Vise Clutch

TASK:

● Teams has to build a manually controlled bot which can do simple task of gripping blocks and putting them in target zones so that it can complete the route by overcoming the Hurdles in its path.

● The bot can be wired or wireless. In case the participants use wireless mechanism, they must use dual frequency remote.

ARENA:

● The outer dimensions of arena are 3000 mm X 2250 mm (lxb)
It consists of the following:

● Four thermocol blocks with each of dimensions 150 mm X 150 mm X 100 mm (lxbxh)

● 4 Semi-Circular Pipes of dimension 400mm length & 20mm Radius, One Semi-circular Pipes of dimension 400mm length & 15mm Radius.

● Three rectangular hurdles of dimensions 100mm x50mm (lxb).

● **"Deposit Zone 1"** (Trench) of dimensions 170mmx400mmx100mm (lxbxh) which is shown in fig. 1

● **"Deposit Zone 2"** and **"Deposit Zone 3"** of dimensions 200mmx200mm (lxb) shown Yellow in colour

● Ramp assembly with inclination 20 degrees and declination 30 degrees.

● Half Ramp Assembly with Inclination 15 degrees.

● Sand Box of Dimensions 450mm X 400mm X 20mm (lxbxh)

● **"Checkpoints" A, B, C** of Dimensions 400mm X 50mm are shown in Light Blue Colour.

● **"START"** and **"END"** of dimensions 500mm x100mm are shown in Green Colour .

