



2020年度通訊博物館電子裝置製作比賽

Museu das Comunicações – Concurso de Construção de Dispositivos Electrónicos, 2020
Communications Museum - Electronic Device Construction Competition, 2020

Supplementary Rules – Junior Secondary and Senior Secondary Team

Construction requirements: There is no restriction on the materials used, but ready-made device is not allowed. The device should consist of two parts: the “control unit” and “device”.

Functions: The “control unit” controls the “device” to carry objects up and down stairs in a specific area in a non-linear movement.

Dimensions: The “device” should not exceed 30cm x 24cm x 17cm (height); There is no restriction on the “control unit”.

Weight: There is no restriction on the weight of the “device” and the “control unit”

Power Supply Restriction: The device must use direct current of 24V or below. The organizer will not provide any power supply.

Competition System: The competition will be divided in preliminary, repechage, semi-final and the final.

- Preliminary: With 3-4 teams in one group, the first place of each group will enter the repechage. If more than 16 teams, the first place of the group with the highest score will enter to the repechage.
- Repechage: With 3-4 teams in one group, the first and second place will enter the semi-final.
- Semi-final: By drawing, not more than 4 teams will be assigned in one group and then divided into two groups. The team will be ranked in the group after the competition.
- Final: The first two teams compete to get the first and second place in the competition; the second place of two teams competes to get the third and fourth place and so on. Then, the first to eighth places in the competition will be selected in the final phase.

During the competition, the device should not be hanging on the pitch at any time, back and forth between the ground and platform, only passing through its own stacking stair.

Pitch :

- The competition will be on a square shaped pitch of 500cm (L x W), with four platforms in the pitch. Each team will be assigned to “its own platform”. The center of the square shaped pitch is marked with an area of 100cm (L x W), which is called "Building Blocks Pool", each team's platform is the same in size as follows:
- Platform: 80cm x 120cm x 20cm (height), one corner has 6cm x 24cm x 8cm (height) deficiencies. There are three 3mm pits on the platform, which are equilateral triangles with a side length of 6 cm, a hexagon with a side length of 3 cm, and a circular shaped with a diameter of 6 cm.
- There are two 40cm parallel lines on the side corner.

Three sizes of building blocks are placed in the pool:

A: 10cm x 12cm x 4cm (height), weight approx 111g

B: 10cm x 12cm x 6cm (height), weight approx 152g

C: 10cm x 12cm x 8cm (height), weight approx 177g

Target Object: There are three target objects on the platform, which are the hexagonal cylinder, the triangular cylinder and the cylinder. The Senior Secondary team and the Junior Secondary team will use these three target objects to help and complete the task.

Triangular cylinder: Length 5cm, Height 3cm, Weight approx 15g

Cylinder: Diameter 5cm, Height 3cm, Weight approx 40g

Hexagonal cylinder: Length 2.8cm, Height 4cm, Weight approx 32g



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Scoring method:

1) Competition Stage:

Senior Secondary team:

“Preliminary Competition” and “Repechage”: The team will build their stair steps on their own, and carry the target objects from the platform to the designated point on the ground will get 100 points. If two different sizes of building blocks are used to stacking stairs, the total score is multiplied by 1.1. If three different sizes of building blocks are used in the stacking stairs, the total score is multiplied by 1.2.

“Semi-final” and “Final”: Use the device to carry the target objects from the ground to the corresponding pit, the cylinder is 50 points, the hexagonal cylinder is 100 points, and the triangular cylinder is 150 points. **If two different sizes of building blocks are used to stacking stairs, the total score is multiplied by 1.1. If three different sizes of building blocks are used in the stacking stairs, the total score is multiplied by 1.2.**

Junior Secondary Team:

“Preliminary Competition” and “Repechage”: Within the specified time, use the device to carry the target objects from the ground to the corresponding pit, the cylinder is 50 points, the hexagonal cylinder is 100 points, and the triangular cylinder is 150 points

“Semi-final” and “Final”: Same scoring method but more obstacles will be added on the platform. Use the device to move these obstacles to facilitate its task. The task is to move the three target objects into the corresponding pits.

