„Capture The Flag" ruleset
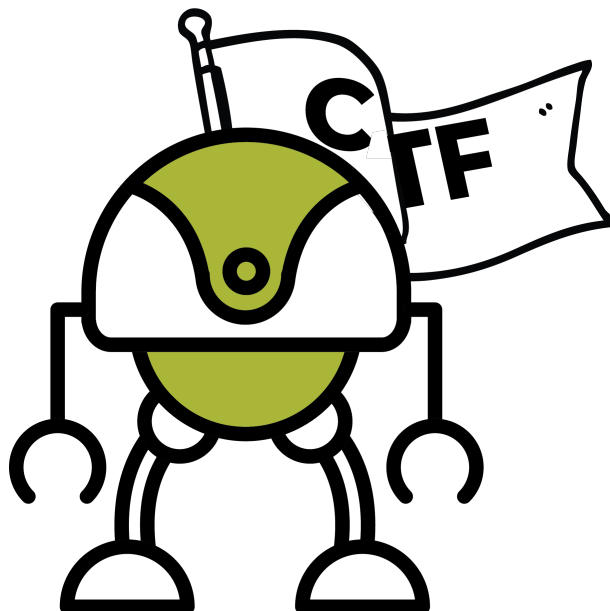
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General rules

All teams must follow the general ruleset available on the www.lyrc.lu website.

CTF Description

The CTF challenge consists of teams getting ahold of the opponent's flag (ie.. tip it over or move it). In order to do that, teams can use any kind of robot which must be coded using **block-based coding systems** (for example Scratch, mBlock, Google Blockly,...). Also, the robot cannot exceed the measurements of 20cm x 20cm x 20cm (width x length x height).
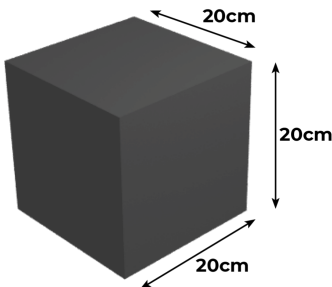
10 minutes before the start of the competition, teams are allowed to access the playfield in order to measure the distances using the tools provided. That data will help them to code their robot which, after this 10 minute time period, will be launched to perform the CTF objective **autonomously** within the 2:30 minute timeframe.

CTF Specific Ruleset

1. Any kind of robot is allowed as long as it is programmed **using a block-based coding** system (for example mBlock, Scratch, LEGO, Google Blockly,...).

2. The **maximum dimensions of 20cm side length** in each direction must not be exceeded.

3. According to the general rules, the robot **cannot have any aggressive** or destructive parts or behavior.

4. The playfield will be made available to teams **10 Minutes before the official round**, so that teams can perform measurements and coding of their robot.

5. After that period of time, the competition phase will start and the 2 minutes 30 seconds countdown will begin. After the time ends, robots **must be stopped** in their action (remote controls can be used to do this step).

6. As soon as the robot has been started, it **can only be touched**/brought back to the starting area as long as **it's within the teams' homezone**.

7. Once the robot enters the neutral or opponent's zone, it **cannot be interacted** with anymore. No human interaction is possible, and the robot has to act by itself (autonomously).

8. The robot must **stay within the playfield's dimensions**. Once it leaves the playfield, it will be disqualified for that round.

9. Teams **must not leave** their respective **Teamzones**

10. The team must **not interfere with the opponent's robot** in any way (such as dropping parts or using disrupting signals). The robot must work autonomously and not interfere with the opponent's robot when running. Should an interference occur by accident, the referee in charge will rule over the handling of the situation.

11. Teams must **not modify the obstacle's positions** on the playfield in any kind, including pushing through their robot.

12. Robots must **not be remotely controlled** but run their mission autonomously. The code for the robot can be uploaded and modified during the preparation phase, but it cannot be uploaded or changed during competition time.

13. Teams must be **respectful** to one another, inside the team or to other teams. Not following this rule can result in a disqualification of the team for the whole competition!

14. The flag is considered "won", if it is either **tipped over or moved out** of the "flag" zone.

15. Flags need to be put in the zones **at ground level**. Using any object to position the flags at a certain height is not allowed.