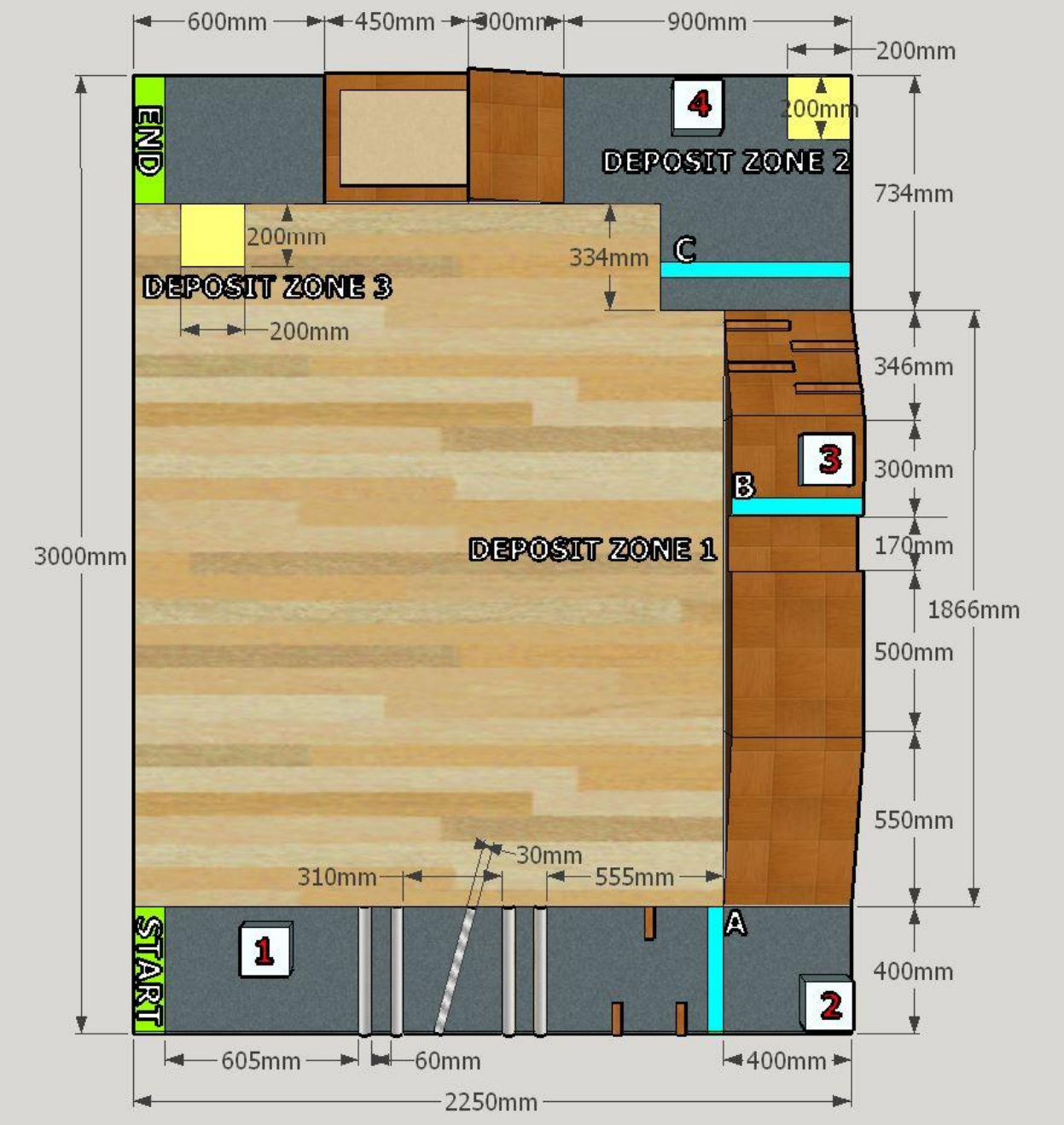

Fig.1 Top View

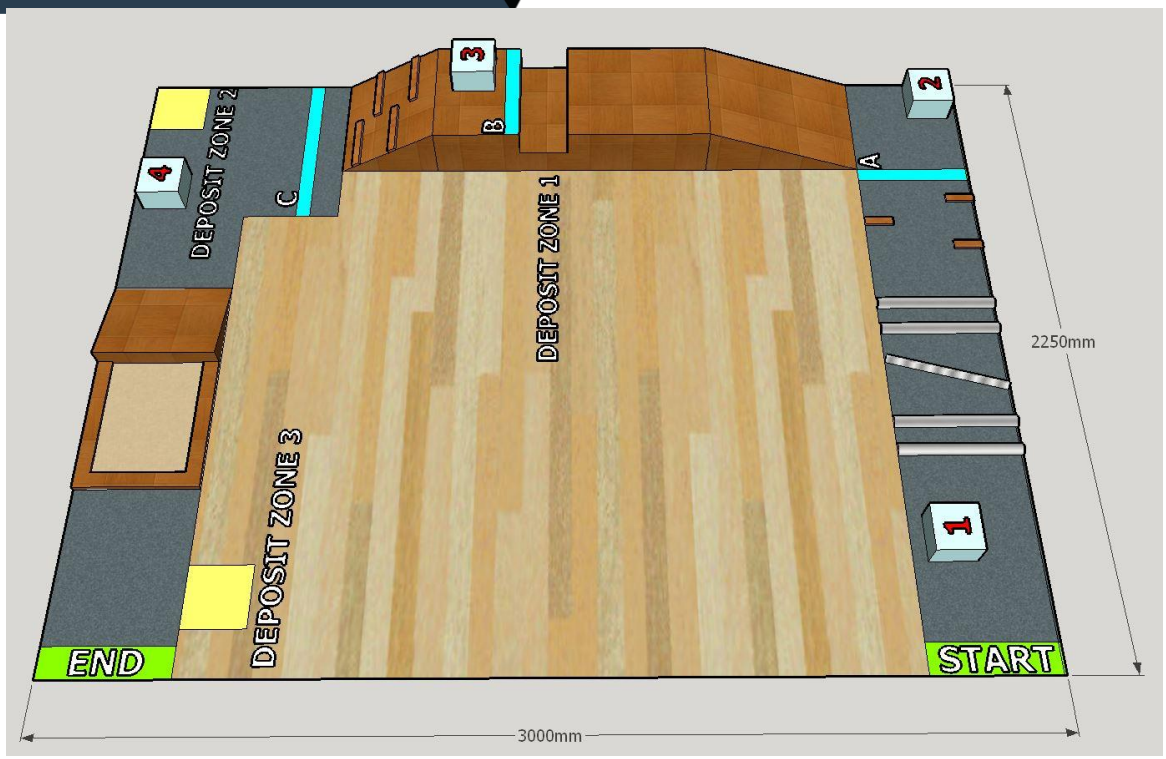

