

The Rule of 2019 AUT CUP “RoboSot Race”

Version 1 - English

Competition Rule

Robots need to find the balls and obstacles automatically with Camera and LiDar.

Meanwhile, avoiding the obstacle and taking the ball to the specified area.

1. Every team is limited with one robot only.
If a team signs up for application group and developed group, two robots have to be prepared.
2. The “design” of the development group can’t be more than %50 percent similar to TB3 platform or other commercial platforms, who violated the rule will lose their qualification after verification.
3. Every team has 3 rounds to challenge, and they have 3 minutes per round
4. Robots have to start from start point. The start point is in the middle of soccer field.
5. Referee will place 15 baseballs randomly in the field. There are 5 colors amount red, black, blue, yellow, white, and each color has three balls as shown in the figure 1.
6. Referee will place 15 obstacles randomly in the field. The size of obstacles as shown in figure 3.
7. Before the game start referee will draw lots to decide the color of challenge team. The designated color of each team may not be the same.
8. Participants will get double score if their robot push their specified colored ball into the corresponding area. For example, pushing the yellow ball into yellow area.
9. After the game starts, robots have to search the ball by themselves and push the ball into specified area
10. Each robot must be automatic in this competition. During the competition human manipulation is not allowed, who violated the rules would be warned or deducted. If the situation is serious the robot will lose qualification.

11. The competition begins when referee whistles. Do not active the robot until referee whistle. Violators Will be warned and restart the competition. In severe cases, eliminated.
12. Participants are not allowed to hinder the competition or postpone the contest which violated the rule seriously would lose their qualification.
13. The competition works are designed to meet the need of checkpoint. Therefore, the weight and this size can't affect or destroy the venue. If there are any influencers, they will be eliminated after verification.
14. Each team has to obey the judgment by the conference review.
15. The factors caused by venue that may disturb the competition must be solved by themselves.
16. The organizer preserves the rights of interpretation for the competitions rule.
17. It has no limits of the robot to push the ball. Every team can design the robots by themselves.



Figure 1 Playing Field

Playing field and size restrictions

1. The playing field is the half of soccer field. As shown in figure 1.
2. The playing field is $400(cm) \times 300(cm)$.

3. The size of robots is limited to $180\text{ (mm)} \times 220\text{ (mm)} \times 240\text{ (mm)}$ in developed team.
4. It is allowed to add camera on TB3 platform in application group, but the size of robot cannot exceed $180\text{ (mm)} \times 220\text{ (mm)} \times 240\text{ (mm)}$

Competition objects

1. The ball consists of baseball that the International Major League Baseball rules.
2. The goal is divided into 5 areas as shown in figure 2.
3. The obstacles size as shown in figure 3.

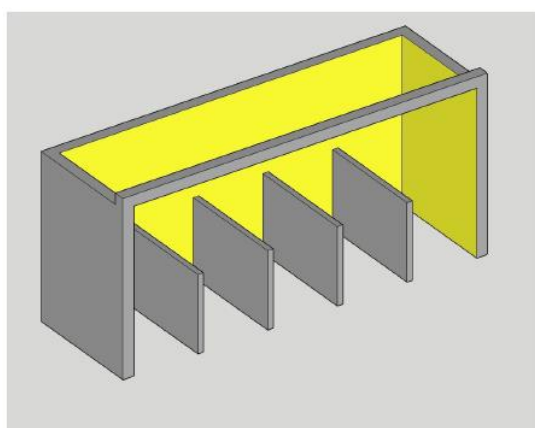


Figure 2 The five areas of the goal



Figure 3 The obstacle

Score

Situation	Modified
Pushing the ball with specified color into the correct area.	+30
Pushing the ball with unspecified color into the correct area.	+10
Pushing the color ball into un-corresponding area.	-10
Every time the robot touches obstacle three times.	-5
Bringing the ball out of bounds.	-10

Others

1. If there are too many teams, the game may be played at the same time in the left and right half to avoid delays in the schedule.
2. The total score must be greater than zero point to qualify for the award.