

1 Technical challenge : Dynamic centering

1.1 Preliminary remarks

I propose to either replace the Goal-Kick from moving ball by this proposal or to add it as a new challenge. It is also possible that some parts of my proposal and some of my remarks are totally inappropriate for adult-size robots.

The reason behind this proposal is the fact that my team earned the 3rd place in this challenge in Kid-Size simply by tuning up a delay between the first positive detection of the ball and the start of the kick motion.

- Our procedure does not contribute to any scientific progress.
- Our procedure is unlikely to be applied in real games at all.
- I feel like we received some undeserved points for this challenge.

I would like to introduce a more challenging scenario with the following properties :

- The kicker should be able to predict the ball position in order to perform well.
- Robots being able to perform an accurate pass should be rewarded.

I am aware that there was a complicated pass challenge back in 2014, but we had no pass challenge since we use artificial grass which makes it far more challenging. Moreover, I propose to include the fact that a robot is able to kick from a moving ball inside the challenge.

1.2 Challenge description

The challenge involves two robots, one will perform a pass, P for short, and the second one will kick the ball, K for short. For adult-size robots, the pass could either be performed by a robot from another team or by a human (I think that no human is producing kicks as reproducible as a ramp).

1.2.1 Initial situation

- The ball is placed on a corner of the goal area located on the goal line.
- P is located at least 50 cm away from the ball.
- K is located on the penalty mark.

1.2.2 End of trial

The trial ends if at least one of the condition is fulfilled.

- A goal has been scored.
- The ball left the field.
- K touched the ball and the ball is not moving.
- One minute has elapsed since the start of the trial and the ball is not moving.

1.2.3 Results of a trial

The trial can end with 5 different results :

Dynamic success :

P kicked the ball, K kicked the ball before it stopped moving and scored a goal.

Dynamic partial success :

P kicked the ball, K kicked the ball before it stopped moving but did not score a goal.

Success :

P kicked the ball, the ball stopped moving, K kicked the ball and scored a goal.

Partial success :

P kicked the ball, the ball stopped moving, K kicked the ball but did not score a goal.

Failure :

Every case not mentioned before.

1.2.4 Ranking

Teams are ranked according to the following criteria in this order :

1. Quickest dynamic success
2. Shortest distance to goal after a dynamic partial success
3. Quickest Success
4. Shortest distance to goal after a partial success