16. **Not respecting** the rules can result in a **withdrawal of score points** and, in its worst case, to a disqualification of the team.
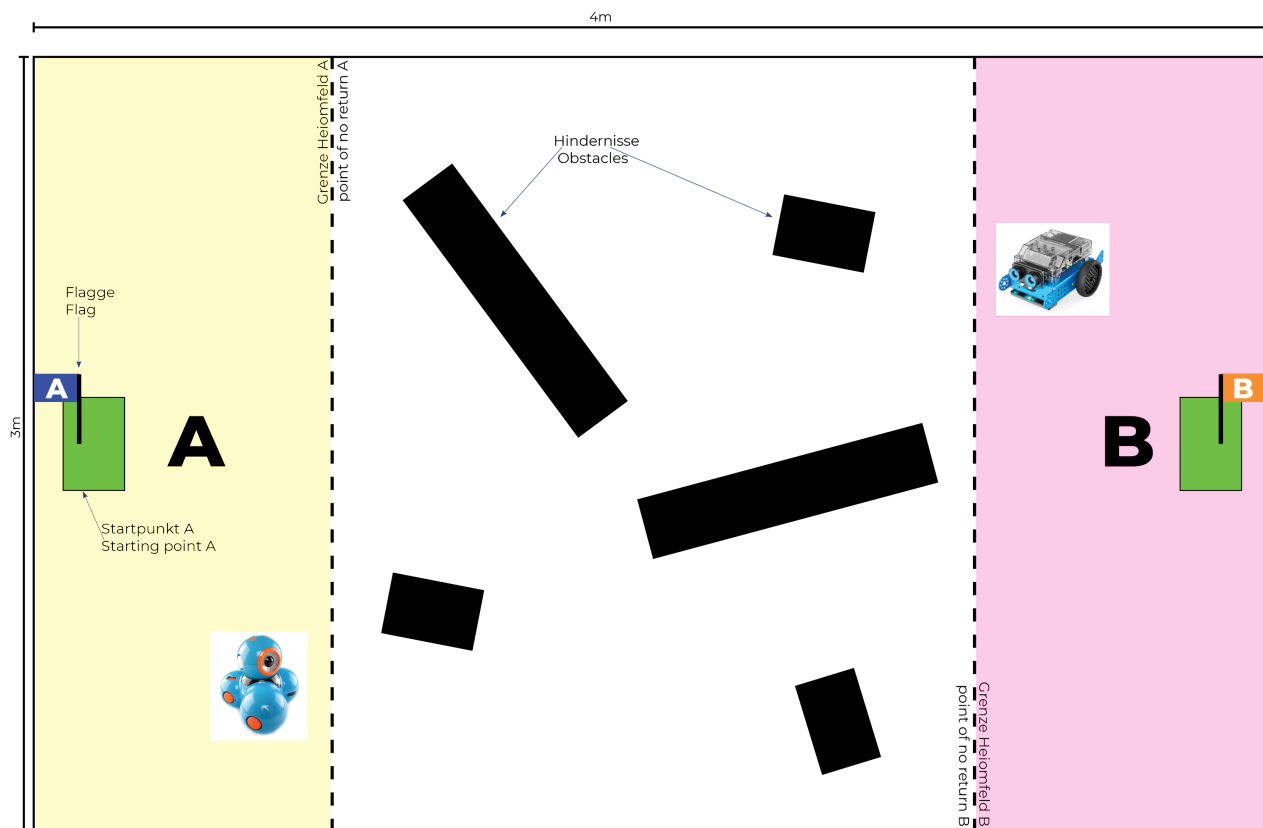
CTF example playfield

Figure 1: CTF example playfield

CTF distribution of points

CTF	Did the robot leave its homezone?	5
	Did the robot enter the opponent's zone?	10
	Did the robot capture the opponent's flag?	10
Coding	How did the team solve the coding?	10
	Were sensors used to detect obstacles?	5
Timing (choose 1)	Was the flag captured under 1 minute?	10
	Was the flag captured under 2 minutes?	5
Team	Was there a positive team spirit observable throughout the match?	5
	Did the team members behave according to the rules?	5

TOTAL (Maximum of points)	**60**