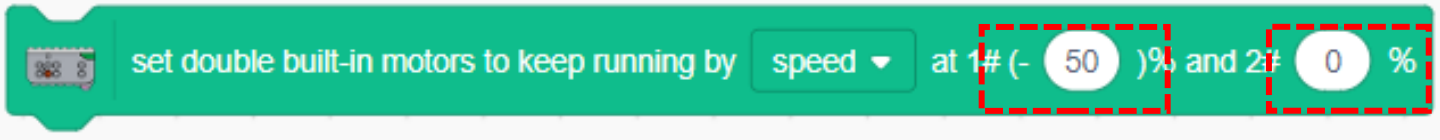
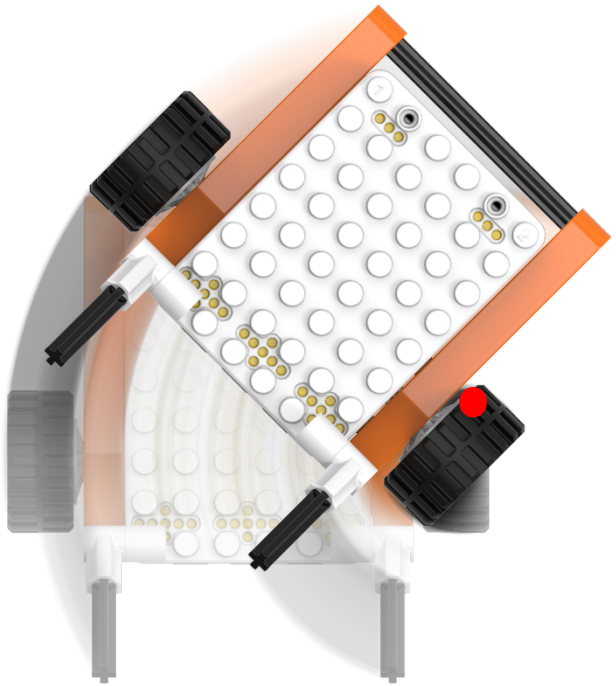
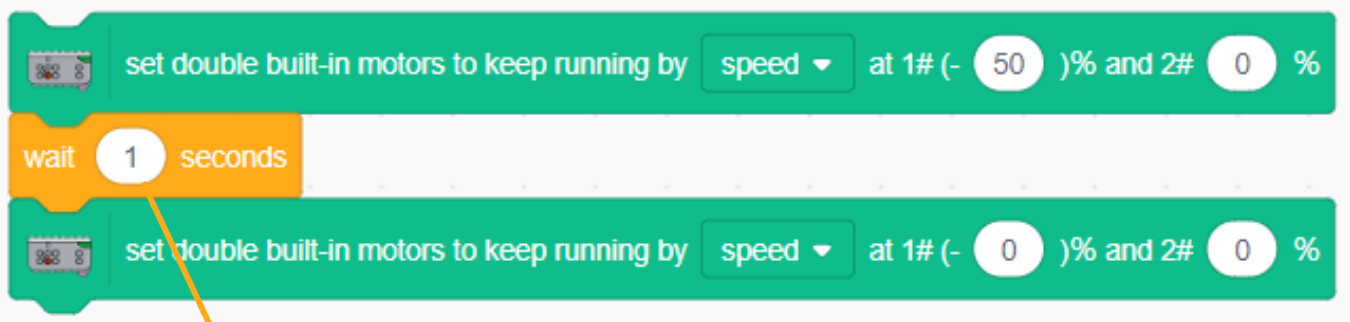
Course Review

1. The robot turns (one move and one stop).



Set one motor to move forward and the other motor to stop, allowing the robot to turn around the stationary wheel.

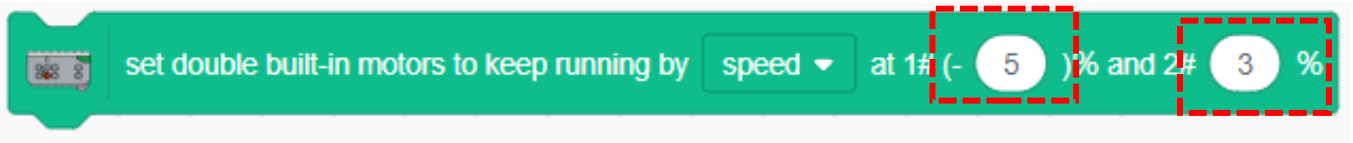




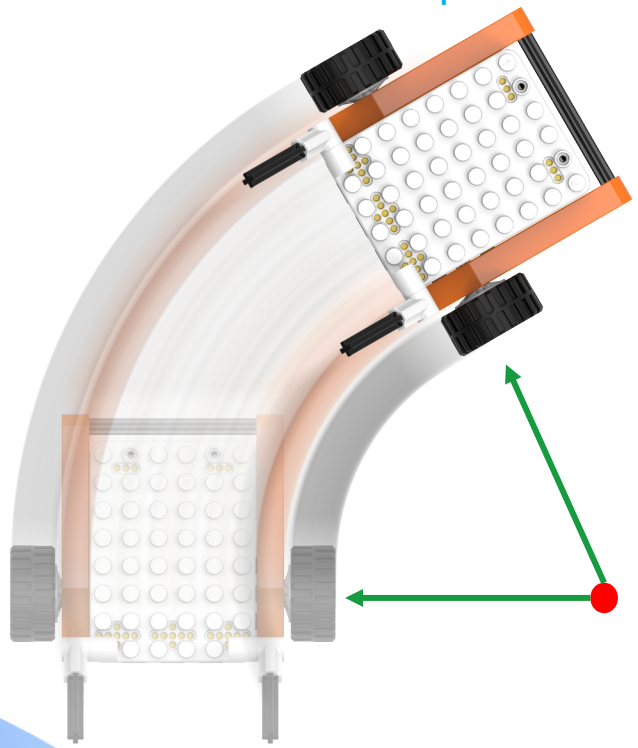
When the turning speed is constant, you can adjust the amount of the turn by controlling the time.

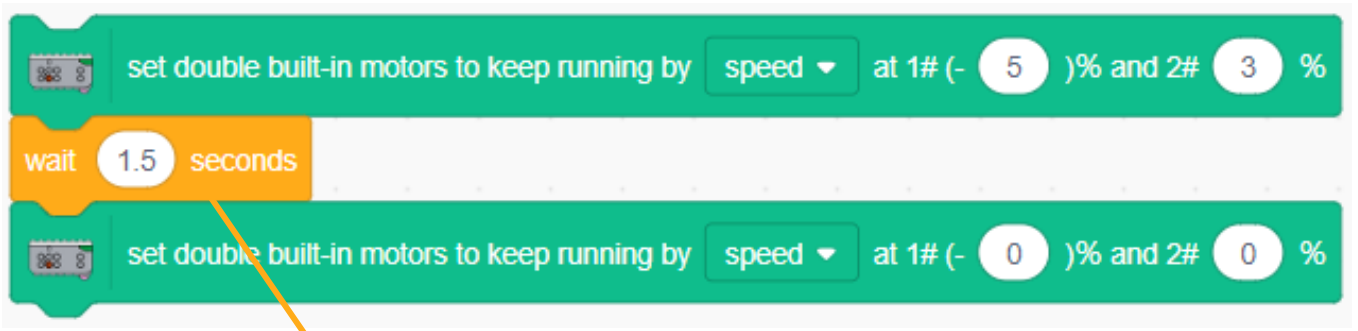
Course Review

2. The robot turns (one fast and one slow).



Set one motor to run fast and the other motor to run slow to make the robot turn around a point slightly outside the wheel.

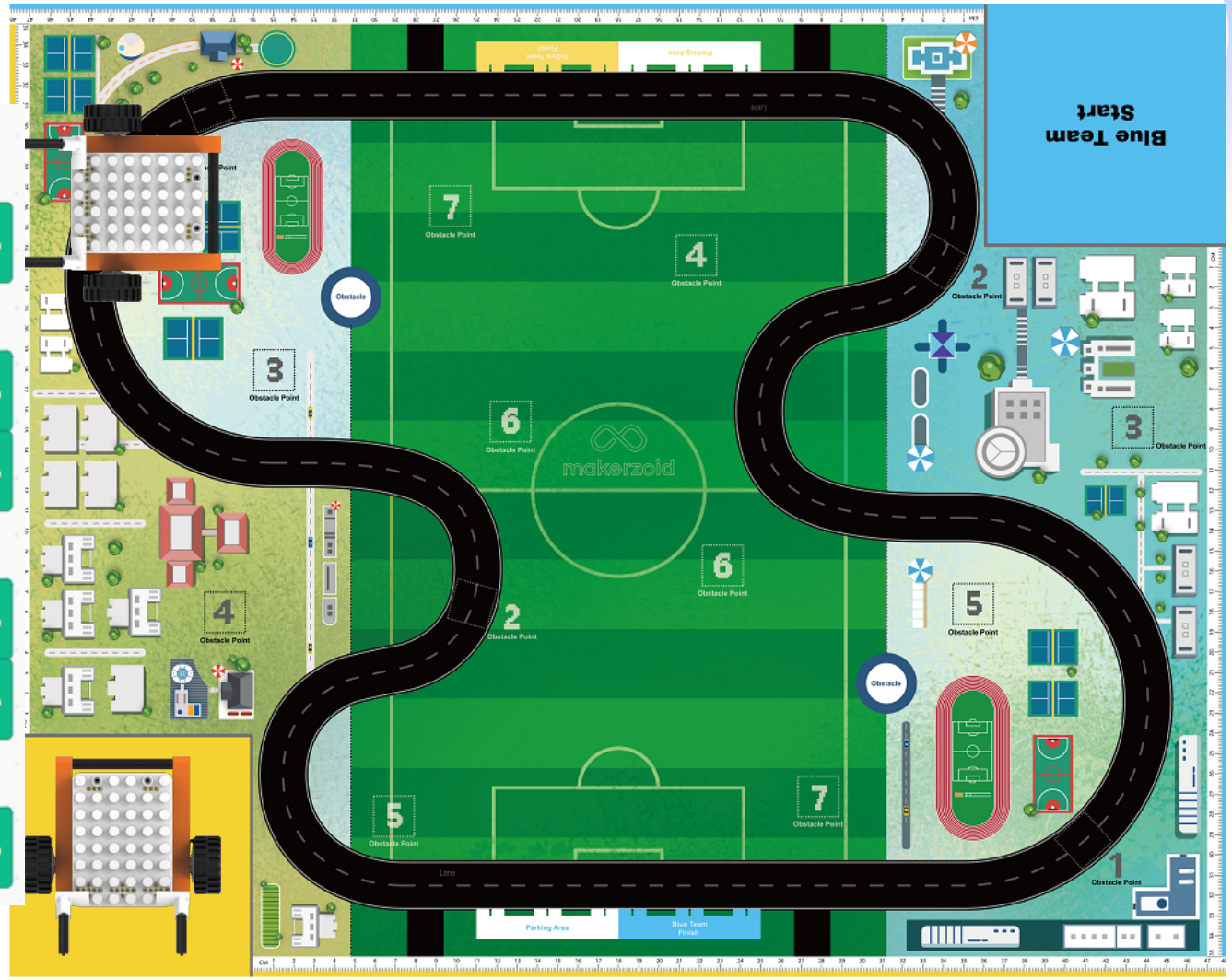




When the turning speed is constant, you can adjust the amount of the turn by controlling the duration.

Course Review

3. Complete the competition



Please use your own kit.

Do not put any parts in your mouth.

Please clean up after use.

Please raise your hand if you have any questions.

INTRODUCTION

Scenarios

In previous lessons, we controlled the robot's movement distance by adjusting its running time. During debugging, we observed that sometimes the car traveled too far and other times not far enough. This indicates that the method results in somewhat unstable performance.

Kids:

How can you use programming to ensure the car travels an accurate distance?

What can trigger the recognition of reaching the finish line?

Let's embark on our exploration journey through "Smart Recognition"!

暗物智能
DARKMATTER AI

Smart Recognition

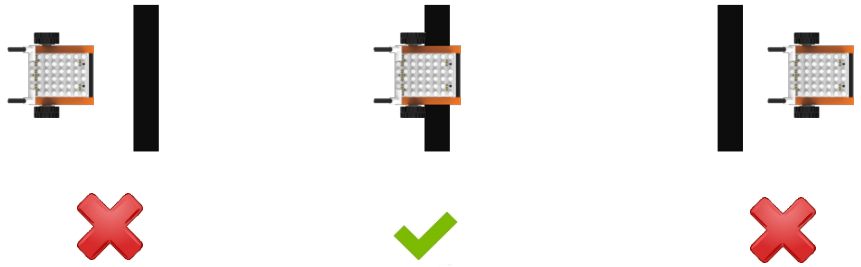
AI Courses

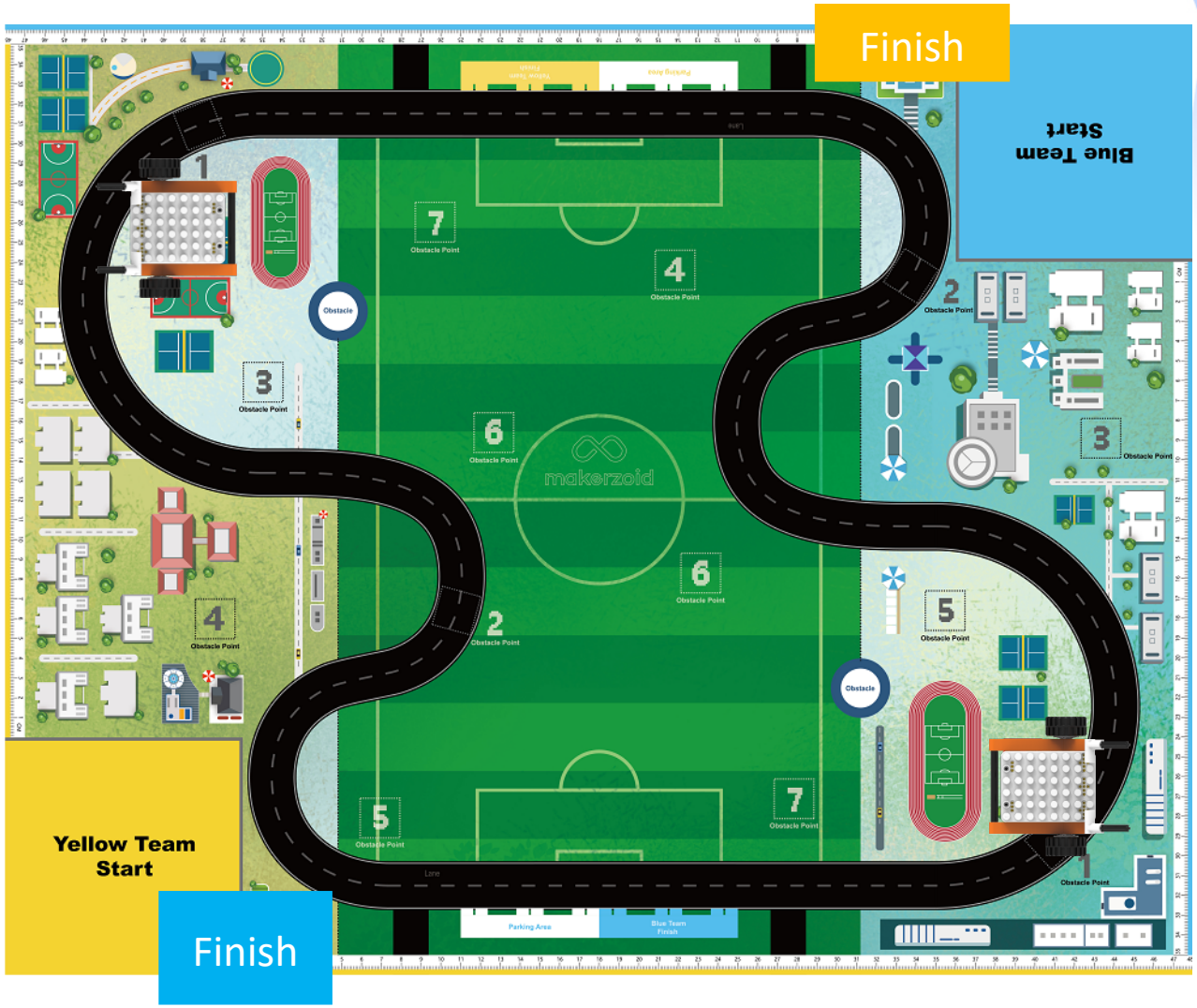
Scenarios

Competition rules:

1. The contestant's car starts from the starting point and stops upon detecting the black line.

2. Let's see who can reach the finish line.





Scenarios

Question ：

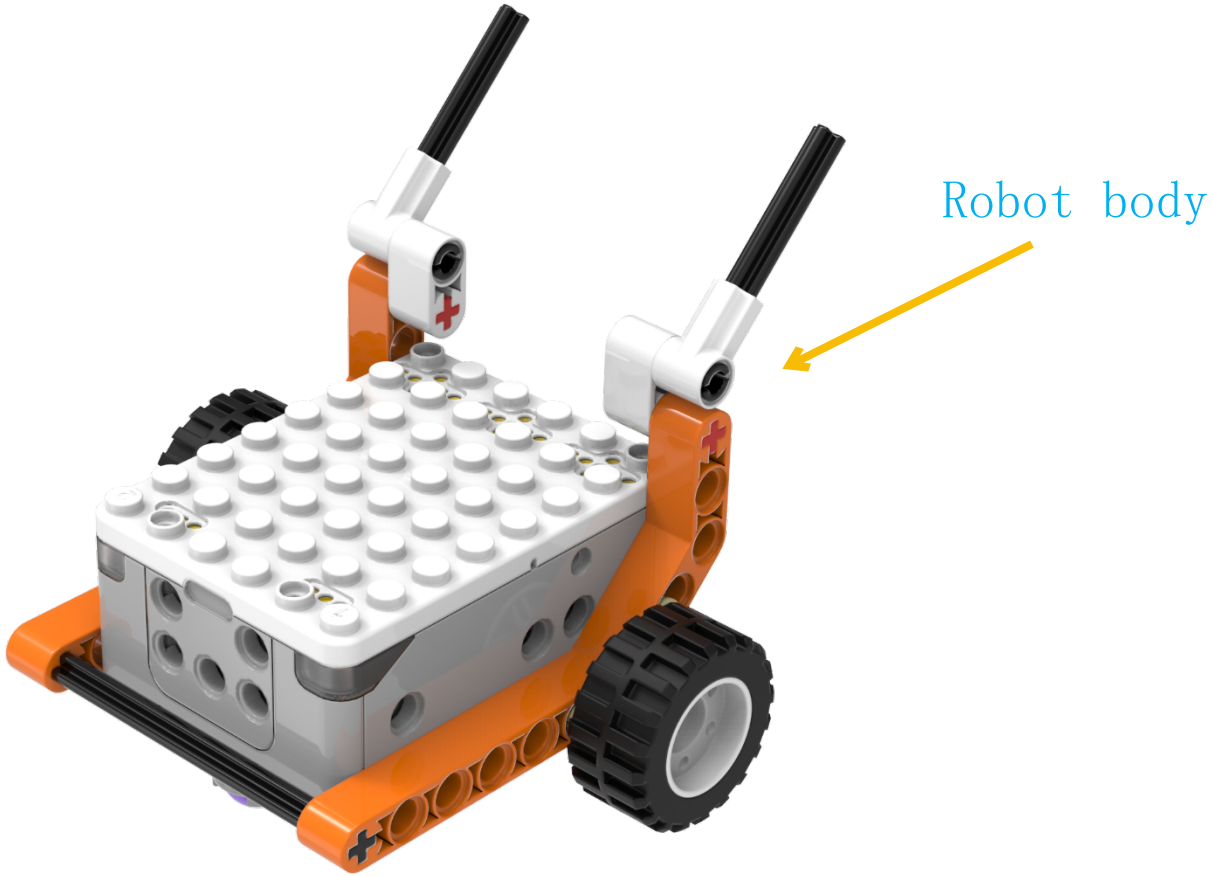
Kids, do you know:

How to control the car to travel an exact distance using a program?

What triggers the detection of reaching the finish line?

Scenarios

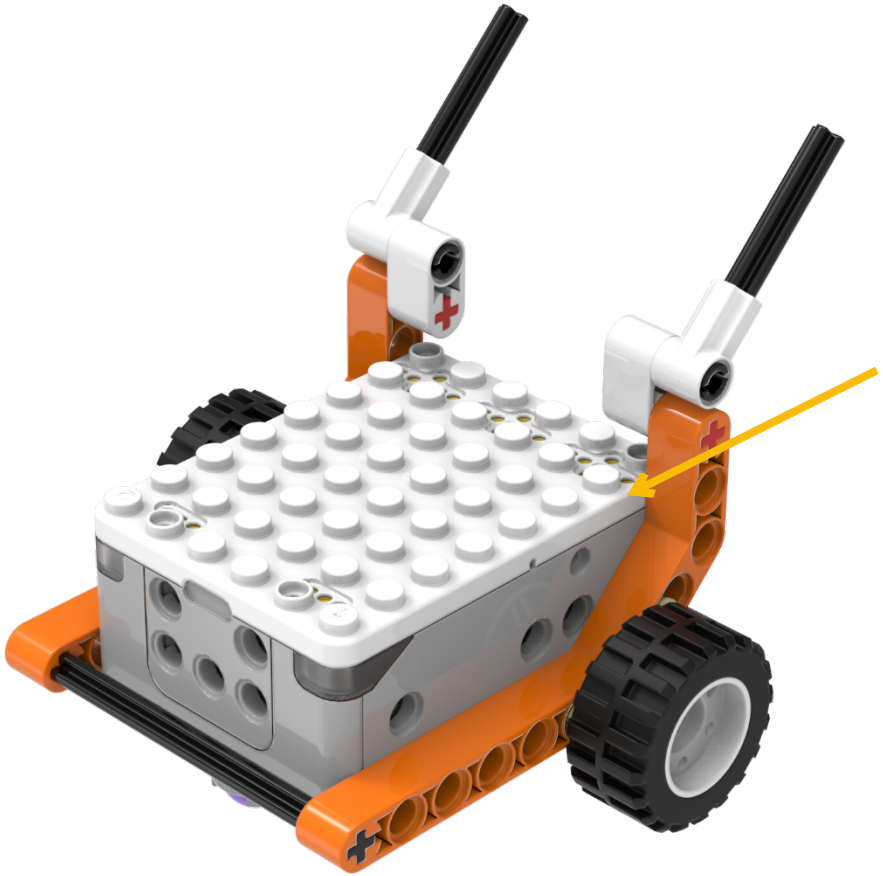
Today, everyone is a junior engineer. Let's work together to complete the obstacle course!



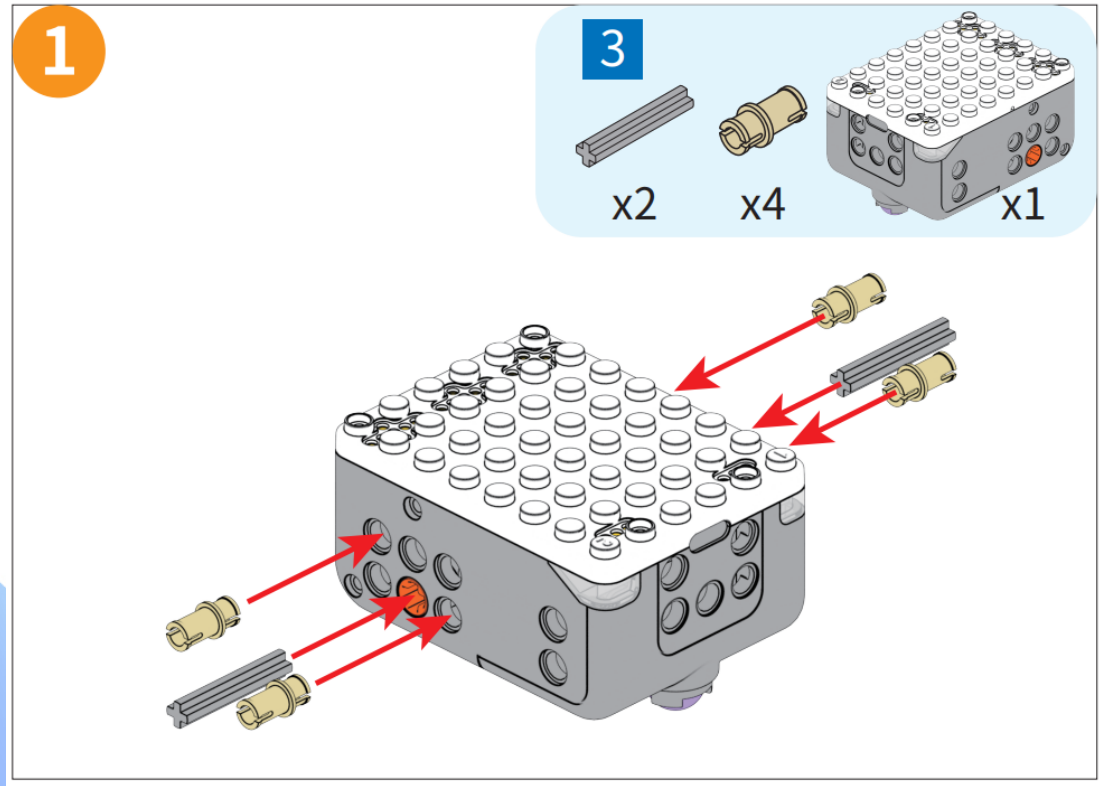
ASSEMBLY

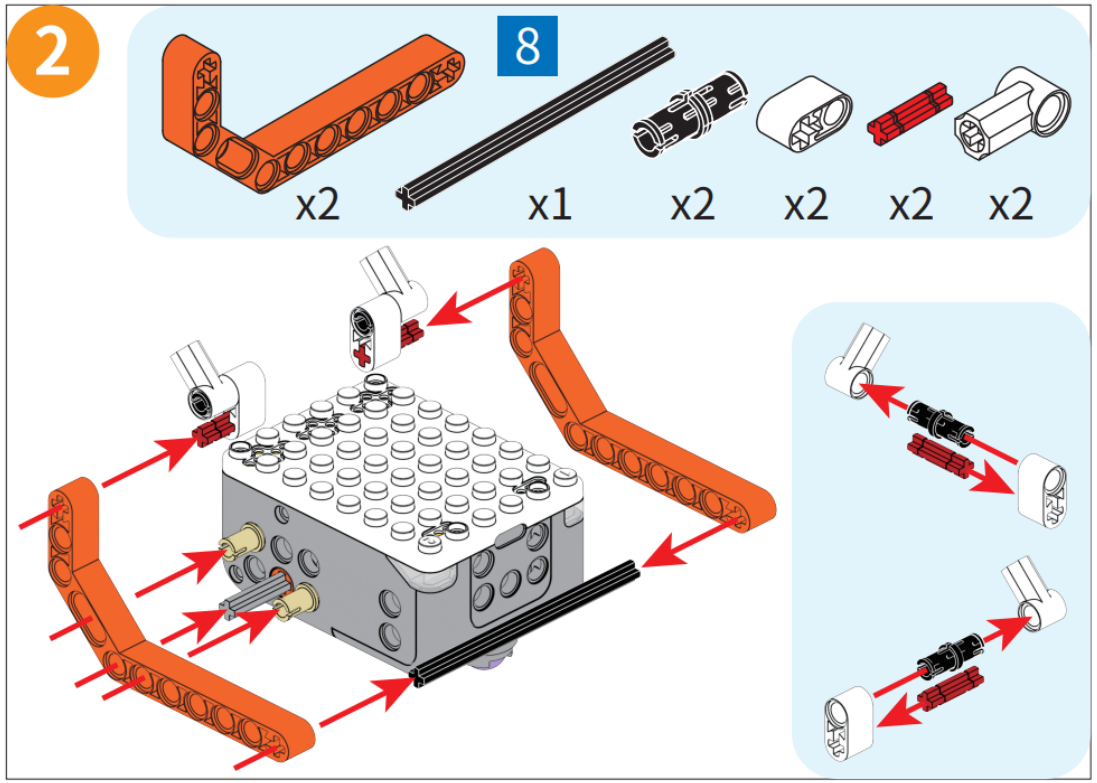
The Final Model

Building the components and assembling them with the robot's main body



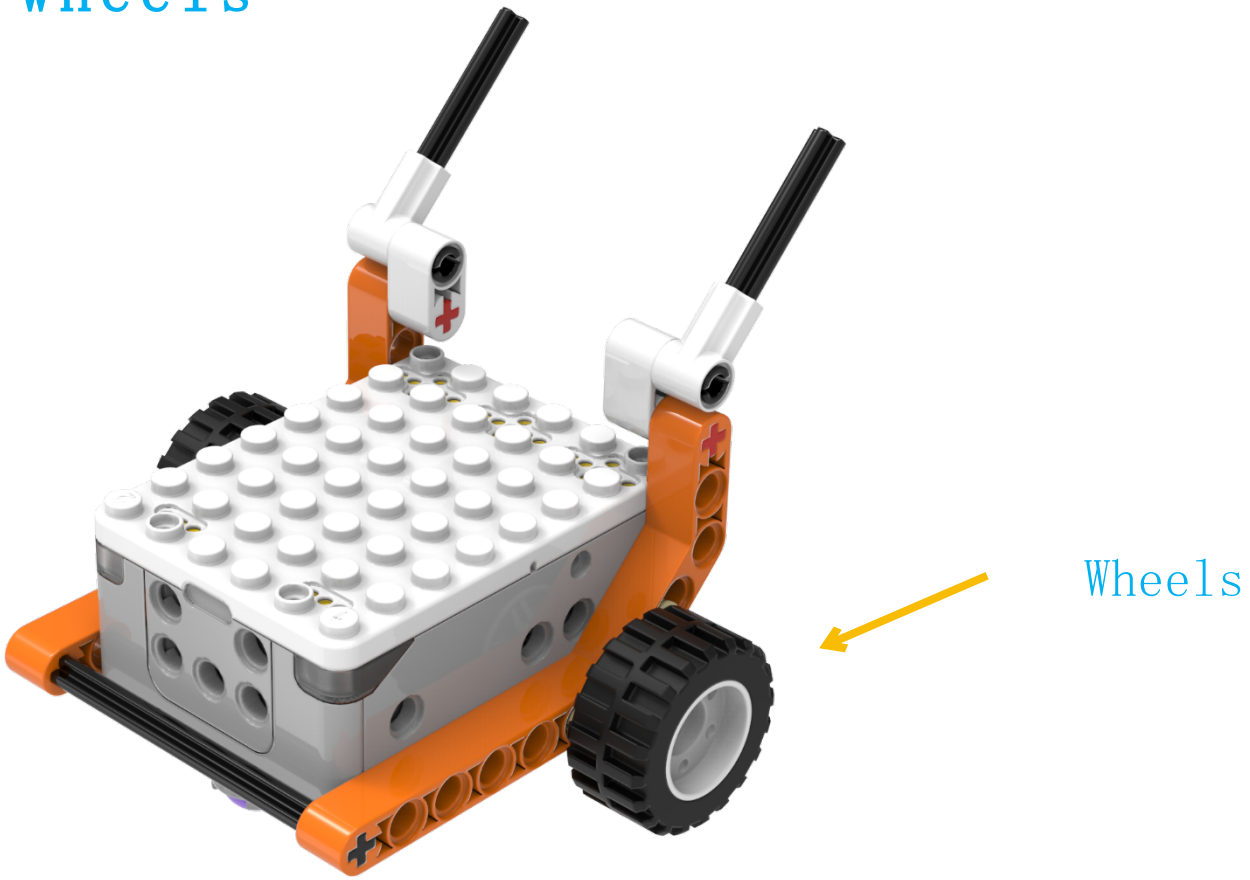
Assembly



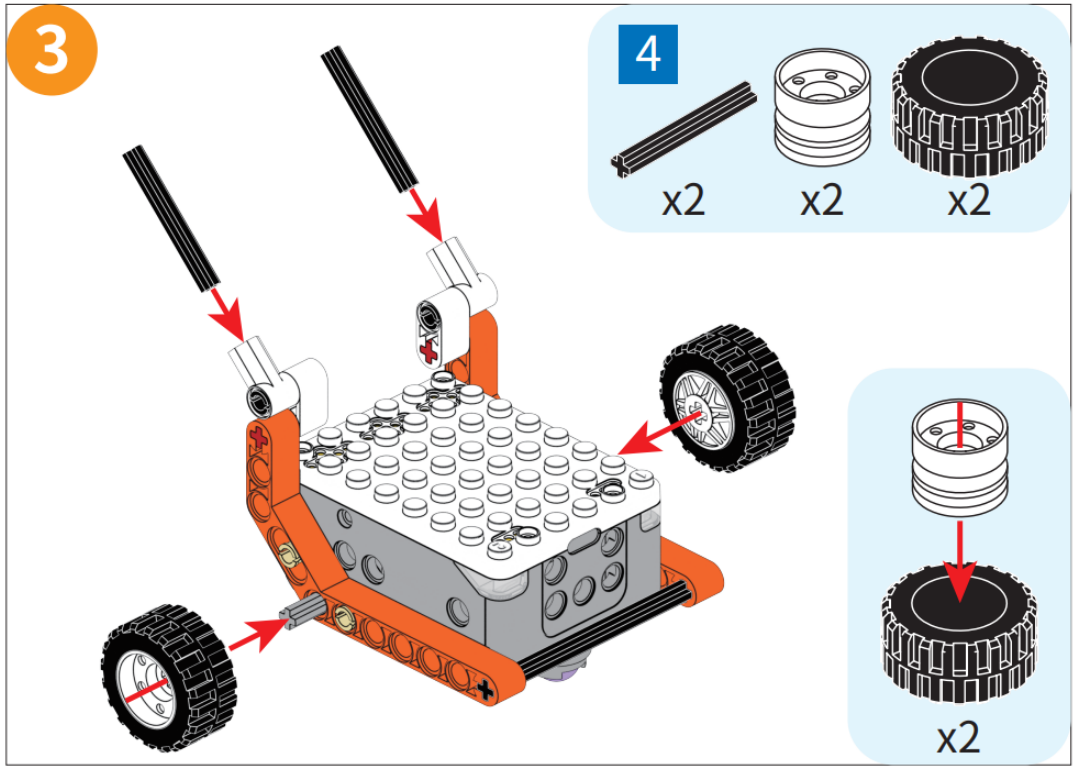


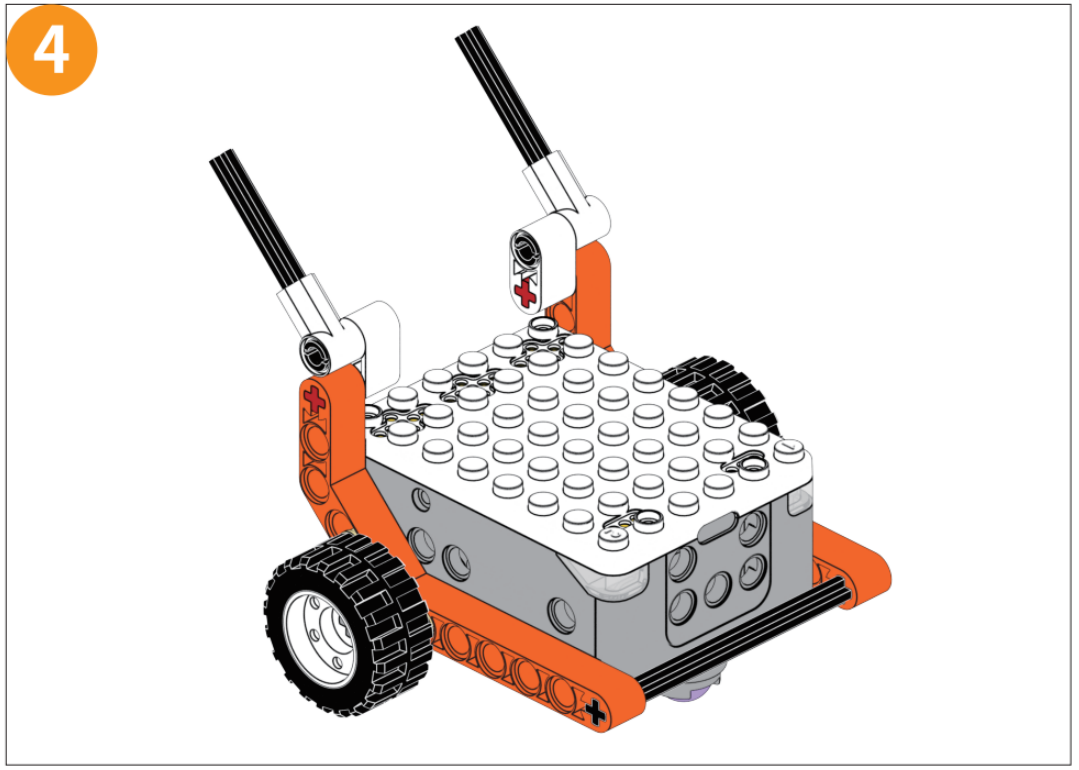
Assembly

Assemble the wheels



Assembly



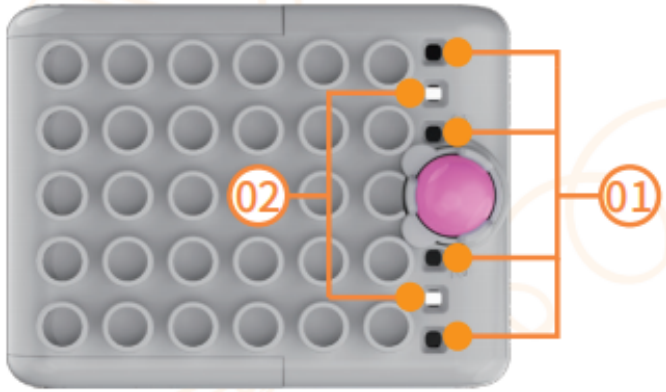


PROGRAMMING

Introductions

Line sensor

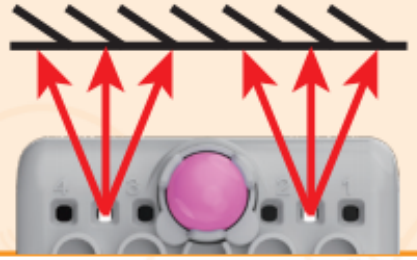
The Superbot Robot is equipped with a four-way line-following sensor that can detect black lines.



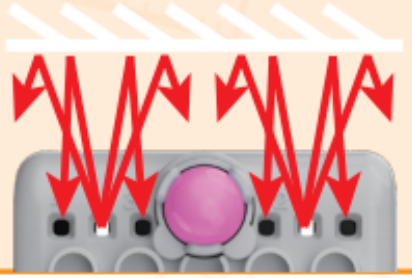
01. sensor receiving tube

02. sensor transmitting tube

When the ground is black, black absorbs all the light, causing the light to not reflect.
Therefore, the sensor receiving tube cannot receive the signal light from the sensor transmitting tube.

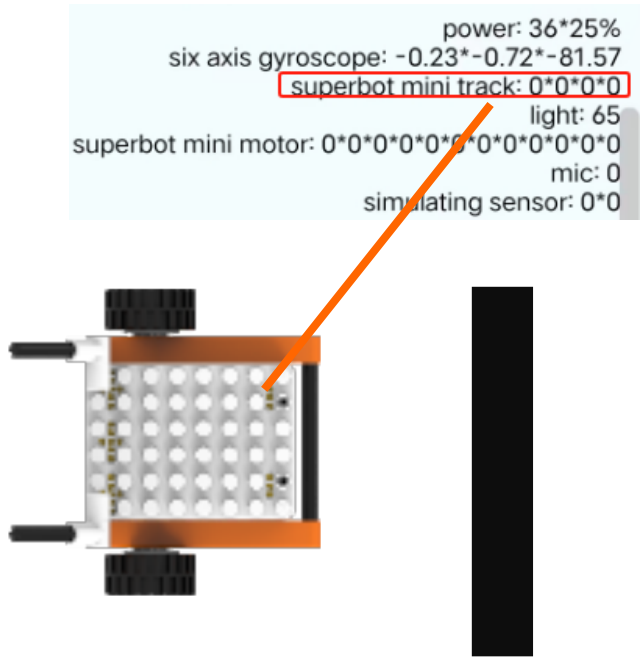


When the ground is white, white reflects all the light.
So the sensor receiving tube can receive the signal light from the sensor transmitting tube.

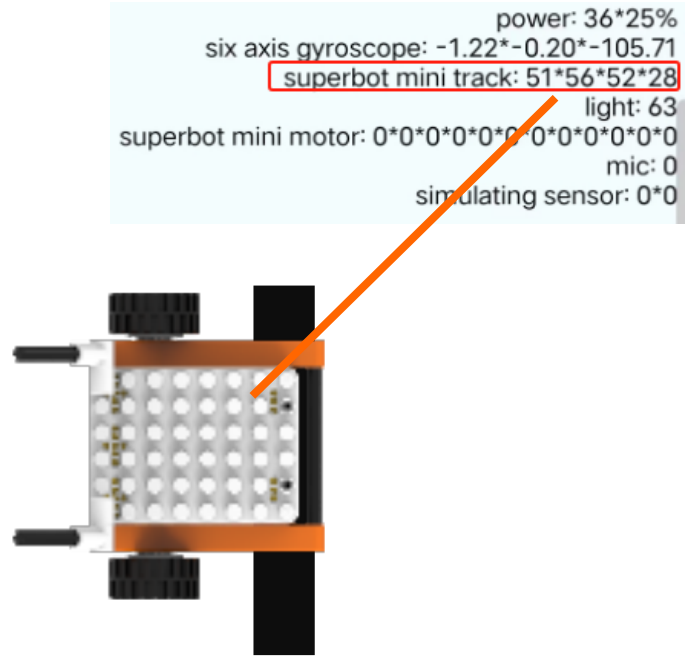


Introductions

You can determine whether the robot has detected a black line by checking the value from any of the line-following sensors.



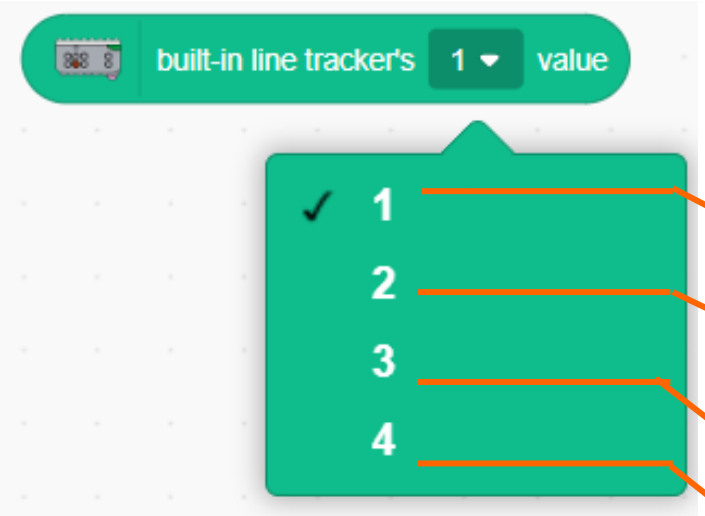
When no black line is detected



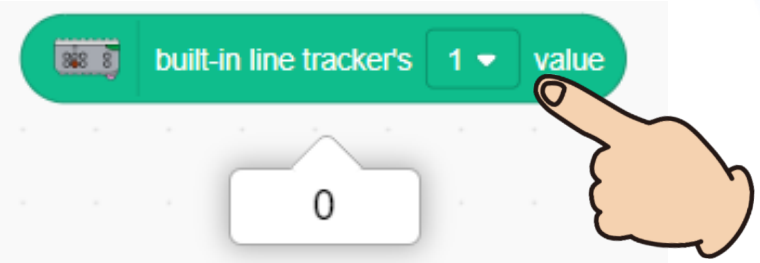
When black line is detected

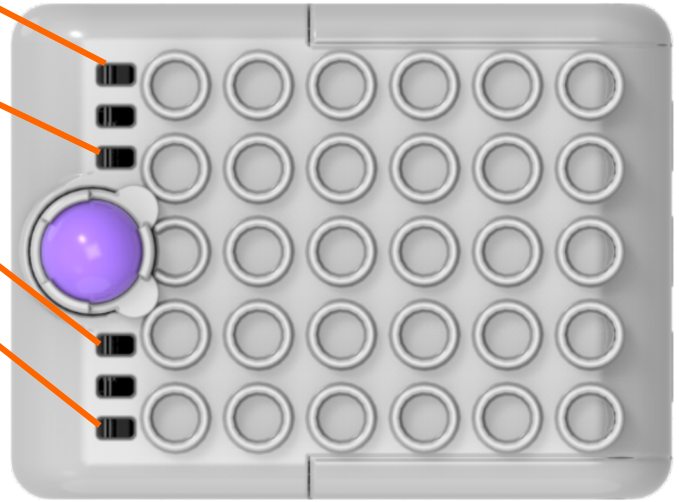
Introductions

Module Explanation



You can read the value of the specified sensor.





