



X-PORT

“At bottom, robotics is about us. It is the discipline of emulating our lives, of wondering how we work.” –ROD GRUPEN

Trekking, rock climbing, traversing through rough plain, have you ever experienced any such? Here, your bot will be placed in a challenging arena consisting of uneven, rough terrain and water. The bot should have a picker mechanism which can either pick or push the blocks to the deposit zone within a certain time limit. Aqua bot are also allowed to speed up the process.

General Rules:

- This is a team event. The maximum number of participants allowed in a team is 4.
- A team may consist of students from same/different colleges.
- A participant cannot be a member of 2 different teams in this event.
- Any action violating fair play will lead to immediate disqualification.
- The decision of the coordinators will be final & binding.
- Rules may be modified before the commencement of the event.
- The bots can be powered on-board as well as off-board.
- In case of off-board power supply the wires must be kept slacked all the time.
- It should be noted that the main chassis should remain the same throughout the event.
- The participants will be provided with 220 volts, 50 Hz standard AC supply. Participants will have to arrange for any other power supply required for their robot by their own.
- LEGO kits or its spare parts are not allowed, but the participant can use readymade gear boxes or bases.
- A single bot can be controlled by maximum two participants during the event.

Event Rules:

- Participants will have the choice to use a combination of bots from the given options:
 - A single manually controlled land traversing robot without a picking mechanism



- A single manually controlled land traversing robot with a picking mechanism
- A single manually controlled land traversing robot without a picking mechanism with a single manually controlled aqua bot.
- A single manually controlled amphibious bot.
- The land traversing bot will be placed at the starting point at the beginning of the event, from where it will start its journey through the arena, overcoming all the obstacles in its way and depositing as many blocks to the deposit zone within the given time limit.
- If an aqua bot is used, it can be placed anywhere in the water area at the beginning of the event. Extra points will be awarded for using an aqua bot in each block transfer.
- The size of the blocks will be $8*8*8\text{ cm}^3$.
- The water area in the arena will have a depth of 15-20 cm.
- The land bot and the aqua bot can be used simultaneously. However, a single bot is not allowed to carry/push/drag more than one block simultaneously at a time.
- If during transportation, a block falls out of the arena, the team can ask for a reset, after which, the block will be positioned at its default position. There will be a maximum of 3 RESETs, at the cost of -50 each.
- If the bot falls out of the arena, or topples upside down, the team can call for a HANDTOUCH, through which the team will be allowed to touch their bot to place it properly at the same location inside the arena. There will be a maximum of 3 HANDTOUCHs at the cost of -50 each.
- If the bot falls out of the arena more than thrice, it will lead to direct disqualification.
- In case of a technical issue or any mechanical or electrical failure of a robot, each team can have a TIMEOUT of maximum 2 minutes without any point deduction. However, after that 2 minutes, 1 point will be deducted for each second.
- There will total two rounds:

Preliminary round:

- There will be total 3 blocks/balls in the arena.
- Each team will be awarded with 100 points after dropping/depositing each blocks to the Drop/Deposit zone (50 points extra for using water way with an aqua bot or amphibious bot).
- Bot must avoid any contact with the red blocks or 50 negative points will be awarded for each contact. Dimension of the red blocks will be $5*5*5\text{ cm}^3$.



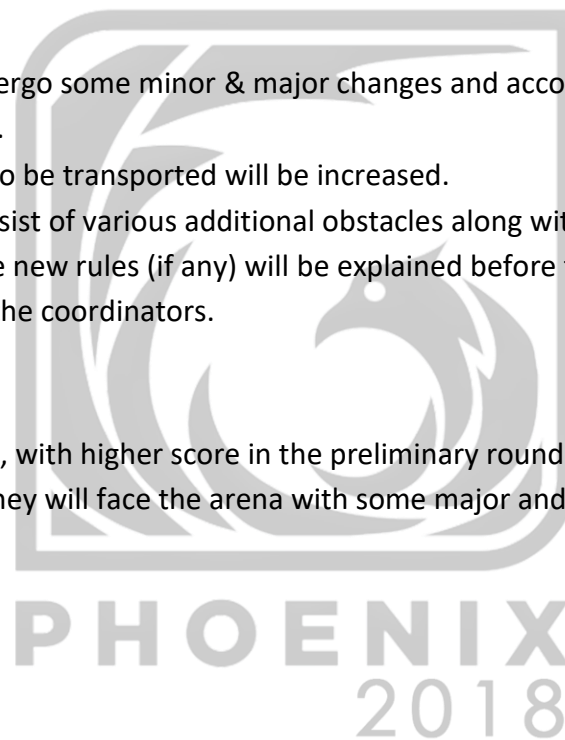
- The maximum time allotted for completing the task will be 5 minutes. If a team finishes the task before 5 minutes, 1 point will be awarded for each spare seconds.
- After 5 minutes, if the task is not complete, the team can carry on the task. However, 1 point will be deducted for each extra seconds, taken by the team to complete the task.
- The maximum inclination of the inclined plane on the rising edge will be around 30 degrees.

