



2015年度通訊博物館電子裝置製作比賽

Museu das Comunicações – Concurso de Construção de Dispositivos Electrónicos, 2015
Communications Museum - Electronic Device Construction Competition, 2015

Supplementary Rules – Junior and Senior Groups

Specifications: There is no restriction on material used, but **ready-made device** is not allowed.

Device should consist of two parts which are “Controlling module” and “Gaming module”. “Gaming module” should consist of a “Moving unit” and a “Collecting unit”.

“Controlling module” drives “Gaming module” to move and collect targets during competition, operated by one participant using a non-wired controller.

“Moving unit” will be controlled by “Controlling module” and DC motor should be used for driving the device.

“Collecting unit” is the part which can collect and unload targets at a specific position during competition.

Operational function of the device: Device should be able to move to a specific point to collect targets and unload on the scale at the specified position with the use of “Controlling unit”.

Size:

“Gaming module” should not exceed *20cmx25cmx30cm* (height), while there is no restriction on “Controlling module”.

Weight: No limitation.

Source of power: “Gaming module” should be driven by and limited to a maximum of 12 AA batteries at one time, while there is no restriction on “Controlling module”.

Competition format:

Competition will be divided into junior and senior sections, each with two phases - “Group stage” and “Knockout stage”.

In the “Group stage”, each group will consist of seven to nine teams. Depending on the total number of competing teams, there may be two or more rounds of “Group stage” before proceeding to the “Knockout stage”. In each round of “Group stage”, four teams will be selected based on the total weight of targets on their scales. The four teams that have the weight closest to but not exceeding the “objective weight” will be selected to enter the next round of “Group stage”. The same format of competition will be repeated for the subsequent rounds of “Group stages” until the last eight finalists are reached. These eight finalists are obtained by selecting **ONLY** the first two teams with the highest scores from each group in the last round of “Group stage”.

In the “Knockout stage”, the game will be a **one-to-one, single-elimination competition**. Results will be determined by the same rules as in the “Group stage”.

Scoring System:

An “objective weight”, with 10g as the scale interval, will be drawn by the judge before each game. The result of each game is determined by the weight number displayed on the scale of each team at the end of the game (**the single digit of the scale will be omitted, see the following table**). However, if the number after omitting the single digit is still greater than the “objective weight”, the result of that team will not be counted for that game. If two or more teams have



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the same weight number after omitting the single digit, the team(s) with the lighter “Gaming module” (**not including the maximum amount of 12 AA batteries used to drive the module**) will win. Please note that the results of each game will not counted in the next round.

Sample : The number displayed on the scale at the end of the game.	Actual result after omitting the single digit
300	300
354	350
355	350
399	390

The Pitch:

The Pitch is a circular area made of acrylic, with a diameter of 300 cm. Inside the centre at the same horizontal level of the pitch, there is another circular area with a diameter 120 cm, targets of unknown quantities and weight will be put inside this area and 9 scales will be put around the border outside the pitch. In “Knockout stage”, the diameter of the pitch will reduce to 120 cm and the circular area inside the pitch to 40 cm and targets of unknown quantities and weight will be put inside this area. The number of scales will reduce to 2 pieces. A schematic diagram of the Pitch is shown in Figure 1.

Targets:

Targets of unknown quantities and weight will be put inside the circular area at the centre of the pitch. The following are the types of targets: eraser, pencil, plastic tape, paper clip, binder clip, 9V battery, D battery, 100g balance weight, soldering wire, bottled water, soap, marble, toilet roll, plastic box. Details of the targets are shown in Figure 2.

The range of “objective weight” drawn by the judge before each game is between 200~800g for the “Group stage” and 200~500g for the “Knockout stage”.

During the competition, if targets are broken into several pieces by accident, each collected broken piece is still valid and will be counted for score calculation. Participants shall not intentionally damage the target; otherwise, there may be a penalty.

Sequence of competition: The grouping for the teams in the first round of “Group Stage” will be determined by drawing before the competition day. The starting positions of the teams in each game will be determined by drawing before the start of each game. After each game, the advancing teams will draw again to determine the grouping in the next round of “Group Stage”. After the last round of “Group Stage”, the final eight entering the “Knockout Stage” will draw together to determine their positions at the “Knockout stage”.