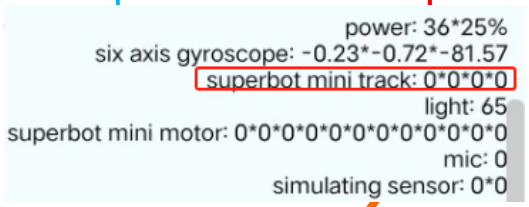
Introductions

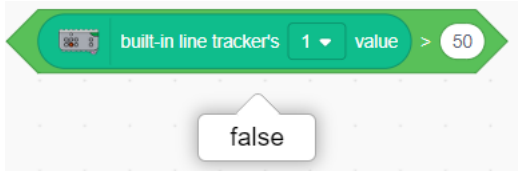
Module Explanation

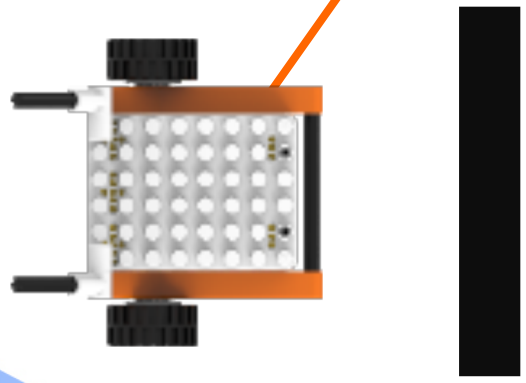
You can check if the monitored value is greater than a specified threshold. If it is, output true (yes); if not, output false (no).

For ex

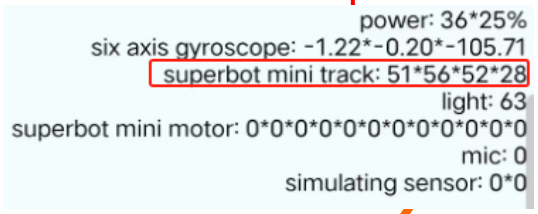
0 is not greater than 50, so the output is false.

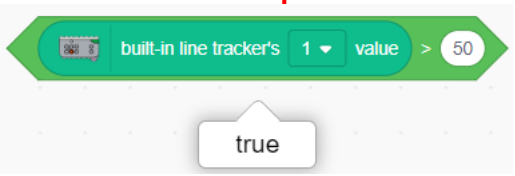


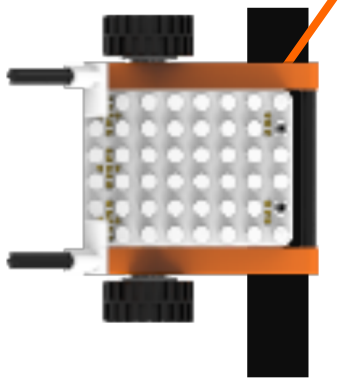




51 is greater than 50, so the output is true.

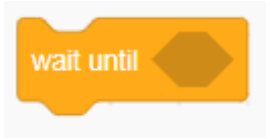




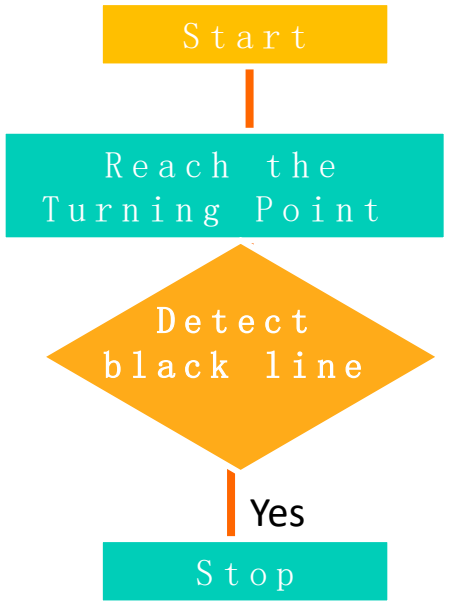


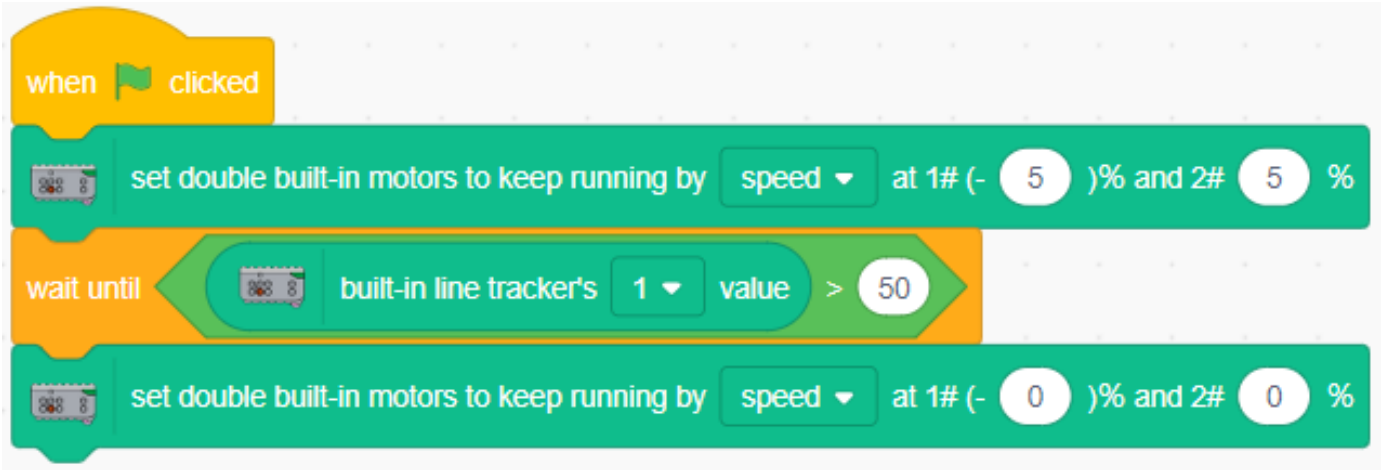
Introductions

Module Explanation



Make the program wait until the specified condition is met before executing the next module.

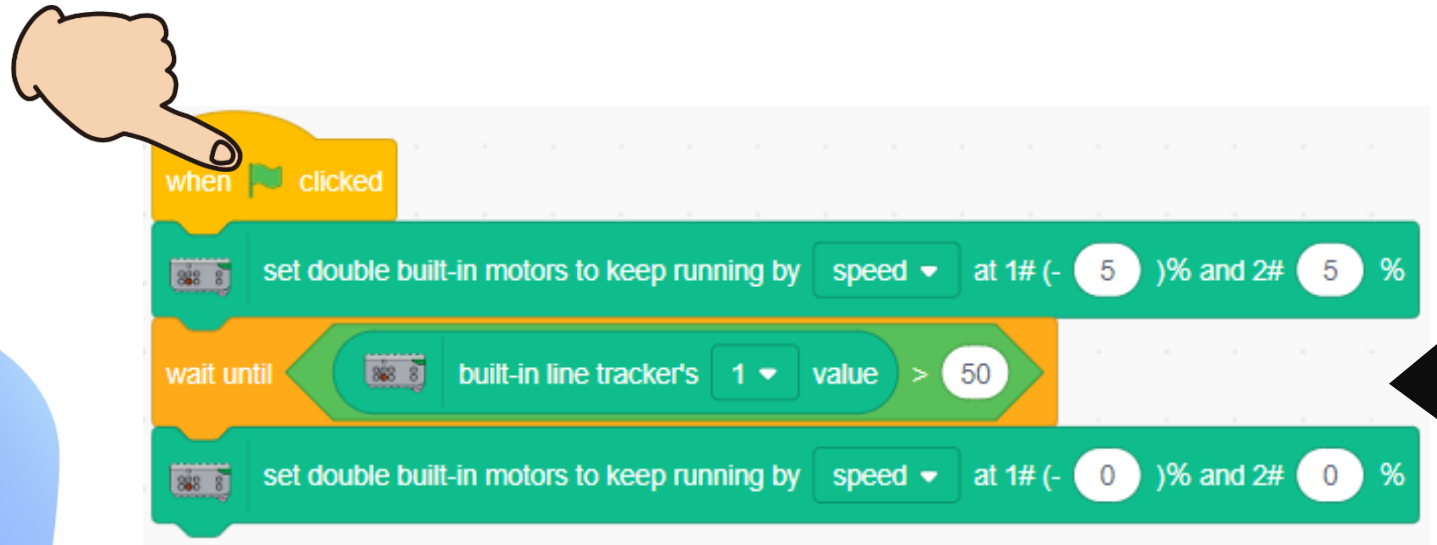


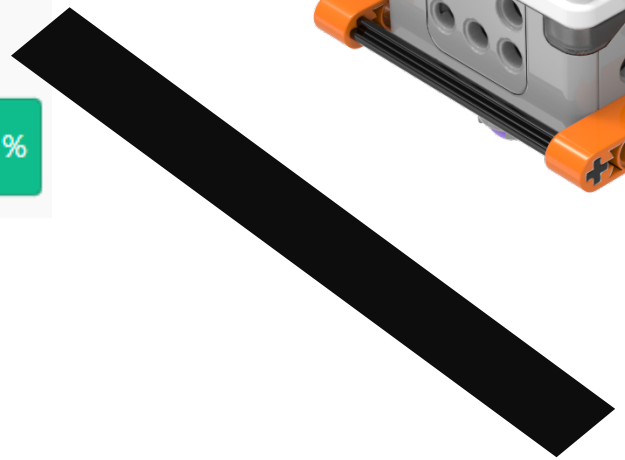


Play and Try

Try It Out:

Click the start button and see if the robot can detect the black line and stop.

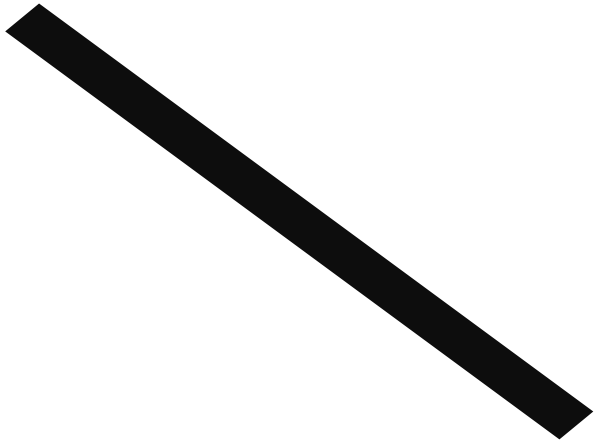




Play and Try

The contestants are ready — let's see who can accurately reach the finish line!