If the scores are the same in each game, the team completes in the shortest time will win.

There will be 8 finalists to be selected from the Senior Secondary and the Junior Secondary for entering to the presentation stage.

2) Presentation Stage:

After the teams finished the competition, they will enter to the presentation stage. Before starting, the sequence will be determined by drawing. Each team should present their work within 6 minutes. There will be followed by a Q&A session by the judges after the presentation. Finally, the judges will calculate the scores for the teams and their art works.

When the competition is finished, the score of the "Competition" and "Presentation" are combined as the final score.

Competition process

Senior Secondary Team:

“Preliminary Competition” and “Repechage”: Before starting, the team should place the "device" at their "own platform". The "device" must be placed on the parallel line, and the referee will signify the start of the each round. The team uses the "control unit" to control the "device" and move to the pitch, and carry suitable building blocks from the blocks pool to the platform to form stair steps, using the "device" to climb up to the stairs and reach the platform. And then moves the 3 target objects on the platform to the designated pit.

“Semi-final” and “Final”: Before starting, the team should place the "device" at their "own platform". The "device" must be placed on the parallel line, and the referee will signify the start of each round. The team uses the "control unit" to control the "device" to move to the pitch, and carry suitable building blocks from the blocks pool to the platform; the number of building blocks in the blocks pool will be reduced. Each team must reach to their own platform with their device thru limited resources. And then moves 3 target objects on the platform to the designated pit.



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Junior Secondary Team:

“Preliminary Competition” and “Repechage”: Before starting, the team should put the "device" at their "own platform". The "device" must be placed on the parallel line, and the referee will signify the start of each round. The team uses the "control unit" to control the "device" to move to the pitch, and carry suitable building blocks from the blocks pool to form the stacking stairs for climbing up to the platform. The device will carry 3 target objects on the platform to the designated pit.

“Semi-final” and “Final”: Same method with the “Repechage”, but there are more obstacles added on the platform. The team can use the “device” to move away the obstacles to facilitate them to carry the target objects into the designated pit.

During the competition, the device must touch the ground, the stairs and platform at any time. If the device fails, the device can be withdrawn after the referee's permission. Any building blocks in the pitch area are available to use, but it is not allowed to remove if the device is located on the parallel lines of other team's platform.

Timeout and Maintenance: No timeout is allowed during the game. If the device fails during the competition, the team can repair their “device” outside of the pitch area after the referee's permission. The component can be replaced but it is not allowed to add or remove. While the device is repairing outside the pitch area, the target objects or building blocks need to be put back at the starting position. The device should be placed on its own parallel lines after finishing repairing, and continue the competition after the referee's instructions.

Unable to separate: If there are two or more devices twisted in the pitch, the referee has the right to request the teams that are twisted together to separate immediately before continuing the match. In case of unable to set apart the devices, the referee has the right to enter the pitch area and separate the devices before continuing the match. The referee may slightly adjust the time according to the number of teams that are twisted.

Violation of rules:

Teams will be disqualified depending on the severity of violations, as regulated below:

1. Intentionally causing damage to the pitch or objects during the competition.
2. Touching the device or target during the competition without pre-approval.
3. Dimensions of the device do not meet the specifications listed in the rules and regulations.
4. Maliciously blocking other teams and their devices from entering the competition area.
5. Participants deliberately damage the stair steps of other teams.
6. Using devices that have not been inspected by the organizer.
7. Using a qualified battery that has not been inspected by the organizer.
8. Team members enter the restricted pitch area during competition without permission.
9. Disobeying the instruction of the staff, interfering or stalling the competition.
10. Violations, insulting or abusive words of participating teams.
11. Violation of the principles of fair play.