Fig.2 Side View

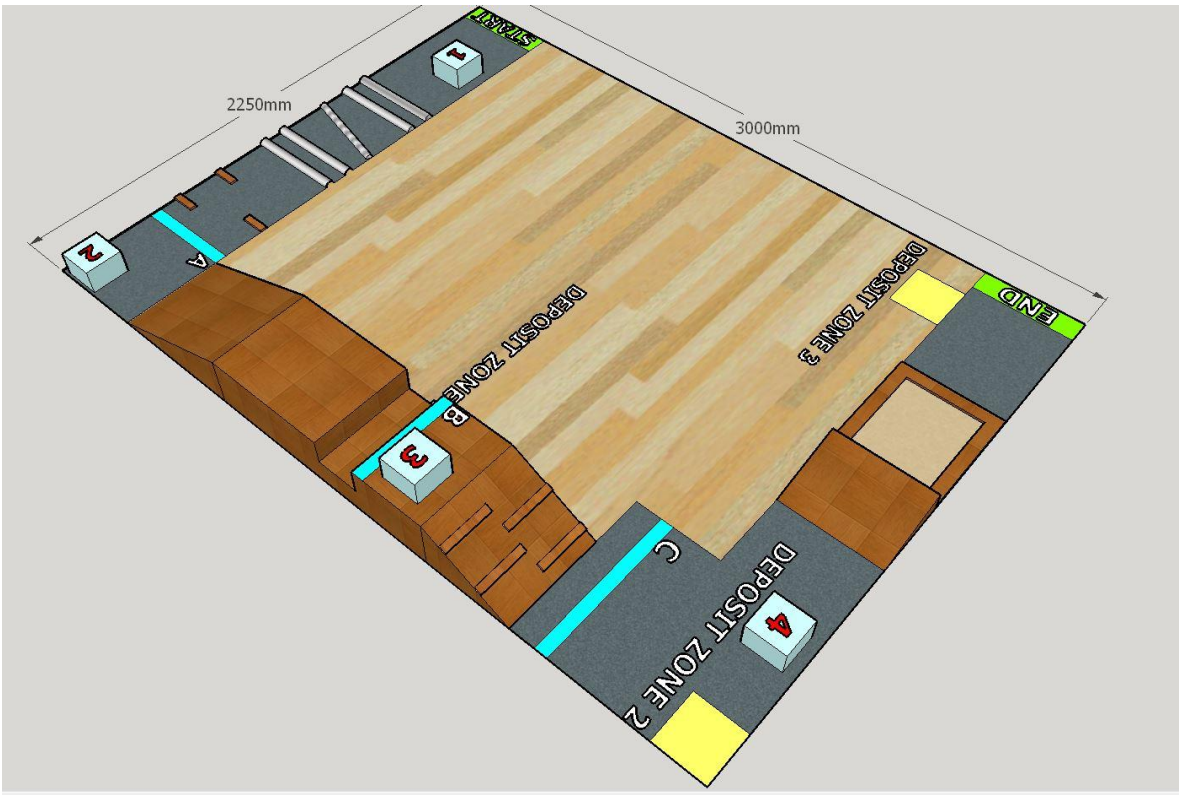

Fig.3 Isometric View

