

# Bot'n Roll



OPEN  
**ROBERTA**  
LAB



AGRUPAMENTO DE  
**ESCOLAS DE BARCELOS**

EDUCAÇÃO PÚBLICA DE QUALIDADE

# Open Roberta

**ms** is a unit of time less than seconds and we use that unit to have more precision of time:

$$1000\text{ms} = 1\text{s}$$

We use the **%** to describe the speed of the robot, like 50%, is 50% of the top speed that the robot is capable of.

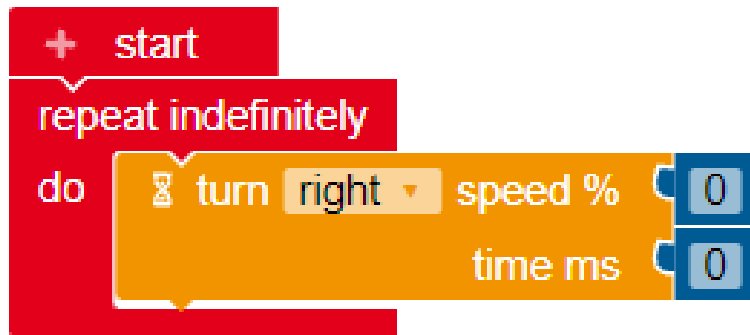
# Forward/Backward

This command is used to control the robot forward and backward, you also can change the time(ms) and the speed(%) as you want.



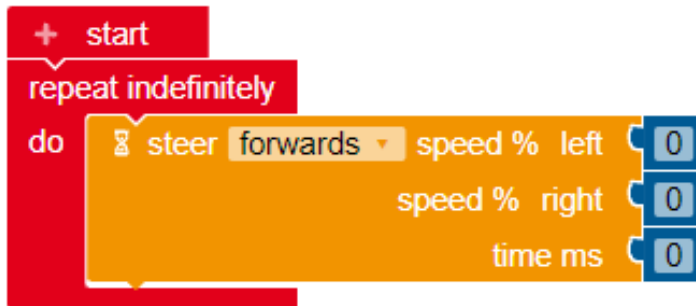
# Turn

This command will basically rotate the robot left and right, we also can change the time(ms) and the speed(%).



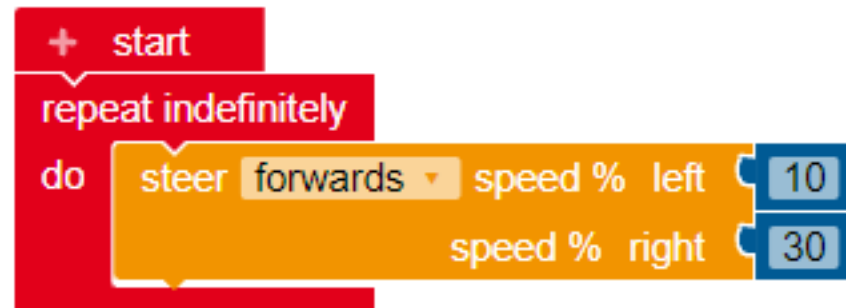
# Steer

This command will make your robot take a turn, you can choose if it will go forward or backward, chose the speed(%) on the left wheel and in the right wheel and the time(ms)



```
+ start
repeat indefinitely
do
  steer forwards speed % left 0
  speed % right 0
  time ms 0
```

The code block starts with a red 'start' block, followed by a red 'repeat indefinitely' loop. Inside the loop is a yellow 'do' block containing a 'steer' block. The 'steer' block has a dropdown menu set to 'forwards', and three input fields: 'speed % left' with a value of 0, 'speed % right' with a value of 0, and 'time ms' with a value of 0.



```
+ start
repeat indefinitely
do
  steer forwards speed % left 10
  speed % right 30
```

The code block starts with a red 'start' block, followed by a red 'repeat indefinitely' loop. Inside the loop is a yellow 'do' block containing a 'steer' block. The 'steer' block has a dropdown menu set to 'forwards', and two input fields: 'speed % left' with a value of 10 and 'speed % right' with a value of 30. The 'time ms' field is not visible, suggesting it is set to a default value.

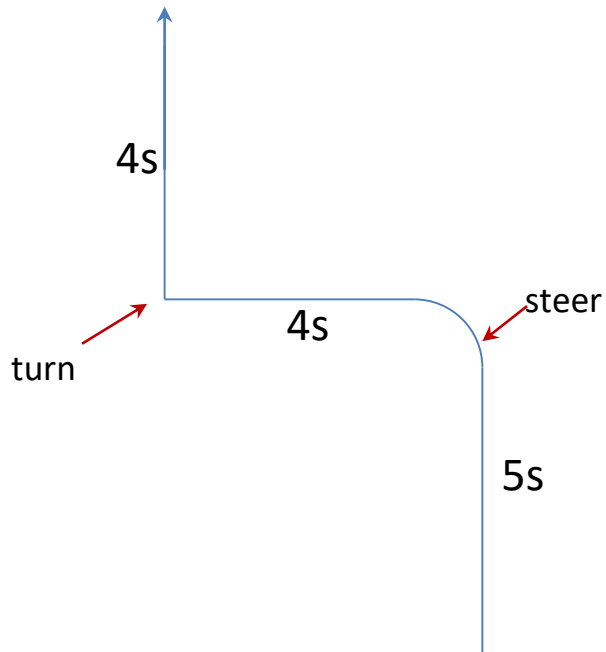
# Stop

This command just stops the robot.