Others:

1. All teams should pay attention to electrical safety.
2. Maintenance tools shall be prepared by the participating teams. The organizer shall not provide them.
3. Participants are allowed to use the test pitch at the museum during opening hours before the competition.
4. Should any dispute arise, the decision of the organizer shall be final.



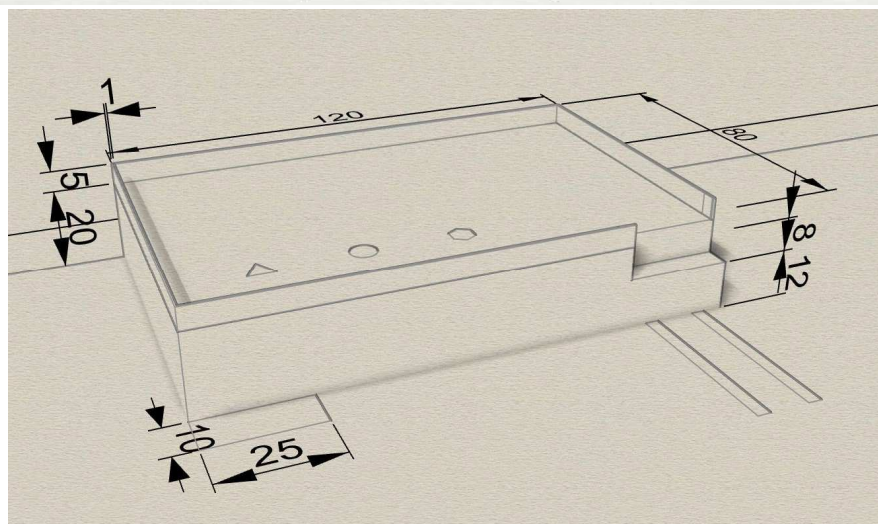
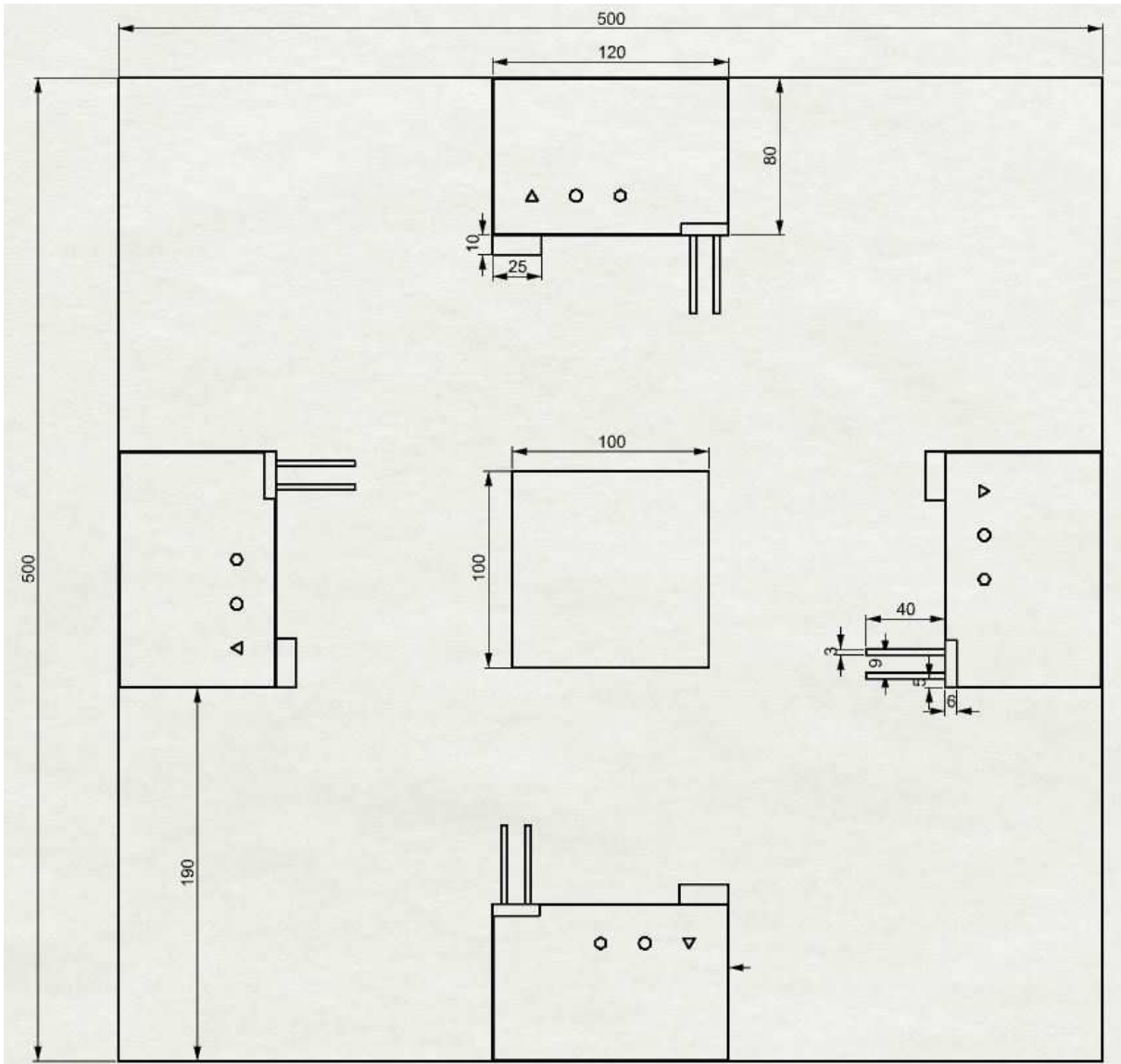
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5. Final decisions shall be made by organizer should any unexpected situations happen during the competition.
6. In case of any discrepancy in the different language versions of the regulation, the Chinese version shall prevail.