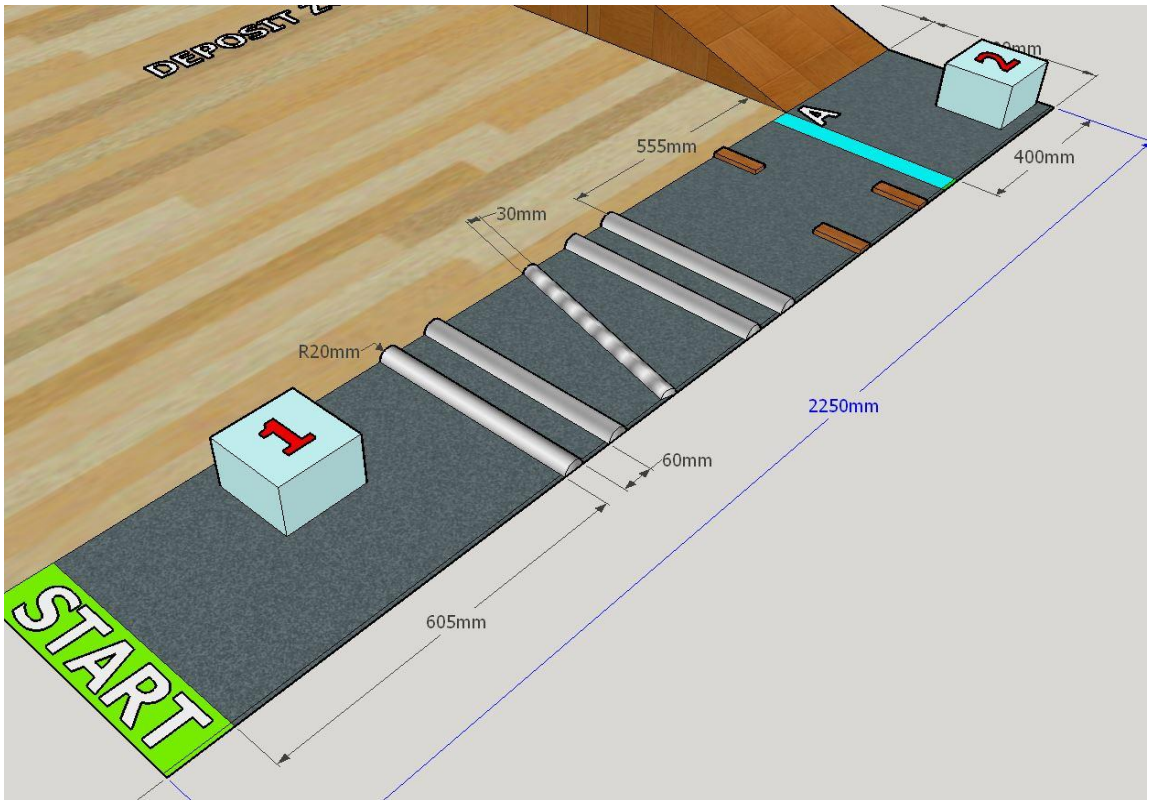

Fig.4 START

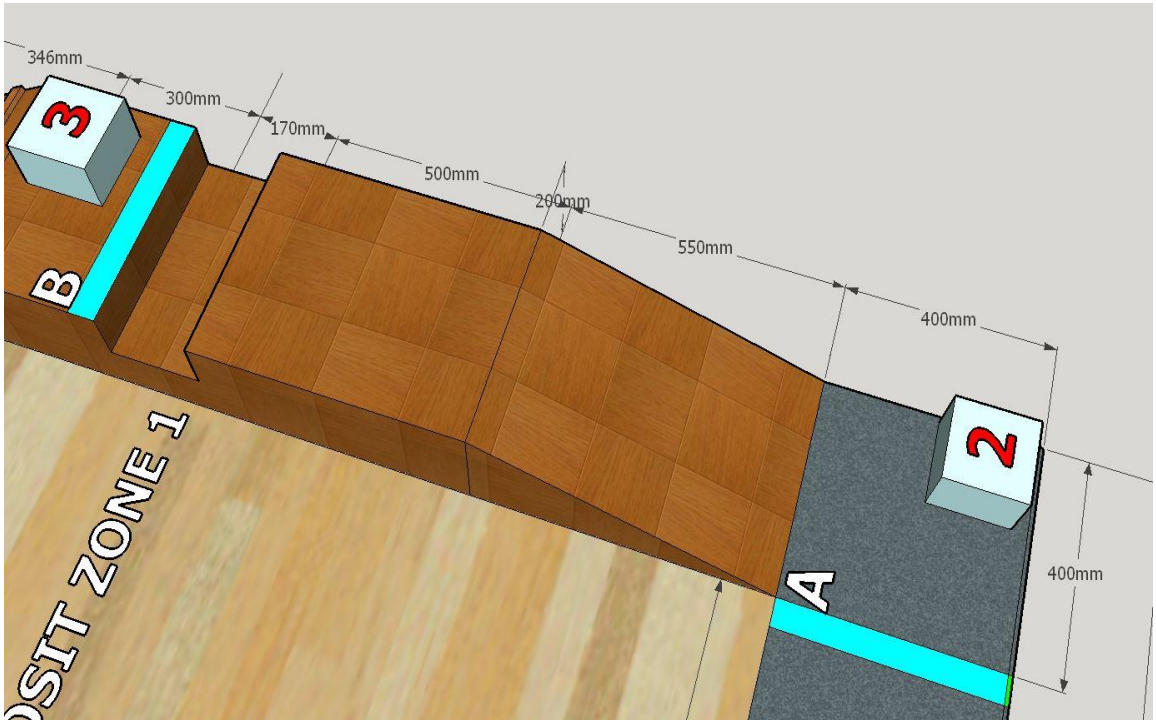