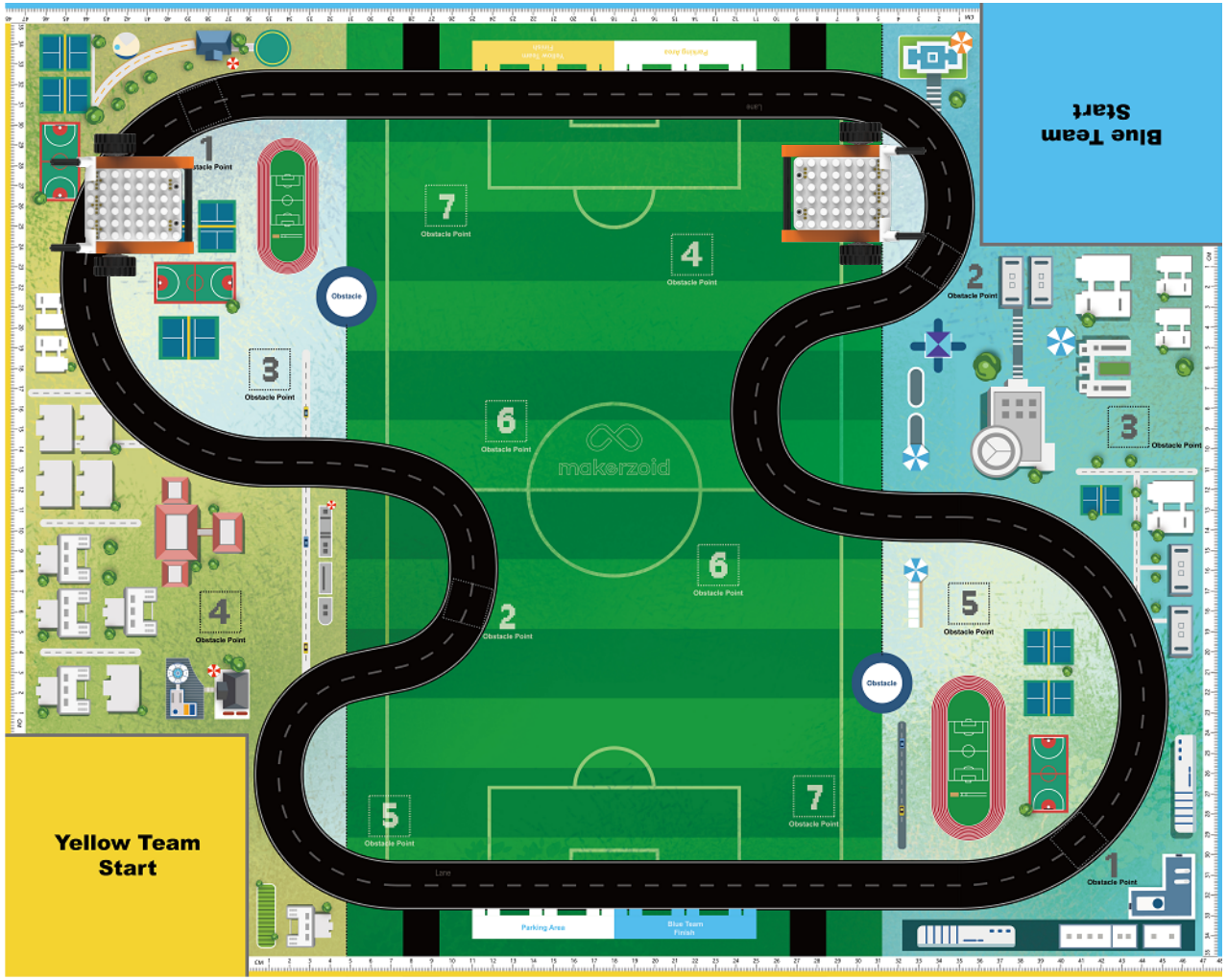
Kids, is there a way to make the robot even stronger?



CREATION

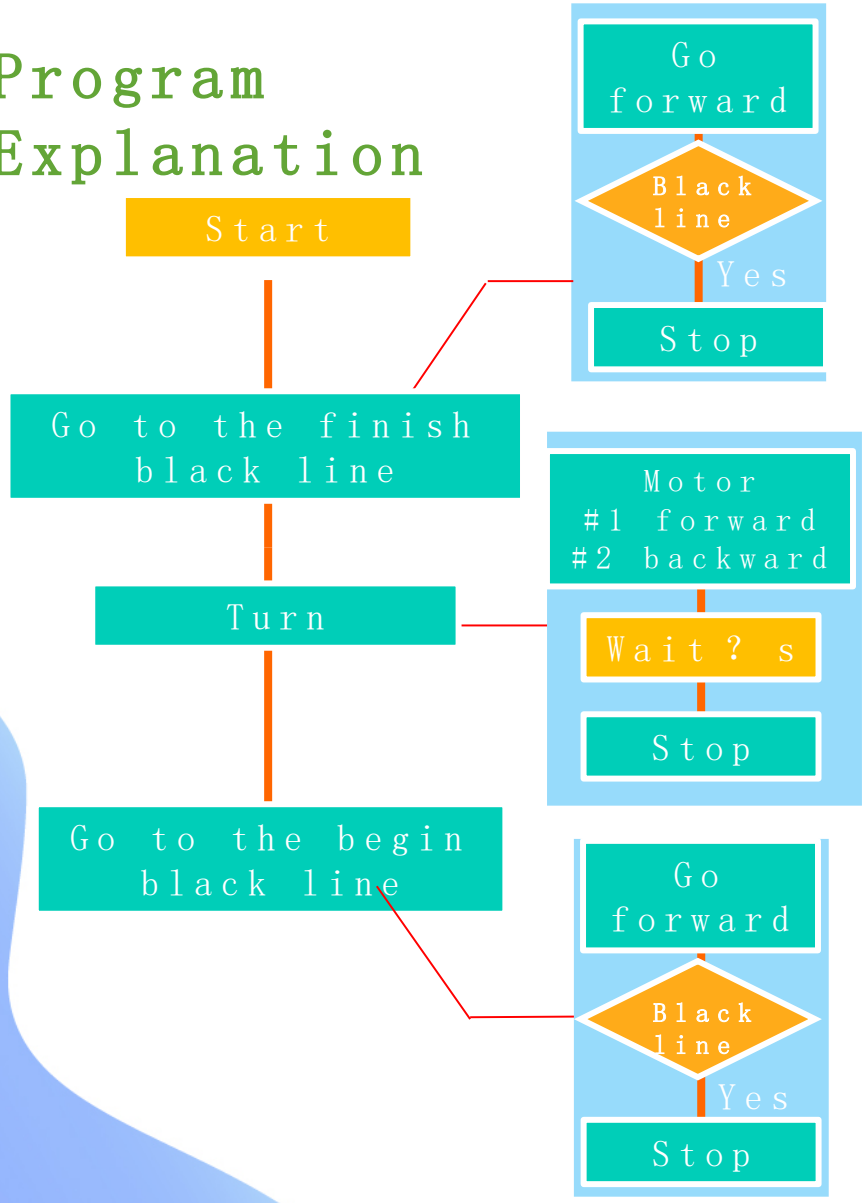
Create

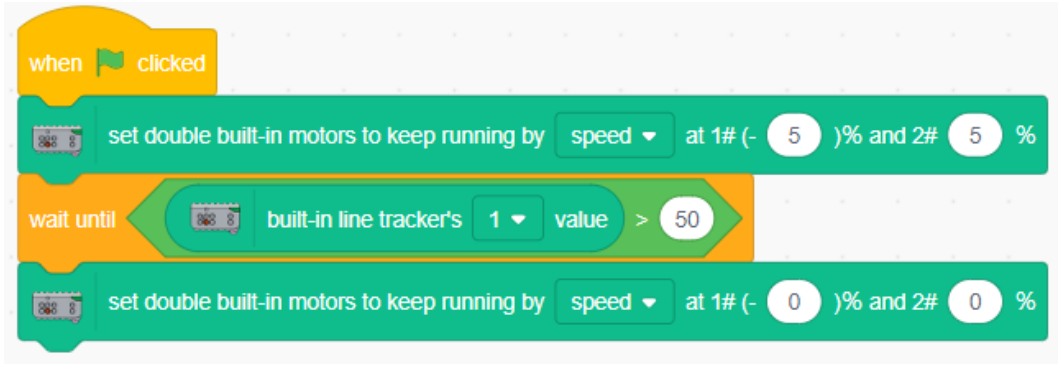
1.Make the car return to the starting point when it encounters a black line.

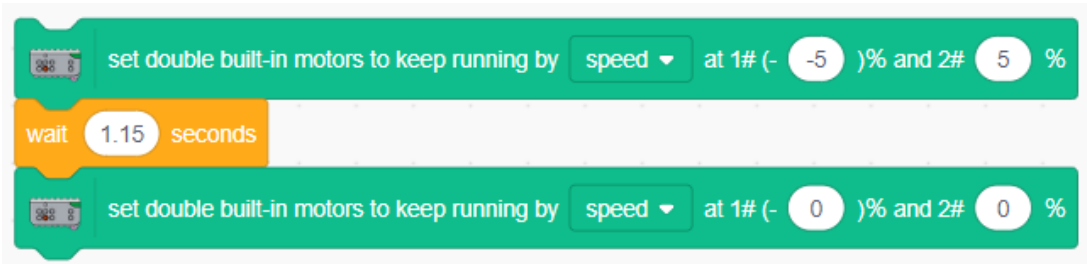


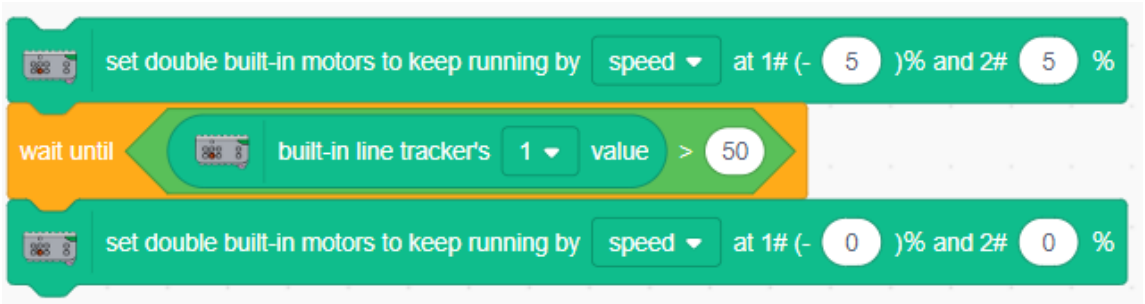
Introductions

Program Explanation









Introductions

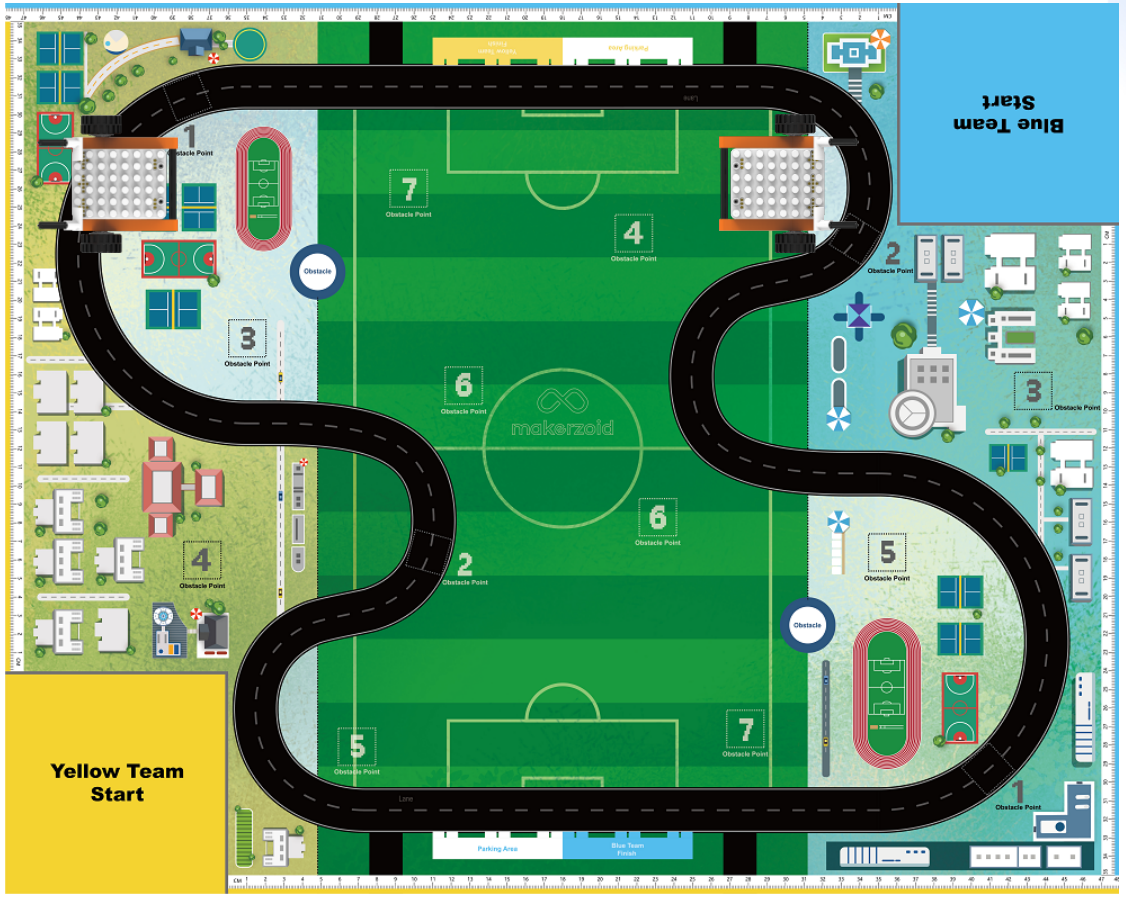
Program Explanation

You need to set the waiting time according to the actual conditions.