¹ When the device twisted together and need to be separated will be the decision of the referee and not by the team, the referee has the right to question about the twisted situation during the competition.

Pitch Size





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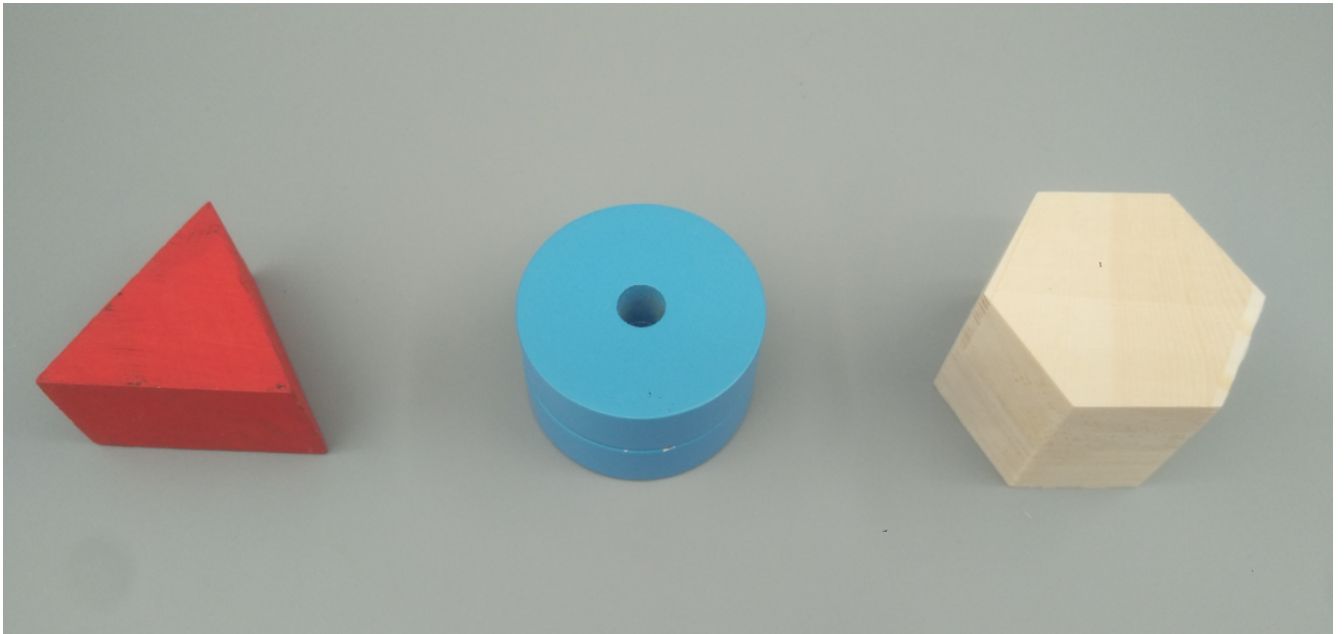
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Target Object