Fig.5 Checkpoints A & B

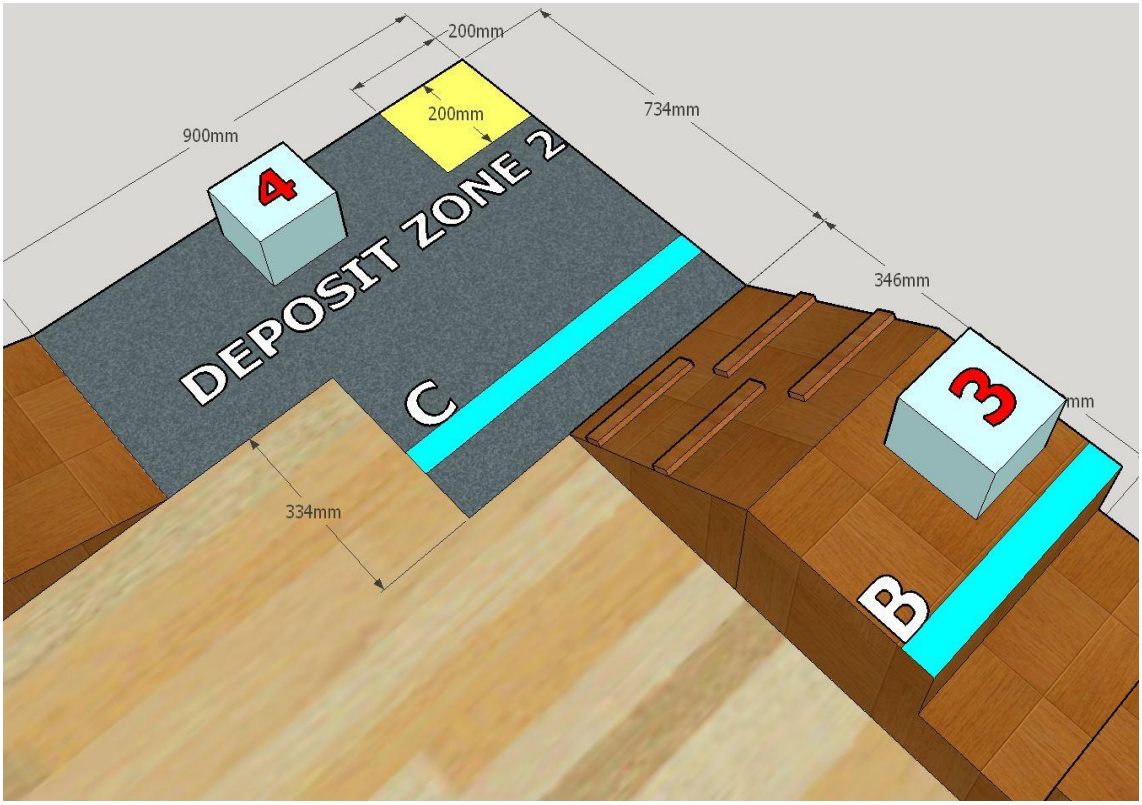

Fig6. Checkpoints B & C