Flow of competition:

The competition time of each round of “Group Stage” and “Knockout Stage” is 8 minutes. During the game, a timeout will be set at the 2nd and 5th minute. Before the game starts, each group will draw to decide their starting position and



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appoint one team member as the “operator” to operate the “Controlling module”. Once all teams are ready at their starting positions, the judge will draw the “objective weight” and signify the start of the game. During the game, the operators can control their devices to move and collect the targets either from the pitch or other teams’ scales. Next, controllers have to unload all collected targets onto their respective scales. During the game, the device and the targets on the device can move out of the pitch. If the targets, however, moving outside of the pitch touch the ground, the staff will confiscate these targets and they cannot be re-used throughout the game. After completing the game, the staff will record the results displayed on the scales and judge will decide on the winning teams.

Timeout:

During each game, a timeout will be set at the 2nd and 5th minute, allowing participants to get back their device from the pitch for maintenance. The length of the timeout will be decided by the judge. **During the timeout, all participants must stop controlling their devices until the end of the timeout.**

Before each timeout, the judge will ask and arrange teams in need to enter the pitch to take back their devices for maintenance. After the necessary teams have taken their devices and stepped away from the pitch, the judge will call off the timeout and the game will continue. If the teams that have taken out their devices wish to enter the game again, **they must clear all the targets from their devices** and put their devices at the starting position.

During the timeout, the teams that do not need to take their devices out of the pitch should remain their devices stationary at the same position as they were before the timeout. Wait until the timeout expires and resume the game. Then they can move their devices again to continue playing the game.

If any team’s device inside the pitch is moved actively during the timeout, then the device will have to be taken out of the pitch. In order to re-enter the game, the team has to clear all the targets and put the device back at the starting position. Except for the timeouts, participants shall not touch any part of the devices inside the pitch during the competition.

Maintenance:

Participants can repair their device **outside the pitch** at any time. **If any repair work is required for device when it is inside the pitch, before entering into the pitch to get their devices, participants should wait until the timeout and obtain the judge’s consent.** They should wait until the end of the timeout before performing the maintenance. Targets collected on the device before the timeout should be cleared and discarded before the team re-enters the game. The discarded targets cannot be re-used. During the maintenance, the competition will continue. **The targets put on the scales can be kept and counted.** After the maintenance, the teams have to put their empty devices back to the starting position in order to resume the game.

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

Intentionally cause damage to the pitch or targets during the competition.

1. Participants touch the device or move objects on the scales during the competition without consent from the staff.



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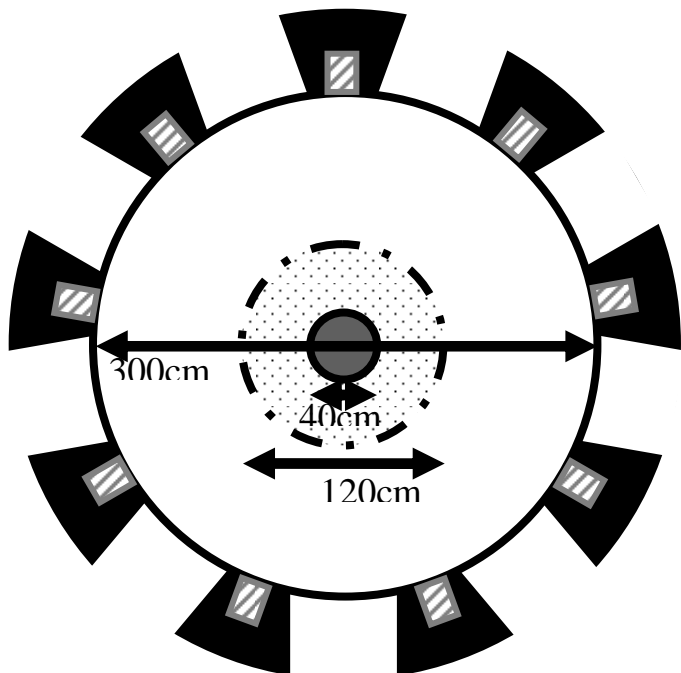
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2. The dimensions of the device do not meet the specifications listed in the rules and regulations.
3. Participants use devices that have not been inspected by the organizer of the competition.
4. Without permission from the staff, participants enter into the restricted pitch area during competition.
5. Participants do not follow the instruction of the staff, interfere or delay the competition.
6. Participants make violations, insulting or abusive words.
7. Participants violate the principles of fair play.

Others:

1. All participants should pay attention to electrical safety.
2. Tools shall not be provided by the Organizer.
3. Before competition, all participants are welcome to use the testing pitch at the museum during opening hours.
4. Organizer reserves the right of final decision in case of disputes.
5. Final judgment and decision will be made by organizer if emergency situation happened during the competition.
6. In case of any discrepancy in the different language versions of the regulation, the Chinese version shall prevail.

Fig 1 - Schematic diagram of the Pitch:



Scale



Starting position

Fig 2 – Targets:

