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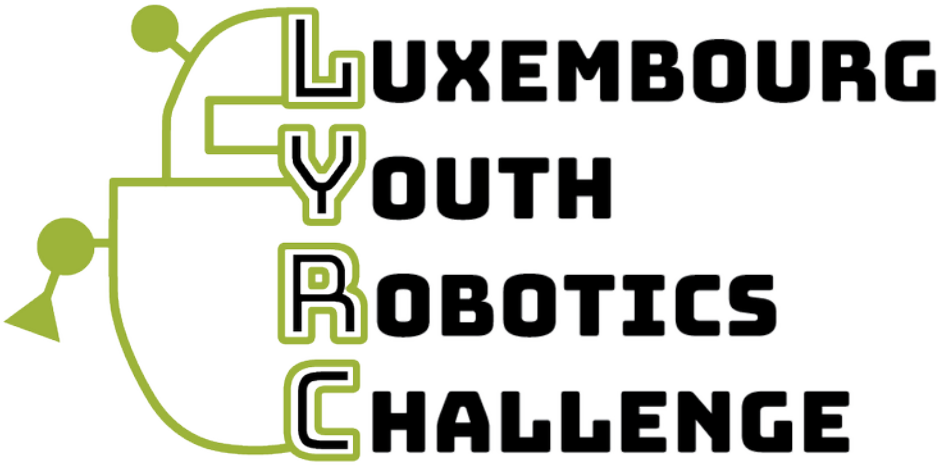

RobIntro &

RobAdvance competition

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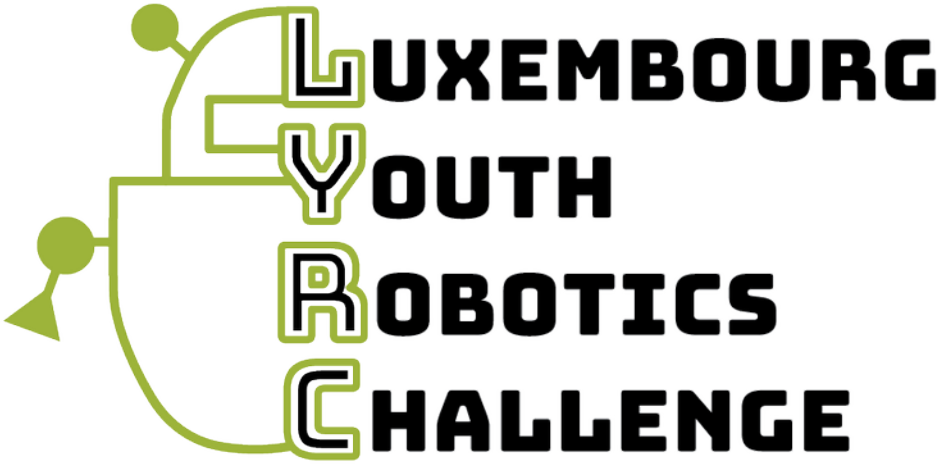
In the near future, robots will be a part of our everyday life. To make this topic a more touchable reality, this year's challenge evolves around interesting and fun topics which your robots can perform. We have divided our competitions in 2 parts: RobIntro, which is the simpler approach needing just basic concepts of logic and coding and RobAdvance which requires some more skills such as coding with blocks.
In this document, we will first talk about the RobIntro challenge and conclude with the RobAdvance. As such, you will have the opportunity to see which challenge suits you and your team best.

	
Ozobot	*Dash*

RobIntro vs RobAdvance

Before we proceed talking about these challenges, here is a short overview of what is involved in each category.

	RobIntro	**RobAdvance**
Hardware	OzoBot	Dash
Challenge solved by	Color coding	Block coding
Investment in class hours per week	1-2	2-3
Skills touched		



RobIntro Ruleset

General Ruleset

Teams must follow the general ruleset of the competition, available online through lyrc.lu.

The main topic/question in this year's RobIntro challenge is

[Domestic] Robots help recycle waste [correctly]

The challenge around the RobIntro category will be defined upon planning the most efficient way to collect and recycle waste bins around a neighborhood, defined by a jury.
The robot needs to perform in an "autonomous" way, following a predefined path using color coding, to find its way around the map and propose an efficient way to "collect" the waste from the neighborhood.
In the beginning of the challenge, the jury will define the kind of waste to be collected (by color). Each household which wants its garbage to be collected will be defined by a colored bin placed close to the house.
Teams will have an opportunity to check the playfield 10 minutes before the actual competition. During this time-slot, they need to agree upon a strategy to use and lines to complete on the playfield itself. They only get one chance to fill-in the missing color codes. After that period, the actual match starts. Within the 2:30 minutes, teams will need to "collect" as many correct garbage bins as possible.

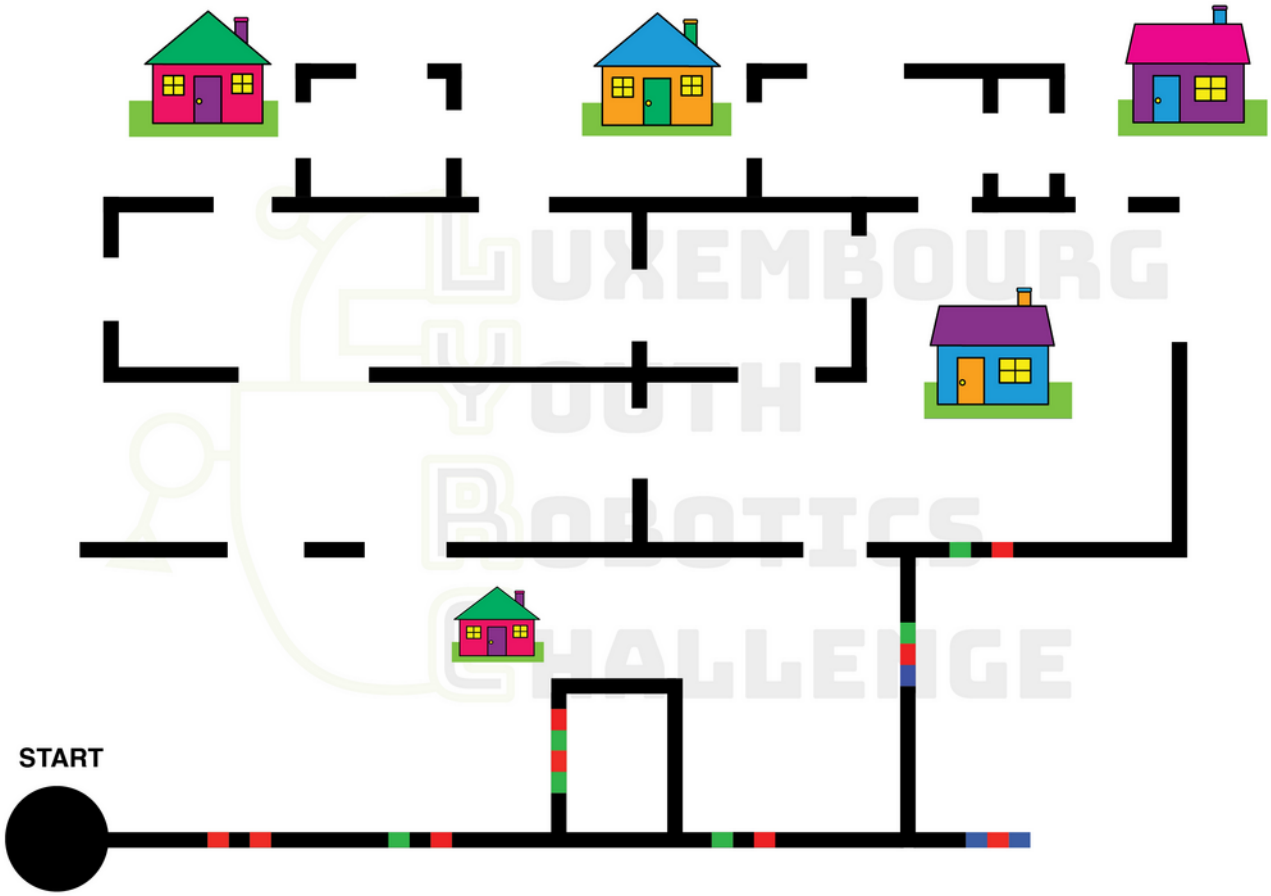
Figure 1: Waste-bins with 3 colors

The waste-bins have the dimensions 4,5 cm x 6 cm x 6.5 cm and will be placed in a non-disruptive way[1] onto the house image.
The competitors need to develop a strategy to find a pathway to the bin and "code" the robot accordingly. A waste bin is considered as "picked up", when the robot :