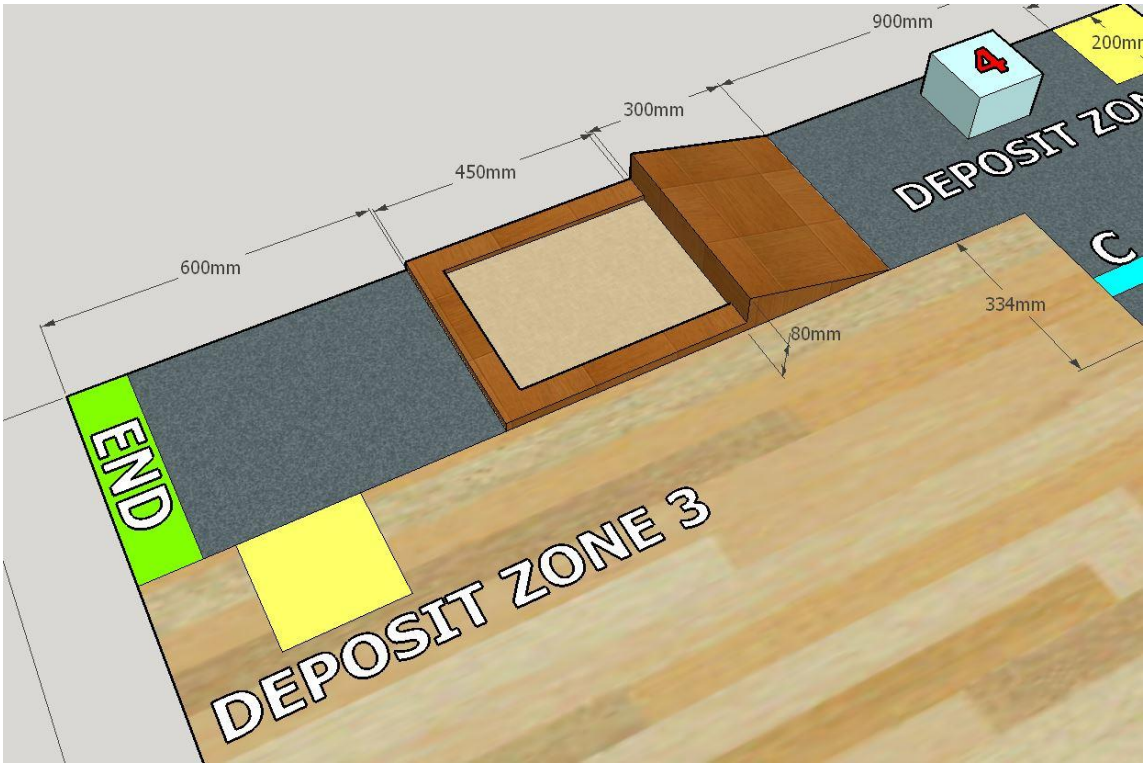

Fig.7 END

GAMEPLAY:

● The bot must start from the 'START'.

