

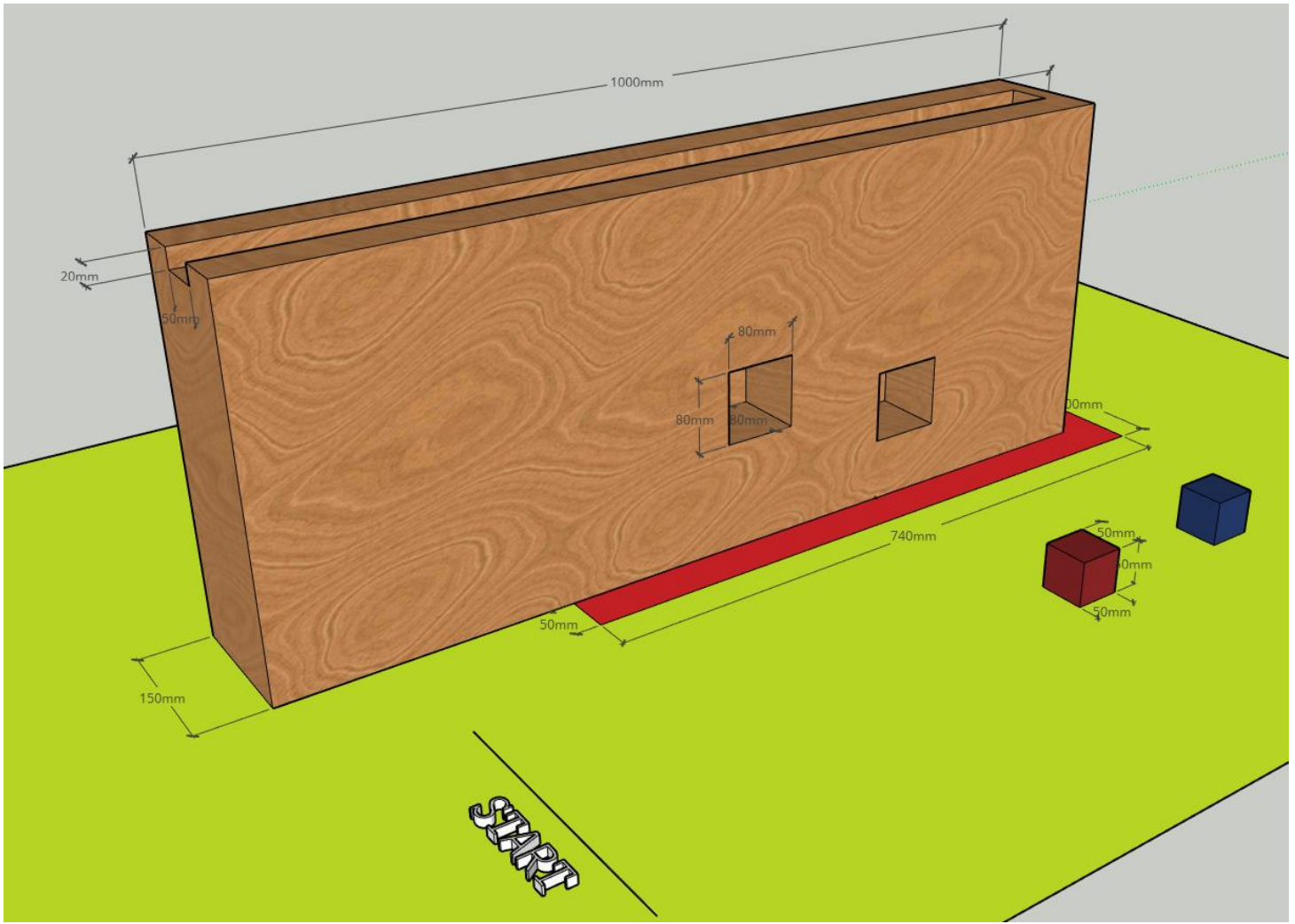
ESCALADE PROBLEM STATEMENT

AIM:

To design a bot which can move along side of a vertical wall with the help of a groove.

ARENA:





- The groove cross section dimensions are 5cm*2cm.
- The blocks' dimensions are 5cm*5cm*5cm.
- The cubical depressions' are 8cm*8cm*8cm.
- The Red Zone is the rectangular area 5 cm from the wall.

NOTE:

- The dimensions of the arena are subjected to 5% error, hence the participants are requested to make their bots adjustable to it.

GAMEPLAY :

A manually controlled bot begins the task from start position .

- The bot should pick up a block.
- Holding the block , the bot should clamp on to the groove.
- On clamping the groove it should move horizontally along the wall through the groove.
- It needs to traverse the distances needed to reach out for the cubical depression both horizontally and vertically.
- On reaching it, the bot needs to place the block into the cubical depression.
- In the same way the bot needs to place the other block into the cubical hole.

BOT SPECIFICATIONS:

- The dimensions of the body of the bot must not exceed 20 cm length * 20cm width *25cm height.
- The bot can be controlled by a wired or wireless remote control.
In case of wireless control, the bot must be able to work on two different frequencies.
- Bots must not be made from lego parts or readymade assembly kits.
- Bot should have a gripping arm capable of lifting small light objects.
- The gripping mechanism can extend out by not more than 5cms.
- Battery should be on board with the bot.
- It should be able to transverse along the wall with the help of the groove .
- The weight of the bot should not exceed 3kg.

TEAM SPECIFICATIONS:

- A team may have a maximum of 4 members only.
- Participants from different educational institutions may also form a team.
- A team can register as two separate teams if they are using two different bots for the event.

RULES:

- Each team will be given 3 runs for the task of which the best will be considered the final score.
- A single run will be of a maximum of 5 minutes.
- The bot must start from the starting position.
- The bot must not be touched by any team member in the middle of a run . Points would be deducted each time for doing so.
- The bot must not enter the **Red Zone** when it is on the ground . Points would be deducted each time this is repeated.
- In case of technical problems, etc. the team can have a maximum of three restarts (total for all 3 runs) which they can use to correct their bots.
- During the restart the timer will not stop and the team has to start their bot from the initial position and the blocks will be placed in their initial positions as well.
- The bot should be of the specified dimensions otherwise point would be deducted .
- Total score would account for both points scored and time taken .
- Damaging the arena will **disqualify** the team.

SCORING :

- | | |
|-----------------------------------------|--------------------------------|
| • Picking the block | = 5 points each time |
| • Clamping the groove | = 15 points each time |
| • Placing the bot in front of the hole | = 20 points each time |
| • Placing the block into the depression | = 10 points each time |
| • For entering the red zone | = -25 points each time |
| • For touching the bot | = -20points each time |
| • For exceeding the bot dimensions | = - 5 points for each extra cm |

→ Number of blocks = 2

→ Maximum Points = 100 points

→ Total Score = (Total points*2) - (Total time taken *5)

RANKING CRITERIA:

- The team finishing with maximum score will be declared winner.
- In case of draw, again a fresh match between those teams will be done.