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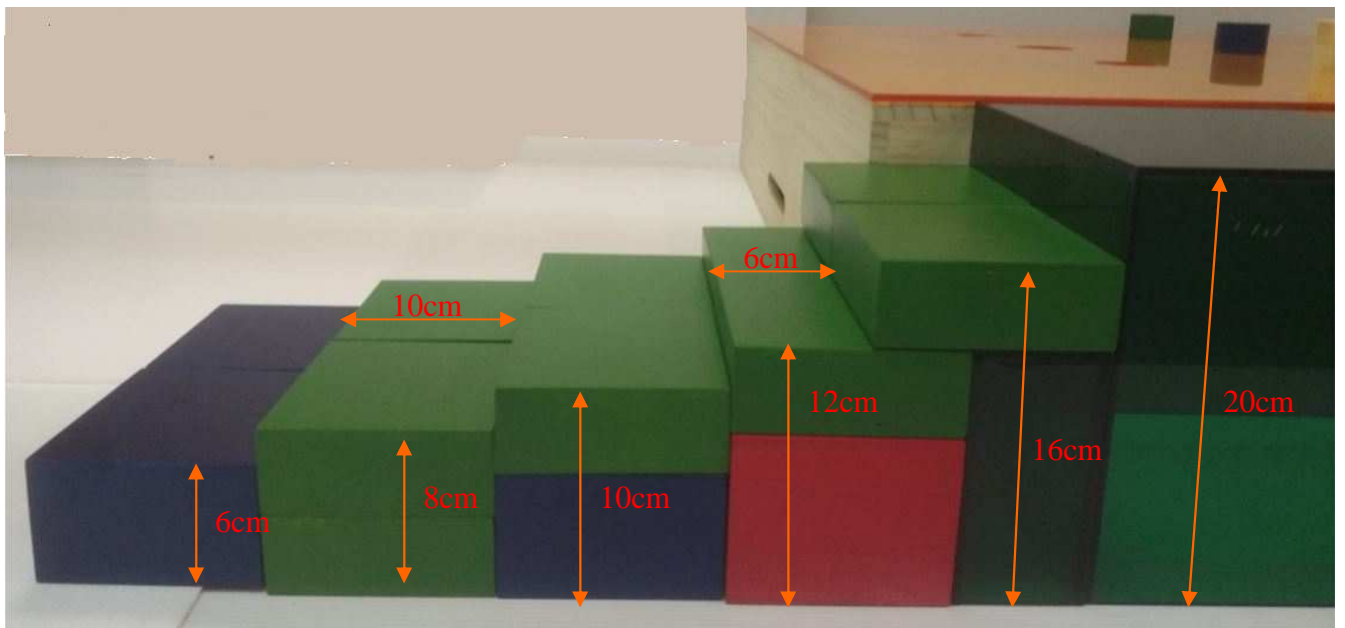
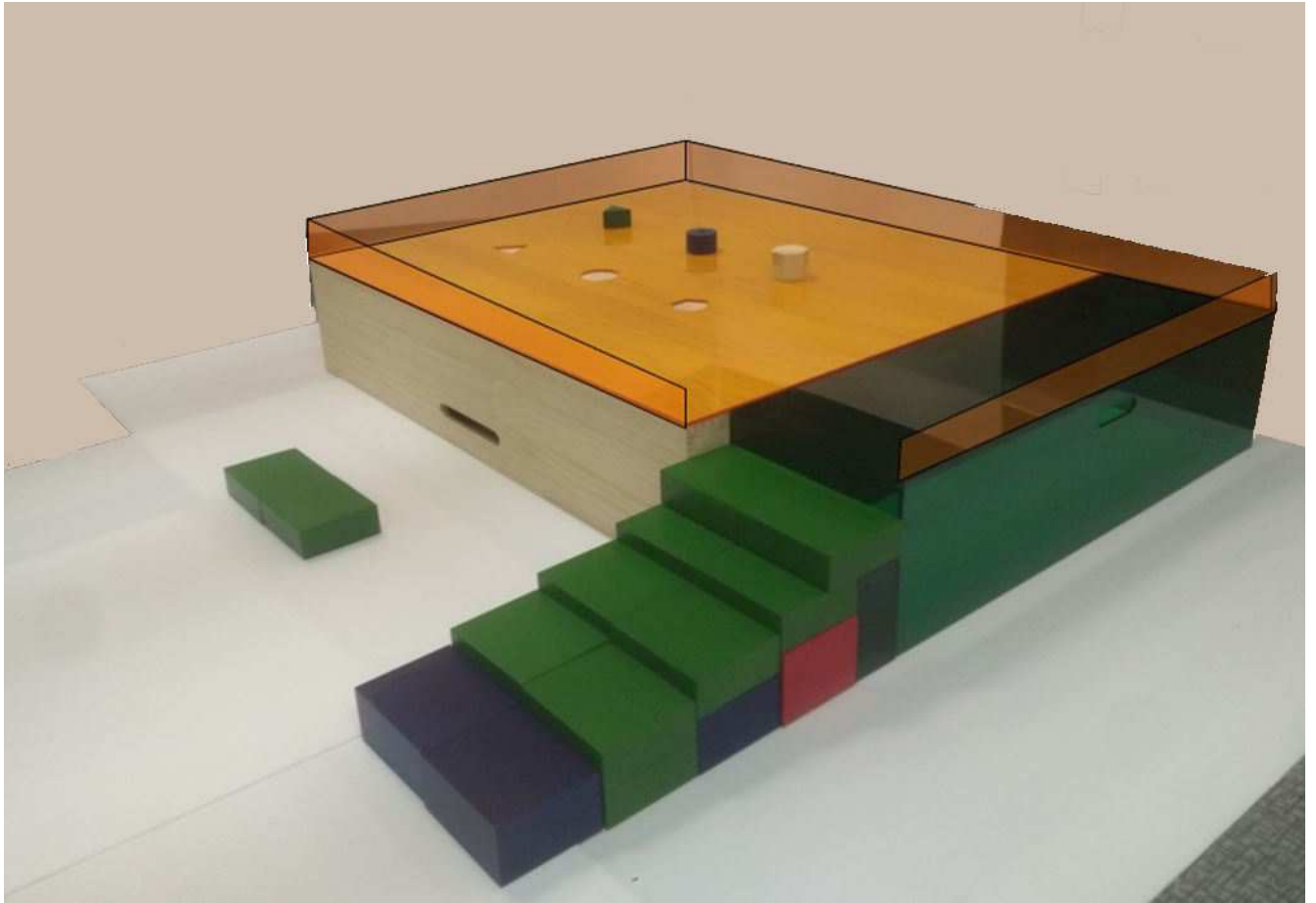


Junior Secondary Team Startup Stair



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Senior Secondary Team Startup Platform



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