Create

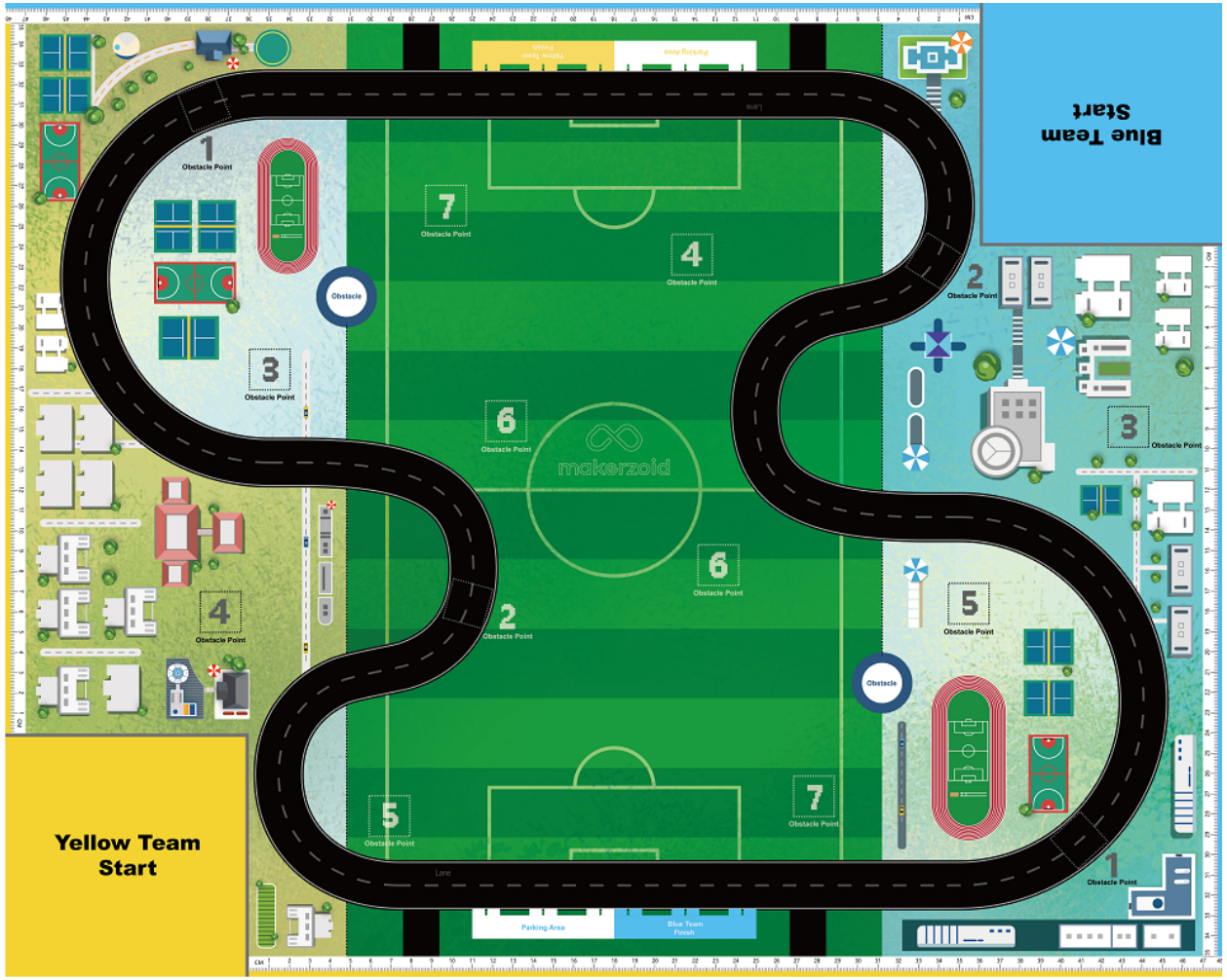
1.Make the car return to the starting point when it encounters a black line.

You need to set the waiting time according to the actual conditions.



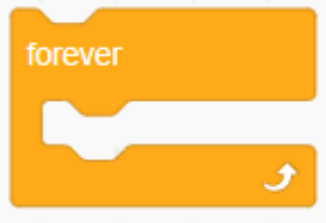
Create

2.Make the car keep moving within the black line area.

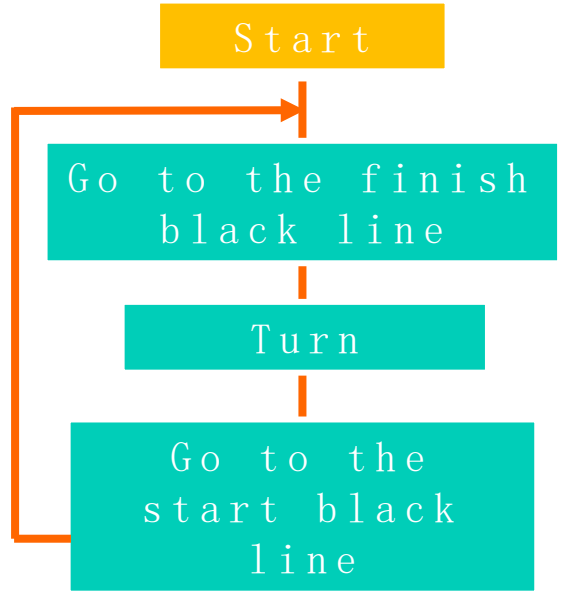


Introductions

Program Explanation



Can make the robot work repeatedly.

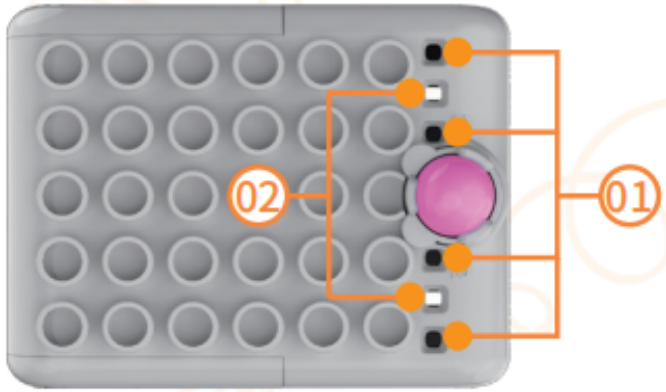


SUMMARY

Summary

1. Line sensor

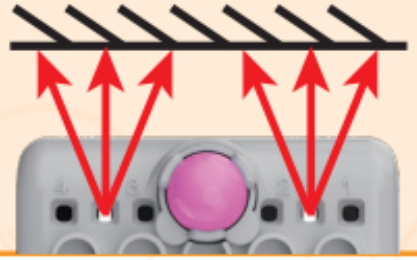
The Superbot Robot is equipped with a four-way line-following sensor that can detect black lines.



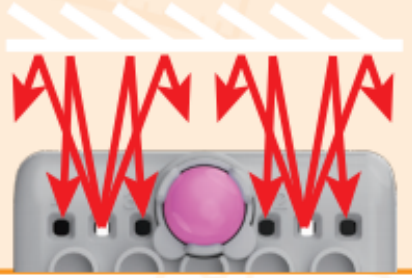
01. sensor receiving tube

02. sensor transmitting tube

When the ground is black, black absorbs all the light, causing the light to not reflect.
Therefore, the sensor receiving tube cannot receive the signal light from the sensor transmitting tube.

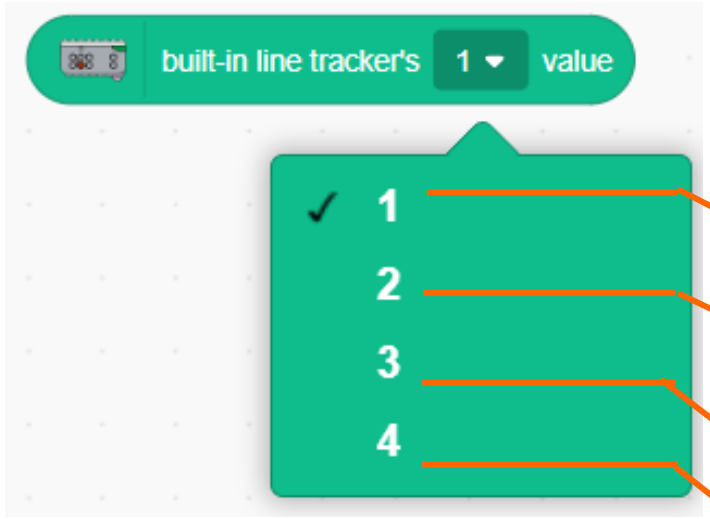


When the ground is white, white reflects all the light.
So the sensor receiving tube can receive the signal light from the sensor transmitting tube.

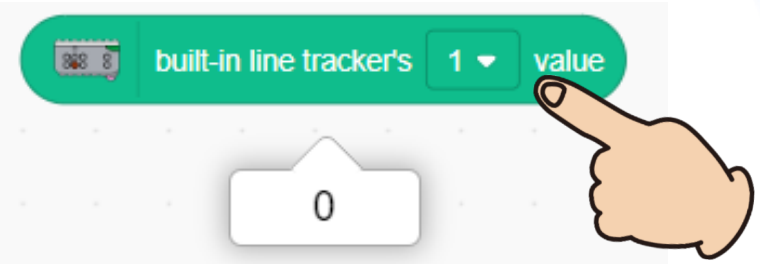


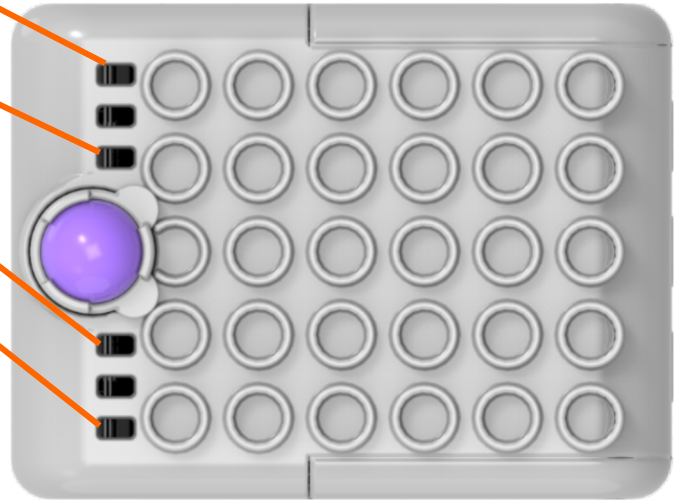
Summary

2. Program module



You can read the value of the specified sensor.





