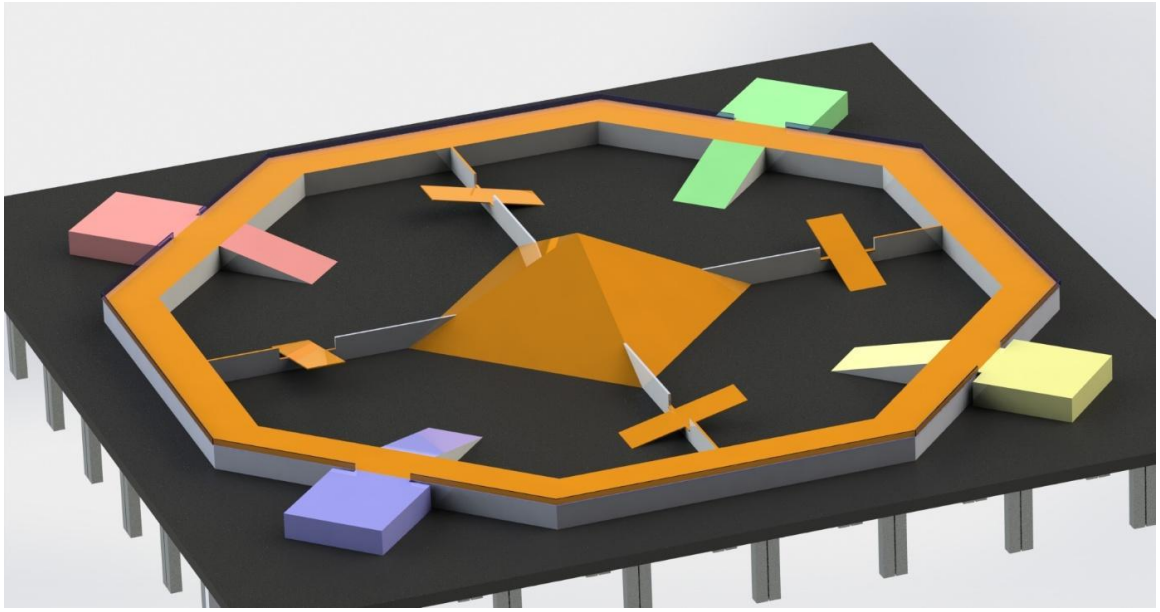
Rules for Competition 1

Engineering Physics' Robot Competition 2023



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1 Description

The teams have **8 minutes** to place 8 spheres in cups scattered over the playing field. Each team starts with two piles of 4 spheres below the pyramid in their zone. The sphere has a **diameter of 6 cm** and the spheres are the same color as the team's nest, with the exception of the pink team, which has red spheres, i.e. the team that starts in the green nest gets points for the green spheres that are in cups, etc.

All cups are identical and each cup is deep enough for a sphere to remain in it, but at the same time low enough that a robot can easily run over an empty cup. Teams may place their spheres in any cup. There are three cups on the ground in each team's zone and the pyramid in the middle has its tip replaced by a plateau, where only one cup is placed. There are also four cups in total around the rim in close proximity to each team's nest. The placement of the cups is illustrated in Figure 1.

2 Rules

It is allowed to move more than one sphere at a time, including the other team's spheres, whether they are already in a cup or not. When moving other teams' spheres, they may only be pushed, not picked up. If a sphere ends up outside the playing field, that sphere is out of play.

It is forbidden to enter the nests of other teams. See the document *General rules for the main competition* for additional regulations.

3 Assessment

The points collected in this competition are added together with the points from *Competition 2* to determine which teams advance to *the Final*. As it is allowed to push spheres away from cups, only points are counted for the spheres that are in cups when the time is up. The point value of a sphere in a cup is determined by the cup's position in relation to the team's nest:

- 1 point per sphere placed in the same zone as the team's own nest,
- 2 points per sphere placed outside the own zone, including up on the rim,
- 3 points for a sphere placed on the plateau of the pyramid.

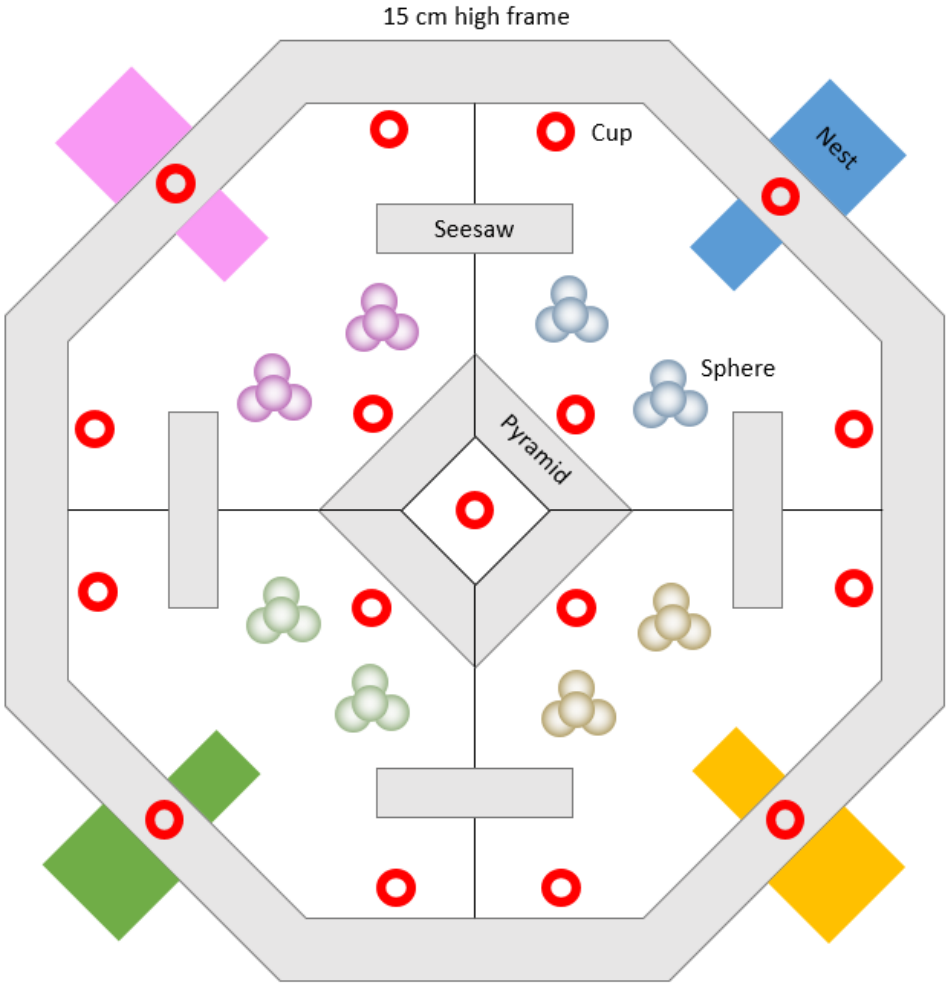

Figure 1. Illustration of the competition course, where the cups are marked in red. The figure is not to scale, so the size of the cups and spheres and the placement of the spheres on the track are only symbolic. Note that the top of the pyramid is flat.