = Penalties
- T = (480 - Time taken in seconds)
- Total points scored = A + T - P
- The team with maximum points will be declared as the winner.

Specification:

- The dimensions of the bot should be less than or equal to 300 mm X 250mm X 300mm (l x b x h) failing which the team will be disqualified from the competition. The bot can however extend its dimension once the run starts. An error of (+5%/-5%) is Permitted.
- The bot must be controlled manually.
- Teams can use both wired as well as wireless control mechanisms. In case of wired bots, the length of wire should be minimum 2 meters so that the wire remains slack at any instant of time.
- The dimensions of the remote are not included in the size constraint of the bot.
- The Bot must have an onboard power supply in any case.
- Participants are not supposed to use any readymade Lego components or readymade gripping mechanism. However, the participants are allowed to use readymade gear assemblies.
- Irrespective of the mechanism used, only one person will be allowed to control the bot.
- Failing to meet any of the above specifications will lead to immediate disqualification.
- Bot should not weigh more than 4.5Kg.

Power Supply:

- The participants should use an on-board electric power supply i.e. the power source should be on the bot itself.
- The voltage between any two points should be less than or equal to 24V DC at all times during the run.
- AC power supply will not be provided and cannot be used in the competition.

Team Specifications:

- A team may consist of a maximum of 4 members.
- Students from different educational institutes can form a team.

Certificate Policy:

- Top scorers will directly go to 2nd round of Nirmana in PECFEST.



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ROUND - 2

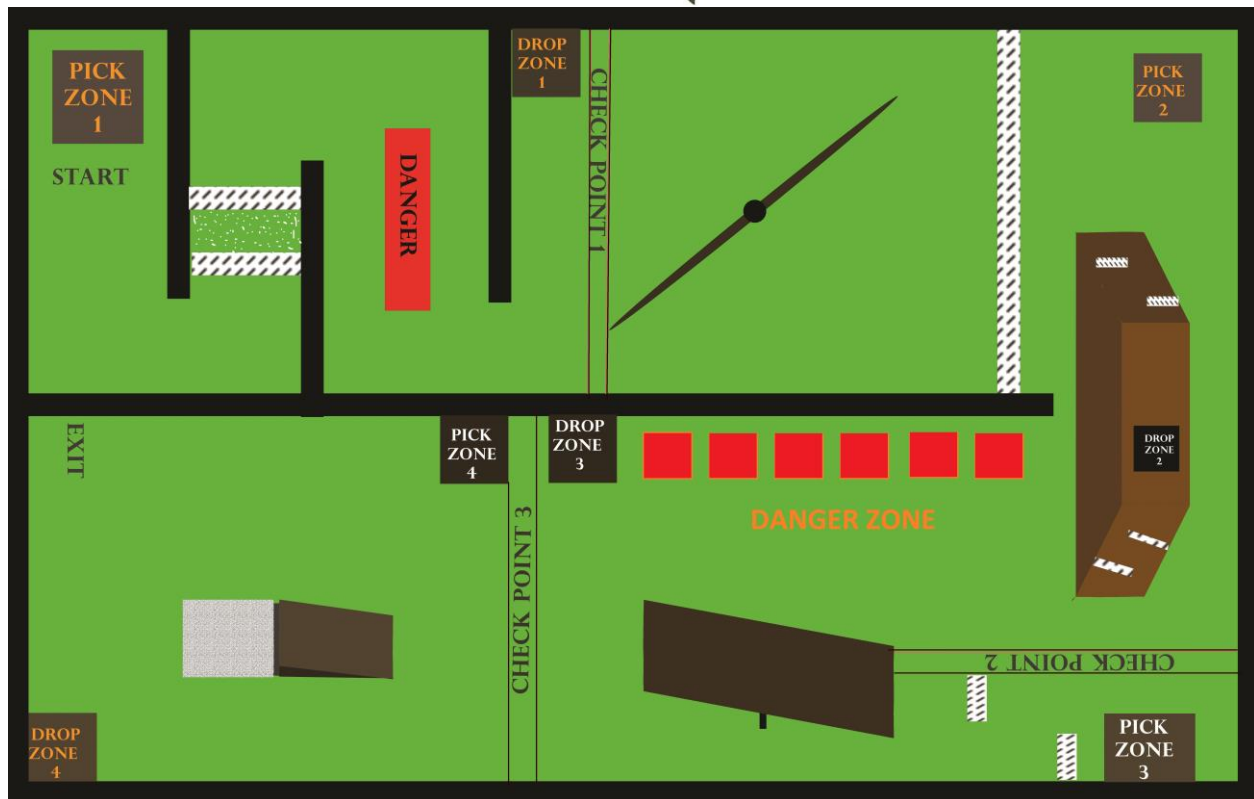
ARENA:

It consists of the following:

- Blocks with each of dimensions 150mm X 150mm X 100mm (l x b x h).
- **There are three pick up zones “Pick Up Zone 1” “Pick Up Zone 2” “Pick Up Zone 3” and “Pick Up Zone 4”.**
- Shape/dimensions of object in **“Pick Zone 3”** will be different and will be disclosed during event only.
- **There are three deposit zones “Drop Zone 1”, “Drop Zone 2”, “Drop Zone 3” and “Drop Zone 4”.**
- Ramp assembly with an inclination of 20 degrees and a declination of 30 degrees.
- Pebble zone/ Mud zone.
- See – Saw
- Wedge of inclination (~8-10 degrees) and height of ~ 5cm followed by a sand drop zone
- “Checkpoints” 1,2 ,3 are shown in figure.
- “START” and “END” of dimensions 400mm x100mm are shown in figure.

GAMEPLAY:

- The bot must start from the ‘START’ mark.
- There is a danger zone and the bots have to arrive at ‘Drop Zone 1’ by carefully crossing the bumper & sand/pebble zone and avoiding danger zone.
- The bot has to then put this ‘Block’ in the ‘Drop Zone 1’.
- Bot has to cross rotating gate after crossing “Checkpoint 1”.
- After that, it has to pick up the ‘Block’ from “Pick Zone 2”. The ‘Block’ has to be placed in the ‘Drop Zone 2’ that is in the wedge which has inclination of 20 degrees and declination of 30 degrees. It has obstacles while descending down.
- The bot has to pick object (disclosed during gameplay) from “Pick Zone 3”, pass through See - Saw and place the object in “Drop Zone 3” while crossing the bumpers on the way.
- Bot has to pick “Block” from “Pick Zone 4” after crossing “Checkpoint 3”. It has to ascend the wedge of inclination (~8-10 degrees) and has to jump (~height 5cm). The “Block” should not fall from the grip of the Bot.
- After jumping, it has to place the block in “Drop Zone 4” and reach the exit point.



BOT SPECIFICATIONS:

- The dimensions of the bot should be less than or equal to 300 mm X 250mm X 300mm (l x b x h) failing which the team will be disqualified from the competition. The bot can however extend its dimension once the run starts. An error of (+5%/-5%) is Permitted.
- **The bot must be controlled manually.**
- Teams can use both wired as well as wireless control mechanisms. In case of wired bots, the length of wire should be minimum 2 meters so that the wire remains slack at any instant of time.
- The dimensions of the remote are not included in the size constraint of the bot.
- **The Bot must have an onboard power supply in any case.**
- Participants are not supposed to use any readymade Lego components or readymade gripping mechanism. However, the participants are allowed to use readymade gear assemblies.
- Irrespective of the mechanism used, only one person will be allowed to control the bot.
- Failing to meet any of the above specifications will lead to immediate disqualification.
- Bot should not weigh more than 4.5Kg.



Game Rules:

- The bot would be checked for safety before starting and will be disqualified if found unsafe for other participants.
- Only one team member is allowed to handle the bot. No other team member is allowed to enter the arena.
- The bot will be liable for disqualification if it causes any kind of damage to the arena.
- The bot is not allowed to slide the blocks against the ground except for fine adjustments in the Deposit Zone.
- Any damage done to the blocks will lead to immediate disqualification.
- Maximum of 10 minutes will be given for each team.
- The arena has 3 checkpoints. In case the bot gets stuck at any place, then the block it is carrying (if any) will be repositioned at its initial position and the bot will be kept in the checkpoints corresponding to that zone. There will be no penalty for this.
- The blocks which are correctly deposited in deposit zones/pushed from ramp won't be disturbed.
- The timer won't be stopped during this process.
- **In case of any disputes/discrepancies, the organizer's decision will be final and binding.**
- **The organizer's reserve the rights to change any or all of the above rules as they deem fit.**
- Change in rules, if any will be highlighted on the website and notified to the registered teams.

Power Supply:

- The participants should use an on-board electric power supply i.e. the power source should be on the bot itself.
- The voltage between any two points should be less than or equal to 24V DC at all times during the run.
- AC power supply will not be provided and cannot be used in the competition.



JUDGING:

- 30 points will be awarded for successfully crossing hurdles between the START mark and the Checkpoint 1.
- 10 points will be awarded for picking the block.
- 30 points will be awarded for placing the “Block” in the “Drop Zone 1”.
- 10 points will be deducted for touching the danger zone.
- The participants may voluntarily skip any step and can move forward but in this case penalty of -50 points will be imposed on the team.
- 10 points will be awarded for crossing the Checkpoint 1.
- 40 points will be awarded for placing the “Block” in the “Drop Zone 2” and crossing the wedge, points will be awarded only once for crossing the wedge. Points will not be awarded if the bot crosses the wedge multiple times.
- 10 points will be awarded for crossing the “Checkpoint 2”.
- 20 points will be awarded for picking the object (disclosed during gameplay).
- 40 points will be awarded in placing the object (disclosed during gameplay) in “Drop Zone 3” after passing through See-Saw type obstacle.
- 10 points will be awarded for crossing the “Checkpoint 3”
- 50 points will be awarded after placing “Block” in “Drop zone 4” by ascending (~8-10 degrees) and jumping from top (Height ~ 5cm).
- 10 points will be awarded after reaching exit point.
- 10 points will be deducted for touching the border line of arena/path/rotating gate.
- Wire should be slack during gameplay. For 1st time warning will be given and for subsequent time 10 points will be deducted.

SCORING AND PENALTIES:

- A = Points scored
- P = Penalties
- T = (600 - Time taken in seconds)
- Total points scored = A + T - P
- The team with maximum points will be declared as the winner.



Team Specifications:

- A team may consist of a maximum of 4 members.
- Students from different educational institutes can form a team.

Eligibility:

- All students with a valid identity card of their respective educational institutes are eligible to participate.

Contact Us:

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