Summary

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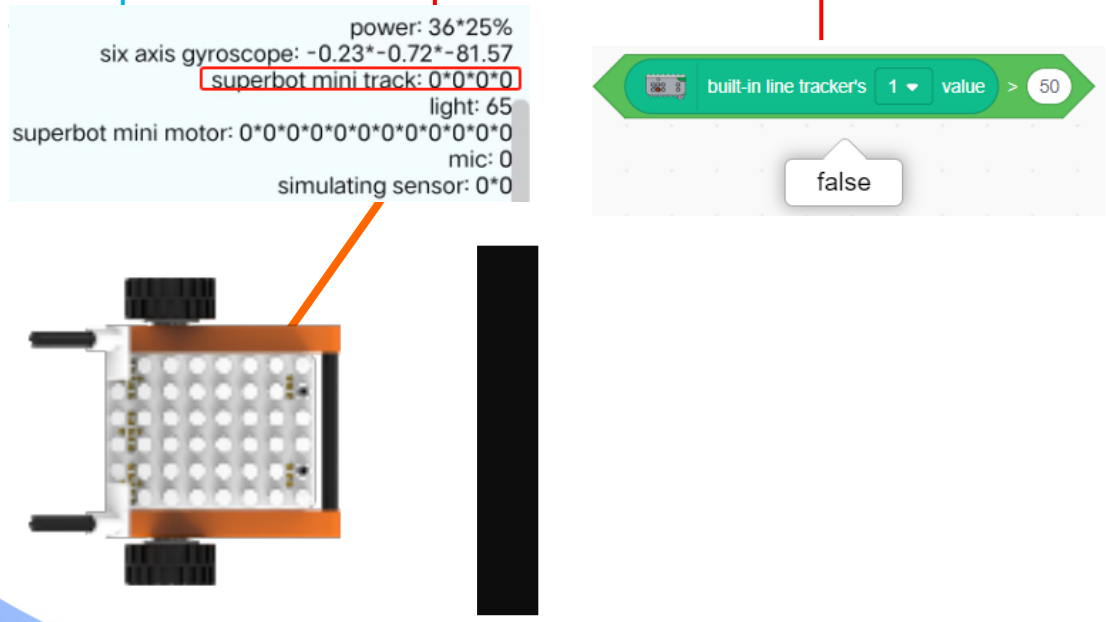

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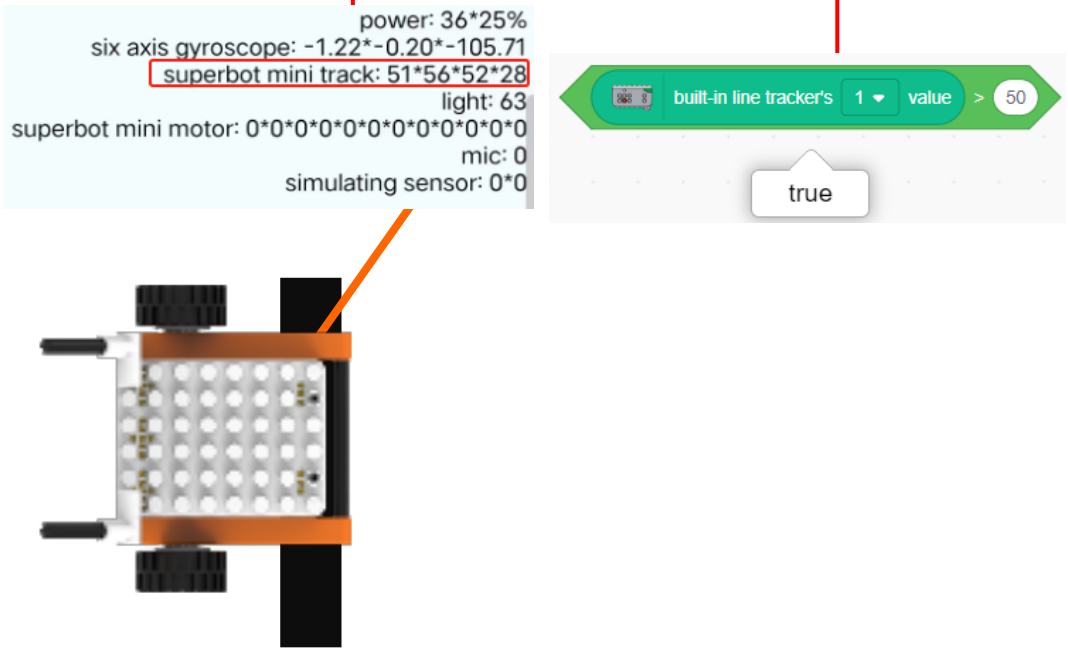
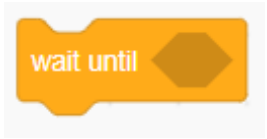
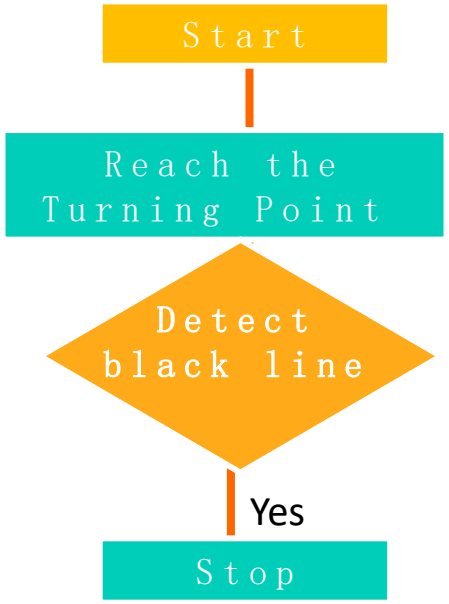
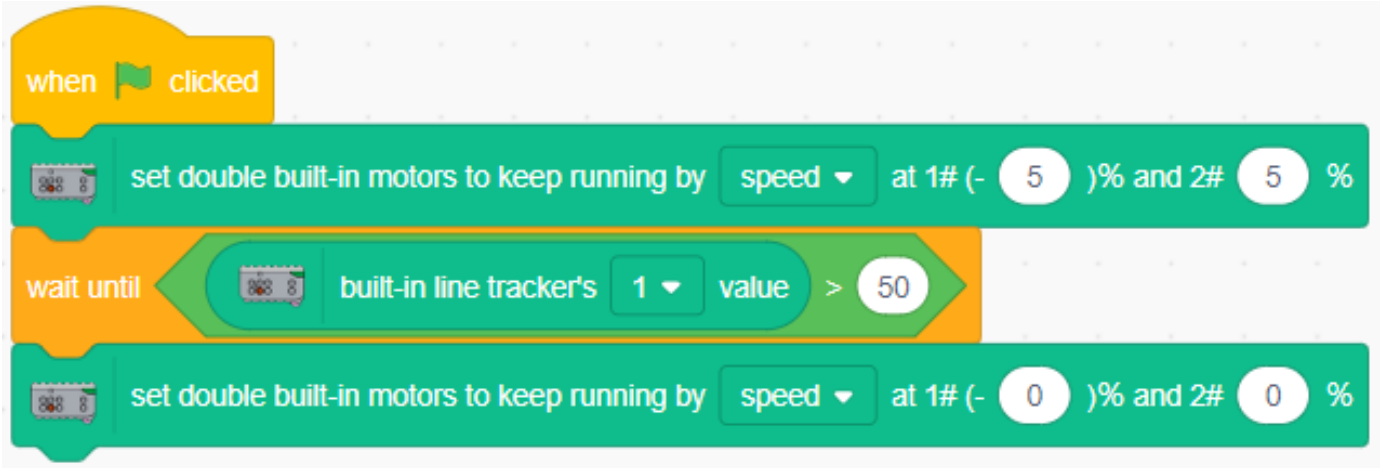


Summary



Make the program wait until the specified condition is met before executing the next module.

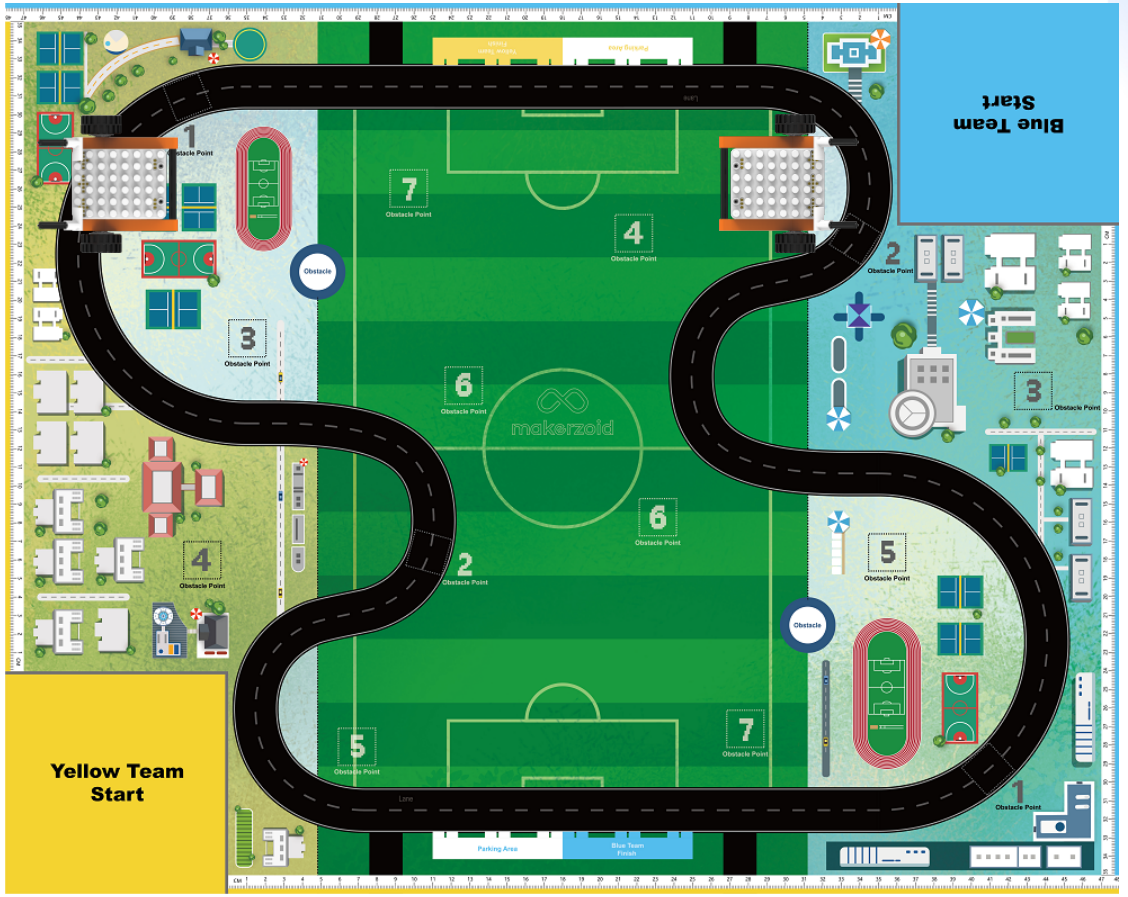




Summary

3. Finish the competition

You need to set the waiting time according to the actual conditions.



SHARE WITH YOUR PARENTS

Share the knowledge about the Smart Recognition with your mom and dad when you get home!