SuperTeam Technical Challenge - Open and Lightweight

“The SuperTeam”

Goal

As a SuperTeam of three RCJ Soccer teams your task is to have your robots solve one of these challenges each such that the combined time they take to solve all tasks is as short as possible and submit a video of your robots solving the challenges by the deadline.

Description

- The SuperTeam challenge has always been about collaboration between various teams from all around the world. That’s obviously much easier to do physically but we still think it can be interesting to do something at least somewhat similar in this year’s virtual setup.
- As a SuperTeam of three teams, you will be given three challenges, with the task of completing all of them in the shortest time possible.
- Each team has to do exactly one challenge.
- Each challenge can either be passed or not -- their grading is binary.
- The duration of each of the challenge times will be summed up into a single number representing the SuperTeam Challenge duration.
- The shorter the duration the better.
- *(The challenges can be found on the next page)*

Grading

- The result of the SuperTeam challenge will be the sum of the duration of each of the respective challenges. The faster you are able to do them the better.
- For each of the challenges you do not pass you will incur a 5 minute penalty.
- If you miss your interview or if your presentation is longer than 3 minutes, you will also incur a 5 minute penalty.

General Guidelines

- The video must include your team name, league and the number of this challenge.
- The video of your robot solving the challenge must be one take, without any cuts.

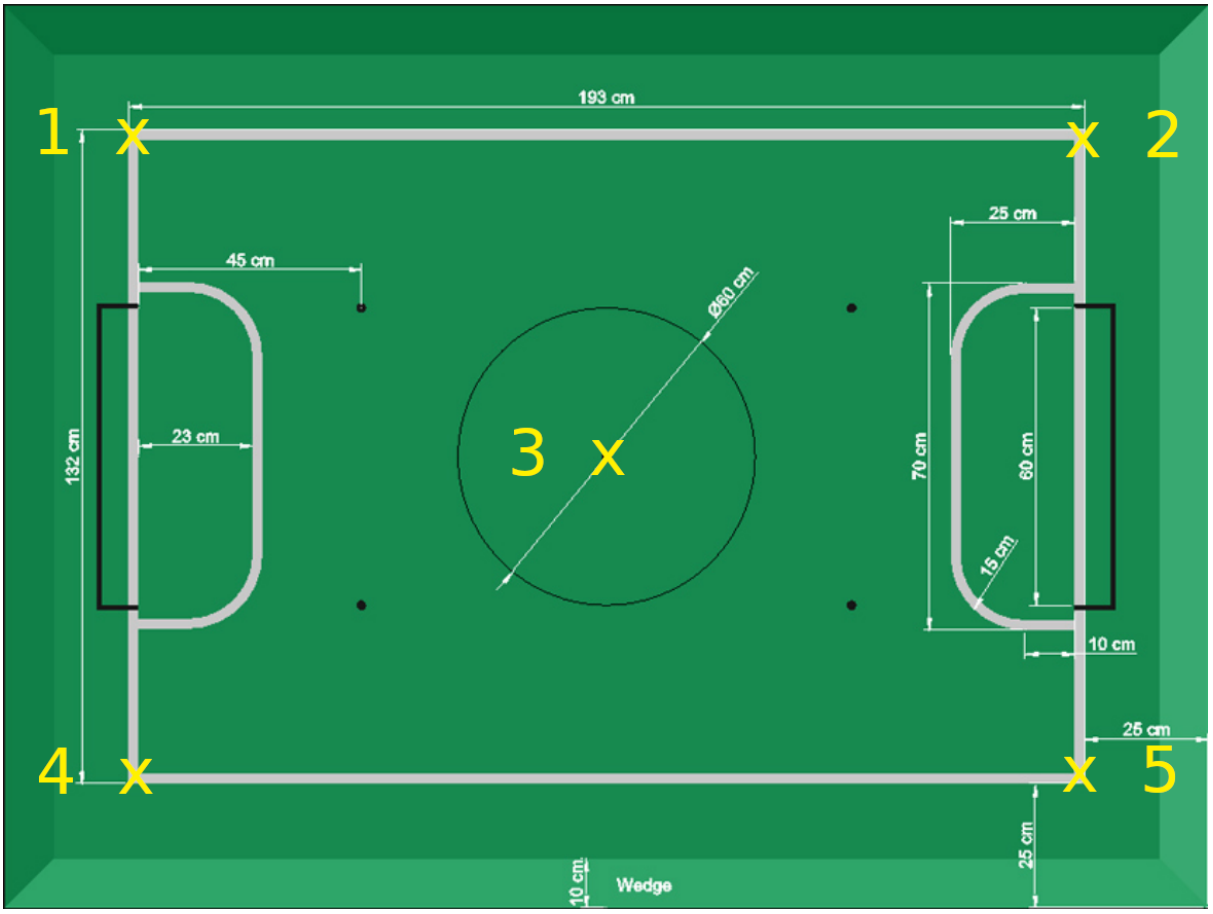
- The video must be uploaded to youtube.com or vimeo.com.
- Please send in your video submission **until June 24rd, 3pm UTC** here: https://forms.gle/T5RQYCpmXJMNeQ7e9

The challenges

Challenge 1: Spot Marking

*Full disclosure: this challenge is largely inspired by the suggestion from **LPNMarco_Soccer** [on the forum](). Thanks a ton!*

There are 5 “spots” marked on the standard Soccer field: one on each white corner of the field and one in the center field.



