

**SANT LONGOWAL INSTITUTE OF ENGINEERING AND TECHNOLOGY
LONGOWAL(SANGRUR)**

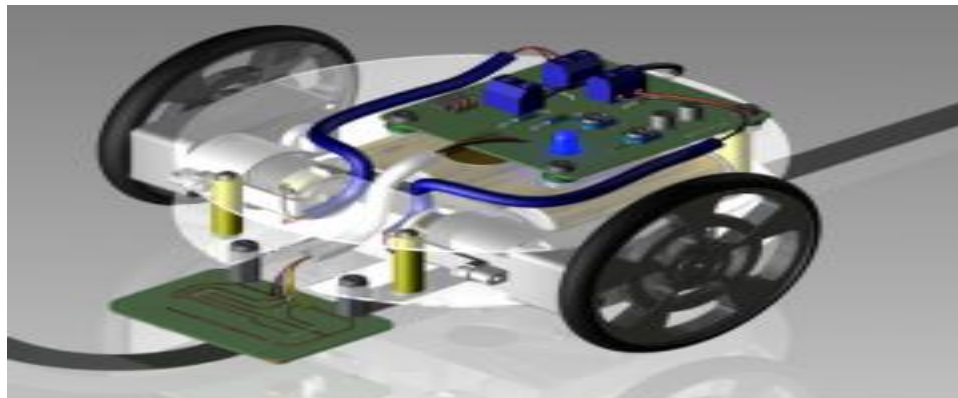
TECHFEST16

Rules for robotic competition

Events :-

1. Line tracer on land
2. Robotic hover craft
3. Robo race
4. Manoeuver
5. Robo exhibition

LINE FOLLOWER IN LAND COMPTETITION



Line Following Rules

Robots per Event: One

Length of Event: 3min

Robot Weight Range: 2kg(except batteries)

Robot Dimensions: W:15cm x L:15cm x H:15cm

Arena Specifications: 120" wide by 240" long

Robot Control: Autonomous

Engineering Principles: Mechanical engineering, electrical engineering, computer science, and sensors

Event Summary: The objective of this contest is for a robot to follow a black line without losing the line. The robot to complete the course in the shortest period of time while accurately tracking the course line from start to finish wins.