● The bot has to arrive at 'Checkpoint A' by avoiding the obstacles in between while carrying 'Block 1'.

● The bot has to put 'Block 1' and 'Block 2' in the 'Deposit Zone 1' to complete the path for crossing.

● The bot has to arrive at the 'Checkpoint B' after crossing the 'Deposit Zone 1'

● After that it has to pick up 'Block 3' and arrive at 'Checkpoint C' along with the block. If the block gets dropped while coming down from the ramp, it has to go again to 'Checkpoint B'

● The 'Block 3' has to be placed in the 'Deposit Zone 2'

● The Bot then has to pick 'Block 4' and jump from ramp (inclination 15 degrees) and land safely in the 'Sand box'. If the Block gets dropped while landing, then again it has to go back to 'Checkpoint C'

● The bot has to place 'Block 4' in the 'Deposit Zone 3'

● Then it has to cross the gate to arrive at the final 'FINISH'

BOT SPECIFICATIONS:

● The dimensions of the bot should be less than or equal to **300 mm X 200 mm X 300 mm** at the start of the game failing which the team will be **disqualified** from the competition. However the bot can 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. If the participants use wireless mechanism then it is mandatory to use a **dual frequency remote**.

● The dimensions of the remote are not included in the size constraint of the bot.

● **Bot must have an on-board 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. Violating this clause will lead to immediate disqualification of the team.

● Irrespective of the mechanism used, only one person will be allowed to control the bot.

● Failing to meet the above specifications will lead to immediate disqualification.

.

POWER SUPPLY:

● The participants should use an on board electric or non-electric power supply i.e. the power source should be on the bot itself. The power source must be non-polluting and must satisfy the safety constraints determined by the organisers. In case of non-electric power supply, the participants must get it approved from the organisers beforehand via email. Organisers are not responsible for the inconvenience if the approval is not sought.

● In case of an electric power supply, 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.

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 6 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 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 organizers' decision will be final and binding.**

● **The organizers 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 START & Checkpoint A.

● 20 points each will be awarded for placing Block 1 and Block 2 in the Deposit Zone 1.Thus a total of 40 points will be awarded for placing both the blocks to complete the path.

● The participants may voluntarily skip the above step and arrive at Checkpoint B but in this case they will not be given the benefit of time thus scoring T=0 for such cases

● 10 points will be awarded for crossing the wedge and reach Checkpoint B, points will be awarded only once for crossing the wedge. Points will not be awarded if the bot crosses the wedge multiple times.

● 30 points will be awarded to arrive at Checkpoint C if and only if the bot is carrying Block 3 at that particular instant.

● 20 points will be awarded to keep Block 3 in the Deposit Zone 2.

● 30 points will be awarded to Land safely in the Sand Box while holding the Block 4.

● 20 points will be awarded to keep Block 4 in the Deposit Zone 3.

● In case bot falls/ crosses the referred path then 10 points will be deducted and bot will be placed at the previous Checkpoint corresponding to that zone as shown in Fig. 1.

SCORING:

● A = Points scored
● P = Penalties
● T = (360 -Time taken in seconds)
● Total points scored = A + T - P
● The team with maximum points will be 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.

CERTIFICATE POLICY:

● Top three teams from Each Zonal Qualifiers will qualify for the Grand Finale at Techfest 2017-18 which will be held during 29th-31st December.

● Top three teams in the grand finale will be awarded Certificate of Excellence.

● Certificate of participation will be given to the teams scoring more than the critical marks which will be decided later.

TECHFEST OFFICE
STUDENTS' GYMKHANA, IIT BOMBAY
POWAI, MUMBAI
MAHARASHTRA - 400076