The task of your robot is to detect each of these and display/beep/otherwise notify the observing humans which “spot” is it currently being located at.

The challenge process:

- Throw a die. If you throw the number 6, throw again.
- Place your robot in one of the penalty areas
- Physically (with wheels turning) push your robot to “spot” with the number the die shows and let it notify you which “zone” it is in. Only touch the robot's handle.
- Once it indicates where it thinks it is, throw the die again and push the robot to a second and third “spot” and let the robot notify you where it thinks it is each time (if you throw a number you already had don’t move the robot and throw again)

You only pass this challenge if the robot correctly identifies all three “spots”.

Challenge 2: “Straight forward”

As the name suggests, this challenge is very straightforward. The task of your robot is to never leave the half it started from and shoot a goal into the opponent’s empty goal. It starts from a position of your choice, gets three shots where for each shot the ball is placed on

1. the first neutral spot (on your own half)
2. the second neutral spot (on your own half)
3. the central spot

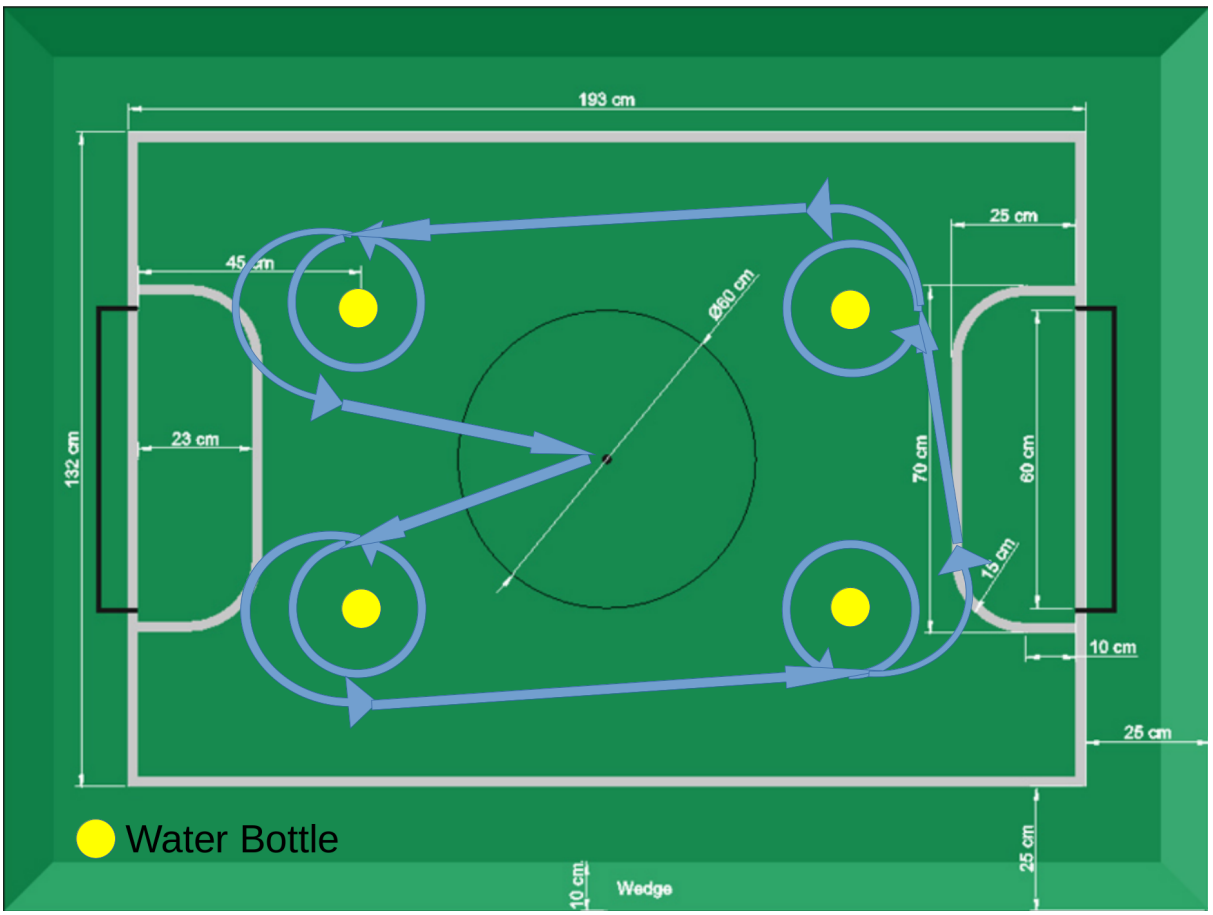
Note that your robot is considered to be inside the half it started from when at least some part of it is still inside. Further, the robot does not have to stay active after shooting a goal: it can be reset in between shots.

To pass the challenge, you need to shoot exactly 3 goals out of 3 possible shots.

Challenge 3: The Spinner

Full disclosure: this challenge was suggested by ***LPNMarco_Soccer*** *on the forum. Thanks a ton again!*

The robot is put onto the central neutral spot. There is a water bottle on every other neutral spot.



The task of the robot is to move around each water bottle and then return to its starting place on the central neutral spot.

Note that if the robot touches any of the water bottles, it needs to start the whole challenge again.