No. of members per team:2-5

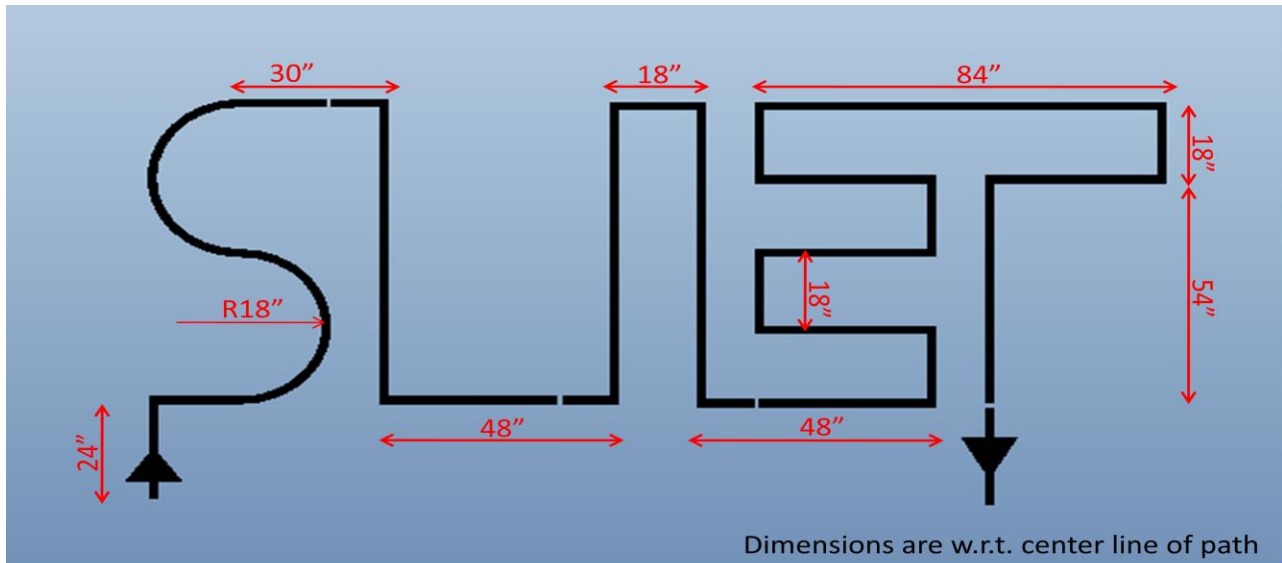
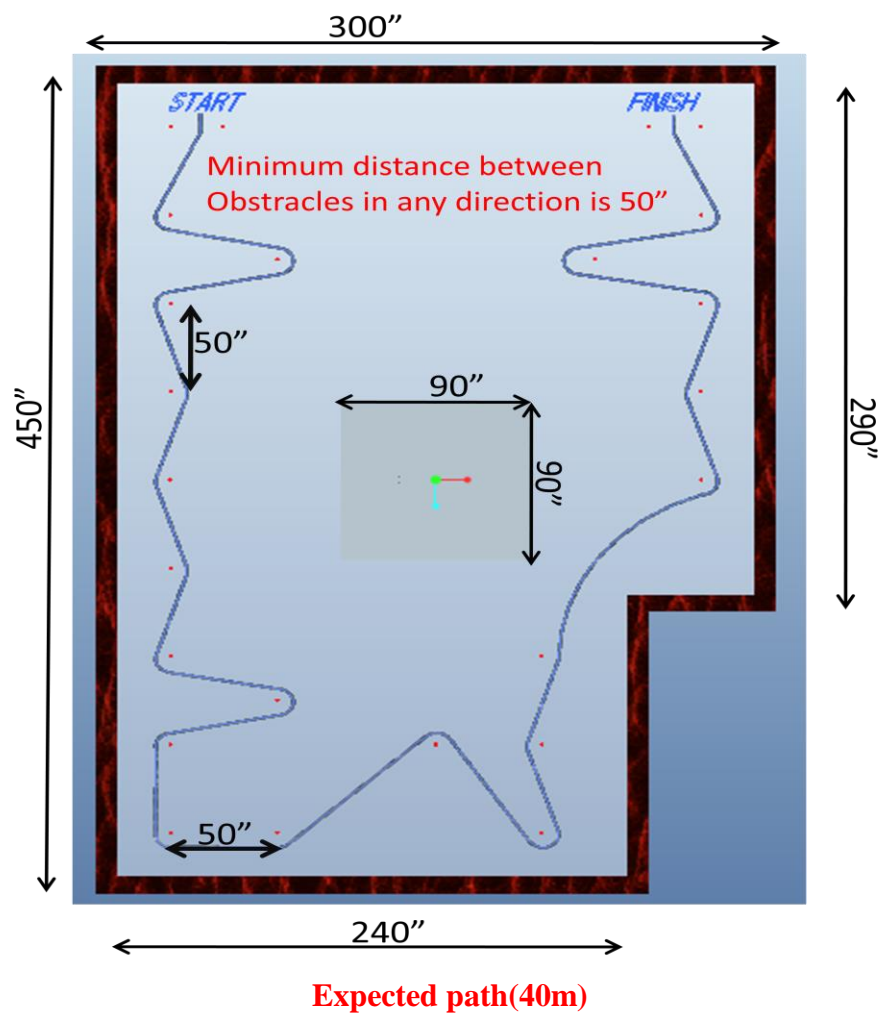


Fig. Path to be traced

- 1. Size and Weight Limits:** dimensional and weight limits for robots shall be strictly enforced. Robots must have passed inspection prior to competing.
- 2. Course Time:** time is measured from the time the robot crosses the starting line until the time it crosses the finish line. A robot is deemed to have crossed the line when the forward most wheel, track, or leg of the robot contacts or crosses over the line.
- 3. Time Limit:** a maximum of 3 minutes is allowed for a robot to complete the course. A robot that cannot complete the course in the allotted time shall be disqualified.
- 4. Timekeeping:** time shall be measured by an electronic gate system or by a judge with a stopwatch, based on the availability of equipment. In either case the recorded time shall be final.
- 5. Autonomous Control:** once a robot has crossed the starting line it must remain fully autonomous, or it will be disqualified.
- 6. Losing the Line:** any robot that loses the line course must reacquire the line at the point where it was lost, or at any earlier (e.g. already traversed) point.
- 7. Second Attempt:** any robot that loses the line course and fails to reacquire it will be allowed a single reattempt. The robot must start the course again from the beginning, and if it loses the line course on its second attempt it will be disqualified.
- 8. Power of Officials:** the decisions of all officials regarding these rules and the conduct of the event shall be final.
- 9. Track:** Track has white background and black strip over it which is 1" (1 inch) wide.

ROBOTIC HOVERCRAFT COMPETITION



Guidelines and Judgment

- i. Maximum number of participants 5 and minimum number of participant 2
- ii. A maximum dimension of hovercraft is not exceeding 30cmX30cmX35cm.
- iii. Teams must bring their own tools.
- iv. No computer hardware or software will be provided to the participants by the organizers. Therefore the teams are required to bring along at least one working laptop.
- v. The main race, which is the overall only winners deciding factor, is a timed lap. Only one hovercraft is allowed on the track at any given time.
- vi. Each team gets a chance to undertake one officially timed lap on the competition track.
- vii. In order for a hovercraft model to be considered in the final judgment, it must have covered the whole track, from start to end, without any external intervention whatsoever. Team members are not allowed to intervene with the hovercraft functioning once it is running the main race.
- viii. The organizers fully reserve the right to amend the track layout before the teams compete.
- ix. The organizers fully reserve the right to disqualify any team that violates the rules and regulations of the competition or its technical guidelines.
- x. The organizers fully reserve the right to disqualify any team showing or implying harmful, unacceptable behavior towards the organizers, other teams, or university property.
- xi. The judges' panel decisions are final and non-negotiable. No appeals will be entertained once the winners are declared.
- xii. Minimum distance from wall to pole is 25" (inch).

Note:- For more details contact

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ROBO RACE



RULES FOR ROBO RACE(SPRINT)

TASK:

1. The robots build by given dimension and specification will be allowed for game.
2. The rounds will be decided according to groups participated.
3. The robot which gains maximum points will be the winner.

RULES AND REGULATION

1. The team should not consist of more than 5 members from which one is a leader but not less than 2.
2. Each member from same college is mandatory.
3. The robot should follow the robot specifications provided.
4. Any deviation from the mentioned specifications will lead to disqualification.
5. Once the race begins, three hand touches are allowed, if your taking hand touch you have to start from last check point.
6. No test practice will be allowed on the main arena.
7. Terminals for charging the battery will be provided in the college.
8. The arena may subject to change before the commencement of any round.
9. If the Robot crosses a checkpoint, and moves off track, then the Robot would be placed back on the previous checkpoint crossed.
10. The decision of the judges will be final and abiding. Argument with judges in any form will lead to the disqualification of the team.
11. Only AC supply will be provided.
12. The race is 40m long.

ROBOT SPECIFICATION

1. Lego kits are not allowed.
2. Bot should be fit in 25x25x25cm³ box.
3. The net weight should not exceed 5 kgs.
4. However a tolerance of 5% is acceptable.
5. Power source should be on board (i.e., on the robot body placed in the arena).
6. Only wireless robot are allowed.
7. If RF (Wireless) controller is used, dual frequency is a must in order to avoid RF jamming. The dual frequency should be such that it can be switched to either frequency just before the start of the run. prefer bluetooth module.
8. The maximum allowed voltage to power the robot is 24V.

GENERAL RULES

1. The structure of the robot should not be changed during the competition.
2. If the robot by any chances deviate from the path, the robot will be kept back to the previous checkpoint.
3. During the game play, if any part of a robot is destructed/ dismantled/ damaged the participant will be given a timeout to repair at an expense of a penalty, while the next participant for will be called the play.
4. Only 1 timeout will be given for any participant and the participant will repair it.
5. A total of 5 minutes run time (arena time) will be given to every participant.
6. No readjustment is allowed during the run.
7. Participation certificate is for all team except winner team.

ELIGIBILITY

All regular students with a valid identity card of their respective educational institutes are eligible to participate in the event.

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MANOEUVER COMPETITION

MOTIVE

Nature has a beautiful phenomenon of Diffusion and we need to follow this for diffusing many important things beyond our planet. But the driving force for diffusion is completely destroyed by the zombies. Now all of it depends on few robots that can restore lives by providing the driving force. But are the few robots capable enough? Can they diffuse the things through the barriers in the path? Would they be able to restore back the almighty's driving force? We put you in charge to make this happen!!