# First Challenge

In this challenge you will make the robot make a track:



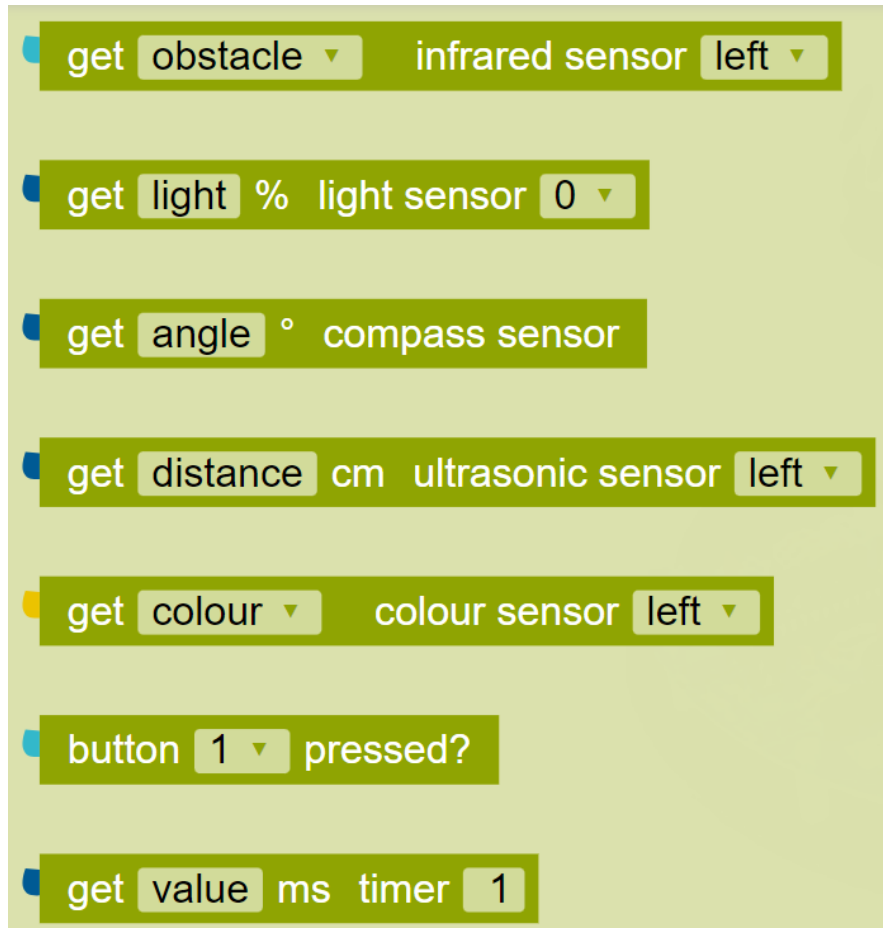
Notes:

- speed is 20% always
- Curve 90° (10% left, 30% right, 1200ms)
- turn 90° (20% speed, 550ms)

# Sensors

This robot have some sensors that we can use to make the robot interact with the ambient, them are:

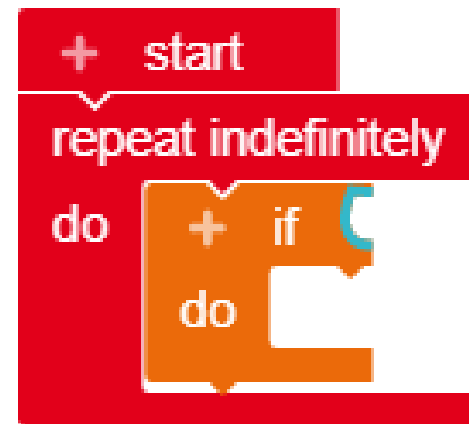
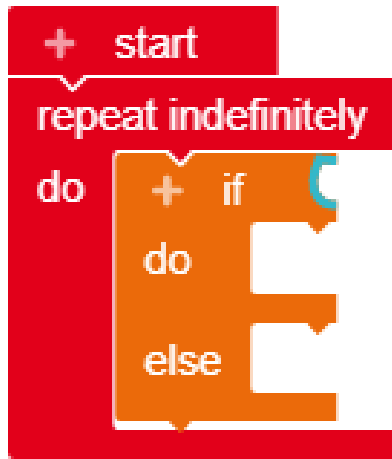
- Infrared sensor
- Light sensor
- Compass sensor
- Ultrasonic sensor





# If and Else

This command is very useful, with this function we can decide what the robot will do if happens or detect something, making it automatically. This command is most useful for sensors and buttons.



# Challenge 2

Now we are gonna make the robot go forward between 2 walls, in the middle of them