1. Spins 2 circles before the household which wants its trash to be picked up
2. Shows the color to be picked up

1 Away from the road

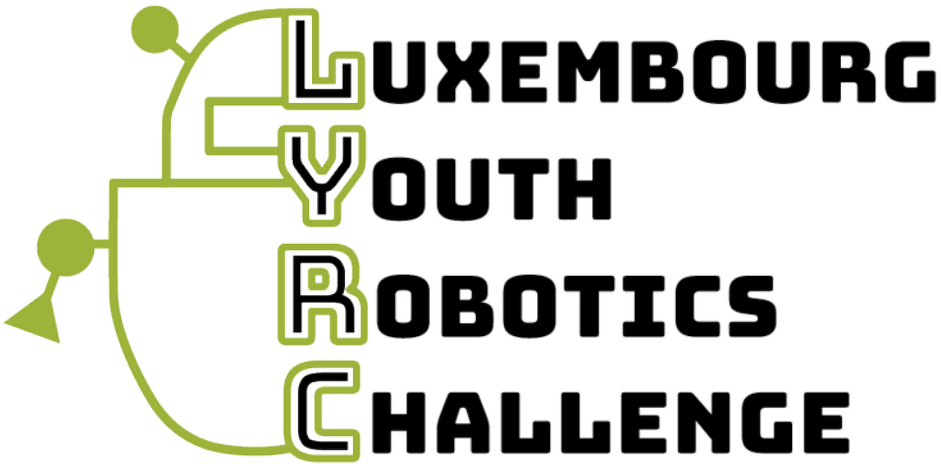
RobIntro playfield example



RobIntro Points

As every parcours has certain features, here's an overview of what points you get for what tasks.

Pickup trash	Did the robot check the color?	5
	How many clients were served? (5/client)	15
Timing	Was the timing respected (2 minutes 30 seconds)?	10
Team	Was there a positive team spirit observable throughout the match?	5
	Did the team members behave according to the rules?	10
TOTAL (Maximum of points)		**45**



RobAdvance Ruleset

General Ruleset

Teams must follow the general ruleset of the competition, available online through lyrc.lu.

RobAdvance Challenge description

The playfield, to complete the mission for the RobIntro challenge, will be presented to teams 10 minutes before the competition itself. Teams can look at and measure the field freely for 10 minutes. During this time, they need to develop a code and download it to their Dash robot to complete the task.
After these 10 minutes, teams will be called upon the playfield and will have 2 minutes 30 seconds of competition time. During this time, teams will have the opportunity to fulfill the target specified.

Once the robot has started, the scoring will be taken into account. Each time, a robot finishes its movement by either completing the mission or running into a problem, scoring will be stopped. Teams will not have the opportunity to restart the parcours or interfere with the robot once it is upon the playfield.

The following rules apply during the game:

1. Once the robot has been started, it **may be touched by its own team up to its own zone boundary line** and brought back to the starting line.

2. But once he has **entered the middle or neutral zone**, there is **no more human intervention**. The robot has to do its job independently.

3. The team has **no right to influence the opponent's robot** by, for example, scattering components on the robot's path. The robots are allowed to move freely (autonomously) and not be prevented or influenced in their mission.

4. Teams are **not allowed to change the orientation of the playing field** (position of obstacles, etc.) during the game, either manually or by robot.

5. The robots must **not be remotely controlled**, but must reach their destination autonomously. Programming must be done in the preparatory phase. It can be charged multiple times but cannot be changed while the robot is running.

Example of competition field

Figure 2: Dash competition field example

RobAdvance Points

Conquer zones	Did the robot attend the opponent's zone?	5
	Did the robot leave its homezone?	5
Coding	How did the team solve the coding?	5
	Were sensors used to detect obstacles?	10
Timing	Was the flag captured under 1 minute?	20
	Was the flag captured under 2minutes?	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**