MISSION

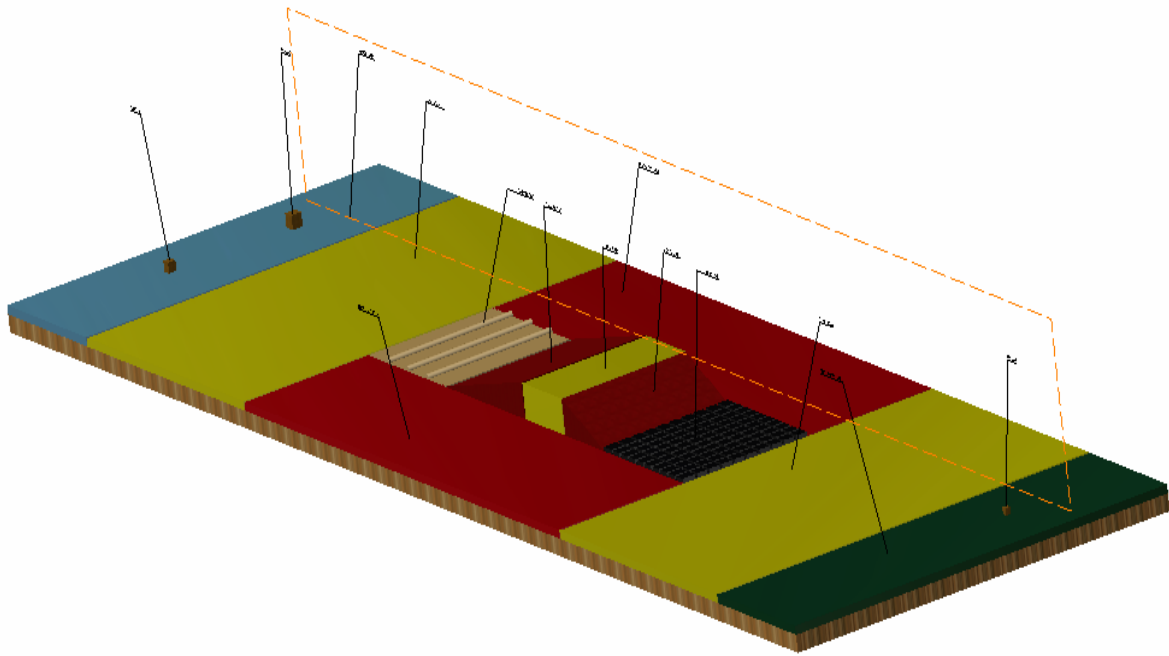
Gameplay consist of one bots from each team in order to correctly diffuse the boxes. The bot has to pick the box from one side and travel in the other side and then place the box on the other side. Arena has different obstacles and path for bot. A fixed time will be given in which each team has to diffuse the boxes as many as possible in their respective area.

GENERAL RULES

1. Each team can have a maximum of 5 participants and minimum of 2 from which one is leader.
2. A team may consist of students from different college.
3. No damage should be made by a bot to the arena or to other team's bots during the match in any manner.
4. Bots should not be disassembled until the results are declared.
5. The organizers reserve the right to change the rules and/or arena as they deem fit.
6. When a team is called for match, they must report within five minutes.
7. Judges/manager's decision will be final.
8. Participation certificate will be provided to all team members except winner team.