Final round:

- The Arena will undergo some minor & major changes and accordingly some new rules may be introduced.
 - Number of blocks to be transported will be increased.
 - The arena may consist of various additional obstacles along with sand dunes, bumpers, net-bridge etc. The new rules (if any) will be explained before the commencement of the final round by the coordinators.
- The top few teams, with higher score in the preliminary round will move on to the next rounds, in which they will face the arena with some major and minor changes.

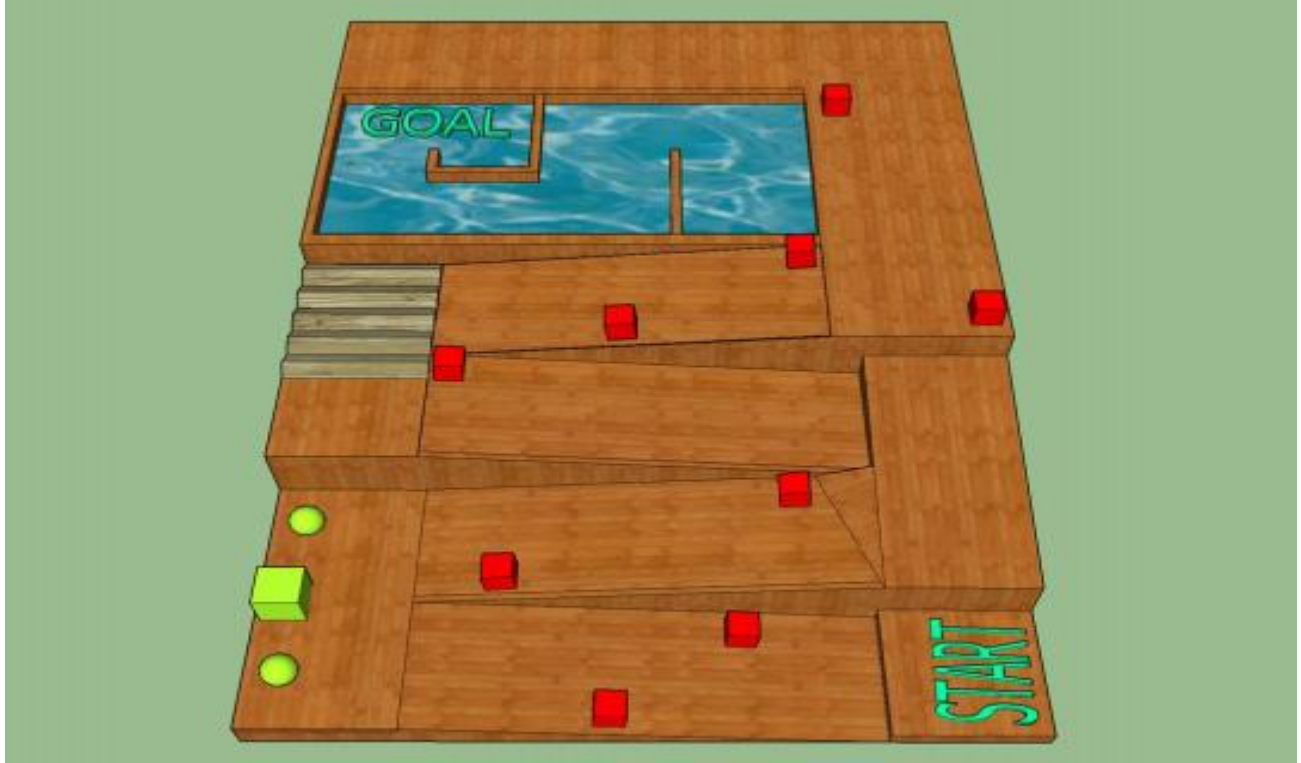
Sample Arena:

Preliminary round:

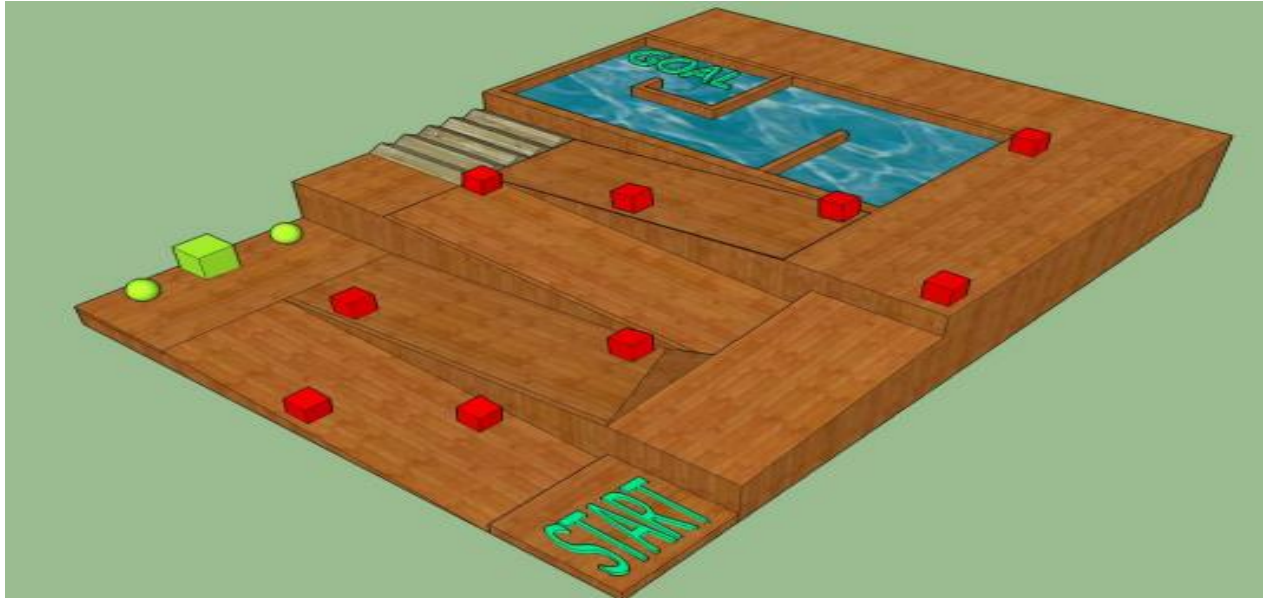




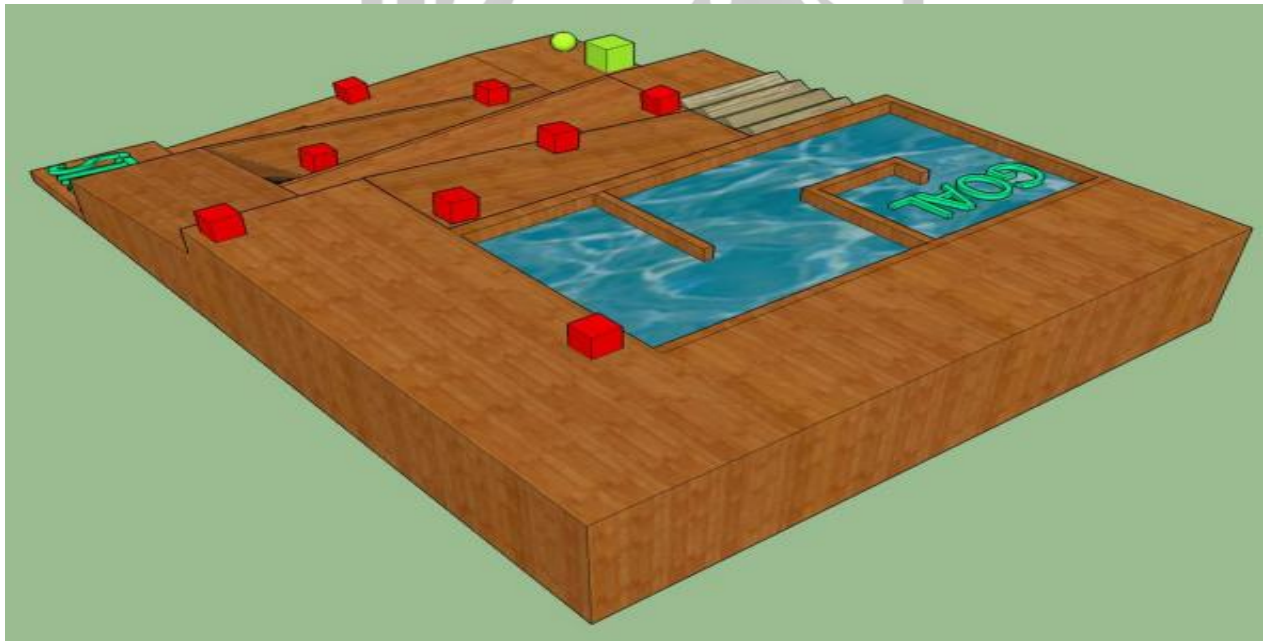
View 1:



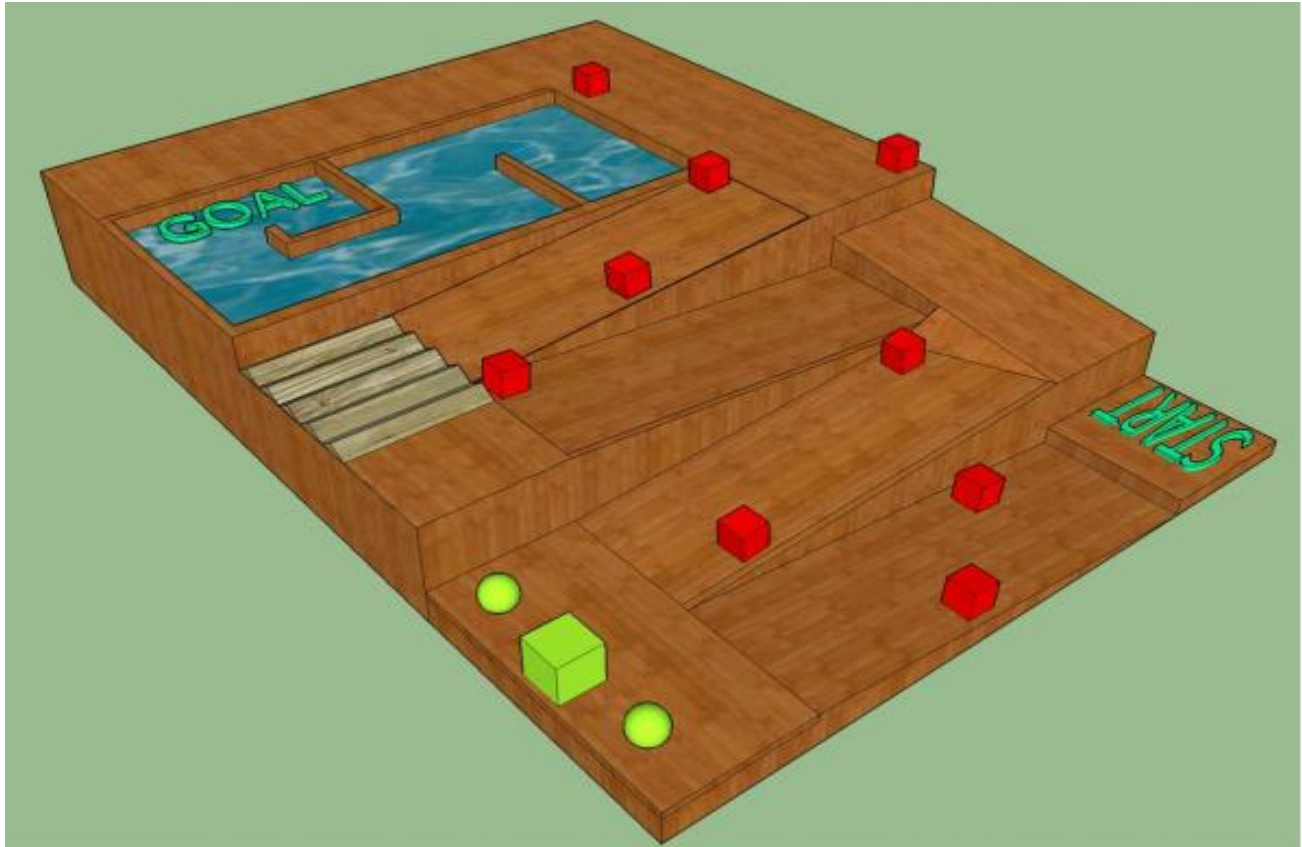
View 2:



View 3:



View 4:



PHOENIX
2018

The arena is subject to change.

Bot specifications:

Terrain or Land Bot:

- The maximum dimension of the bot must not exceed 30*30*30 cm³ during the starting of the event.



- Once the event commences the bot can expand to any limit.
- The maximum weight of the bot must not exceed 3.5 Kg.
- The maximum allowable voltage for the bot is 24 V.

Aqua Bot:

- The maximum dimension of the bot must not exceed 25* 25* 25 cm³ during the starting of the event.
- The maximum weight of the bot must not exceed 1 Kg.
- The maximum allowable voltage for the bot is 24 V.

Amphibious Bot:

- The maximum dimension of the bot must not exceed 25* 25* 25 cm³ during the starting of the event.
- Once the event commences the bot can expand to any limit.
- The maximum weight of the bot must not exceed 2.5 Kg.
- The maximum allowable voltage for the bot is 24 V.

PS: Rules are subject to change without prior information. The decision of the event coordinators will be final in regards to all the issues pertaining to the event.

Event Coordinators:

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