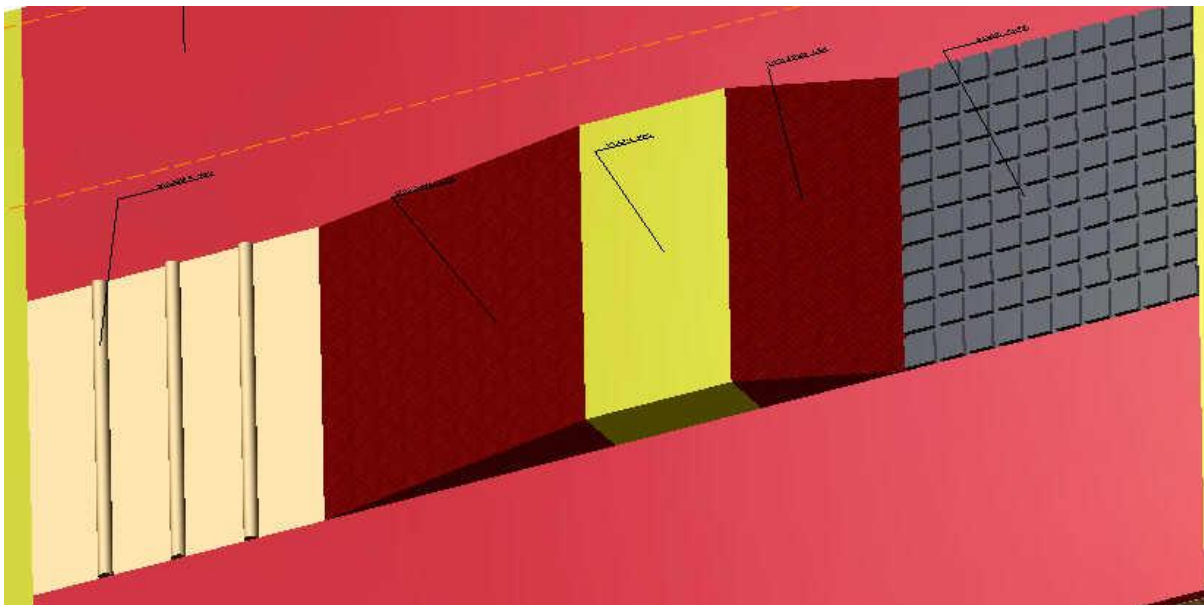
The top teams would then enter the FINAL round. The criteria for selecting top teams would be the total number of points scored.

1. PLAYGROUND



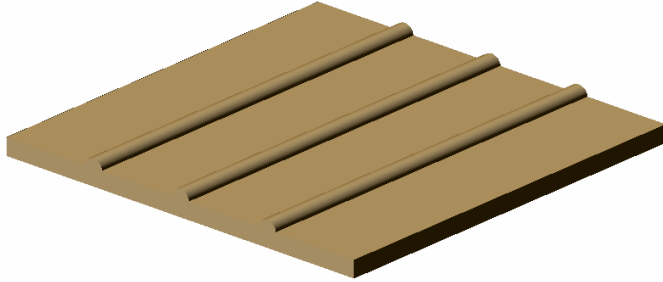
Playground is 5.5m long and 1.5m wide.

TOP SIDE VIEW



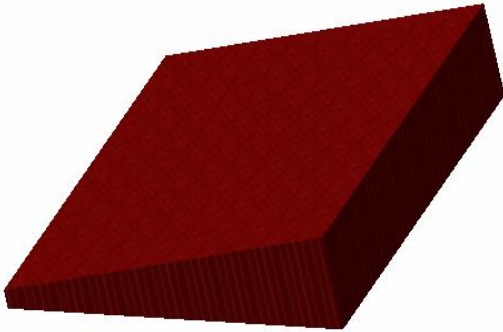
PLAY GROUND SPECIFICATION

1. BREAKER



Breaker is 0.5m long and 0.5 m wide. The breaker diameter is 25mm.

FIRST INCLINED PLANE



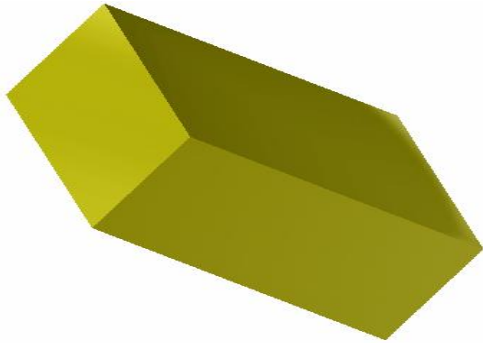
This is first incline which has 1m long base and 0.5 m width and 0.2m in height.

SECOND INCLINED PLANE



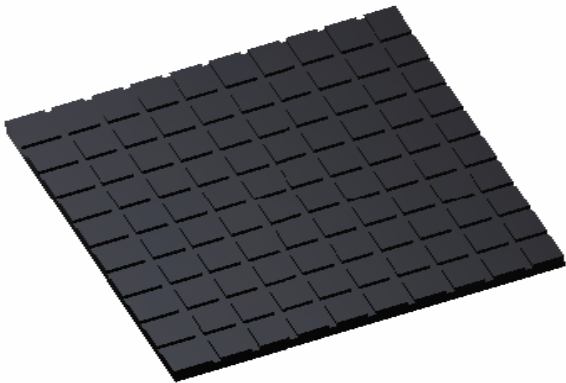
This inclined plane has base length 0.5m and 0.2 m in height.

PLANE BETWEEN INCLINE



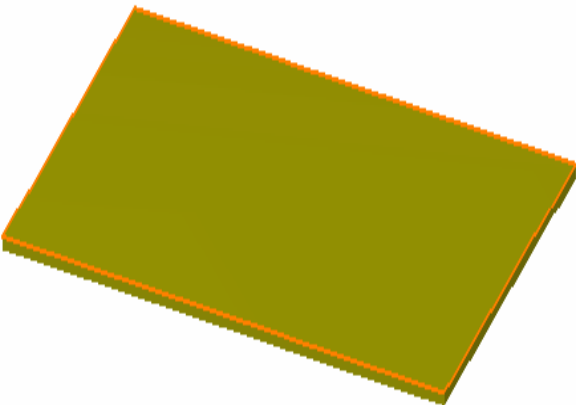
This plane is .5m long and 0.5m wide and 0.2m in height.

PEBBLES PATH



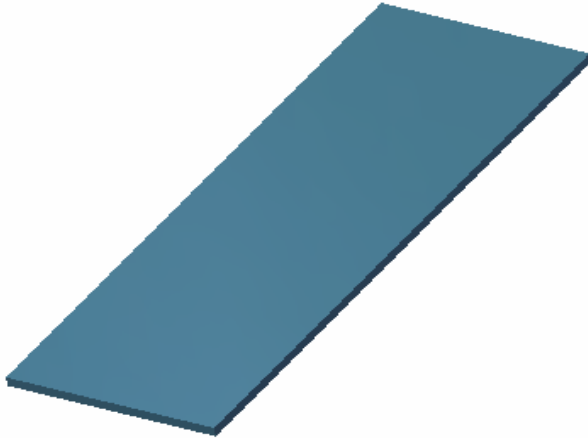
This is stone path and it is 0.5 m long and 0.5 m wide.

HORIZONTAL PLANE



There are 2 same horizontal planes. Both planes are 1m long and 1.5 m wide.

SOURCE



This is the source from where you have to start. This is 0.25m long and 1.5m wide.

DESTINATION



This is destination where you have to reach and place the block and back move towards incline. This is 0.25m long and 1.5m wide.

Bot specification

- Bot dimension should be fit in $36 \times 36 \times 50 \text{cm}^3$ (l \times w \times h).
- Flippers, grippers and other mechanism (if any) should be well within the given dimensions.
- The Robot must be stable and able to move on its own. A Bot not fulfilling these criteria will be disqualified.
- A robot is NOT allowed to move multiple boxes simultaneously.
- A robot can move the block ONLY by gripping it.
- The robot cannot have any mechanism that can damage the arena in any manner.
- The robots shall be inspected before the event. Failing the inspection shall lead to disqualification.
- Only AC supply is available.

- No DC power supply will be provided. Each team has to bring its own power supply for its robot
- Pneumatic/Hydraulic/Cutter/Projectile/Entanglement etc. mechanisms are NOT allowed.
- There are three types of block present which you have to grip are $8 \times 8 \times 8 \text{cm}^3$, $6 \times 6 \times 6 \text{cm}^3$ and $4 \times 4 \times 4 \text{cm}^3$.
- Bot can be wireless or wired.
- Wireless Control- If you are using a home built control system, or a control system not commercially available, you must first clear it with the Managers.
- However wire must not interfere with arena and it must be slack at every point of time.
- Bot should be able to grip, lift, carry and place boxes.
- Human Intervention is NOT allowed at any point during the game.
- The voltage difference between any two points on the bot must not exceed 24 volts.
- The judges can ask for an explanation of any mechanism on the bot and there would be an immediate disqualification of defaulters of any kind.

GAME PLAY RULE

1. you have 4 min to complete the game.
2. You start from source, pick the block and move towards incline plane .after reaching at destination you have to place the block where it fits.
3. After fitting the block you return from there by simple path (no obstacle) and reach again source and pick up the block and repeat step 2.
4. When the entire block fitted in destination place you have to return to the source and after that game is over.
5. According to the score team will eligible for 2nd round.
6. You can choose any block.

GAME SCORE

1. For successfully placing $4 \times 4 \times 4 \text{cm}^3$ block 5 points will be awarded.
2. For successfully placing $5 \times 5 \times 5 \text{cm}^3$ block 7 points will be awarded.
3. For successfully placing $6 \times 6 \times 6 \text{cm}^3$ block 10 points will be awarded.

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