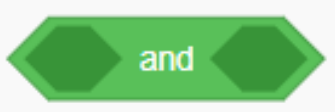
# Course Review

## 1. Logical relationships.



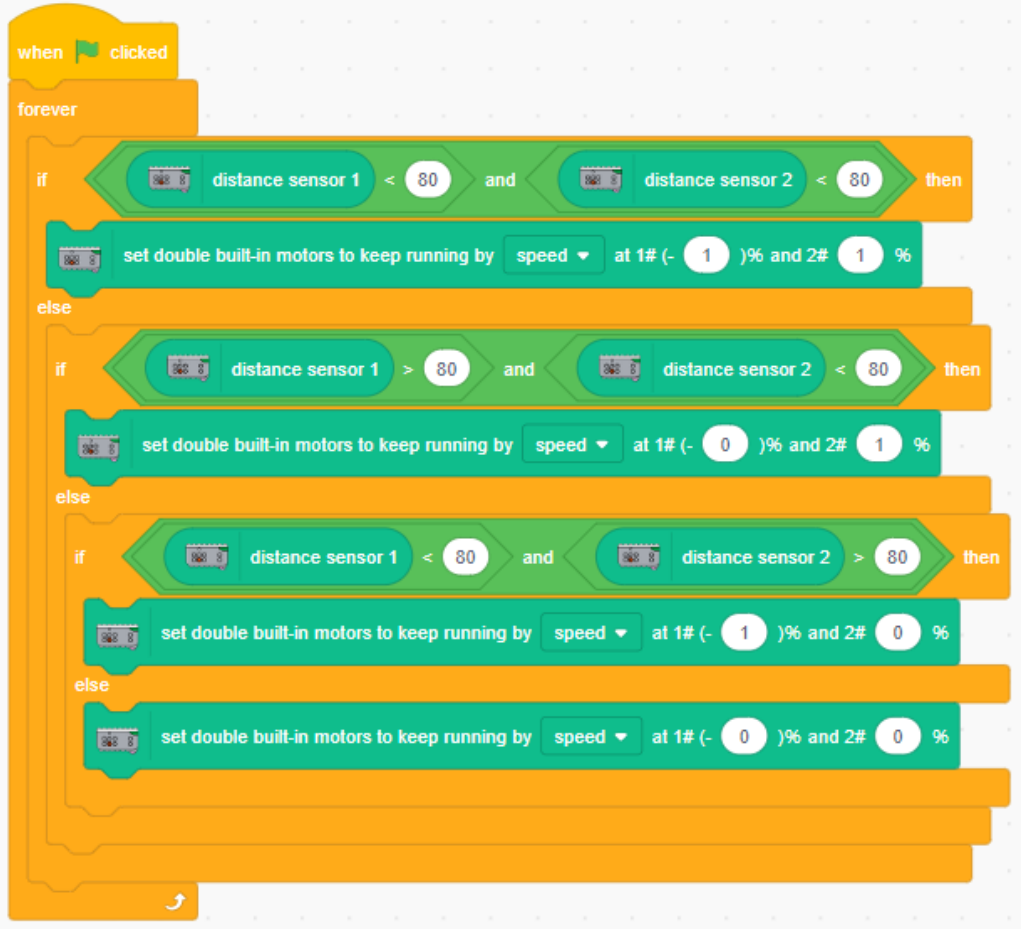

If both conditions are true, output "true"; otherwise, output "false."

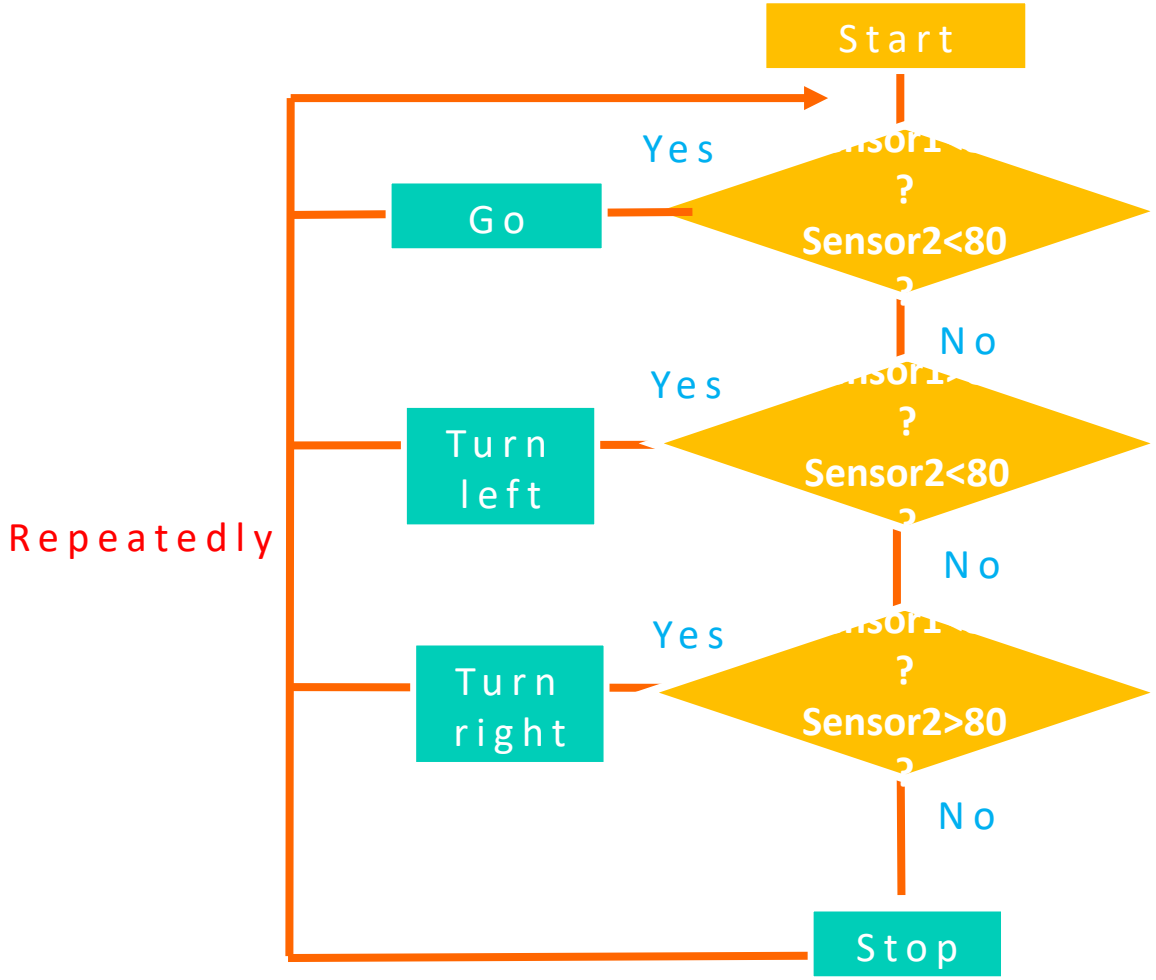

If at least one condition is true, output "true"; if no conditions are true, output "false."


When the selected condition is not met, the output should be "true."

# Course Review

## 2. Multibranch structure.

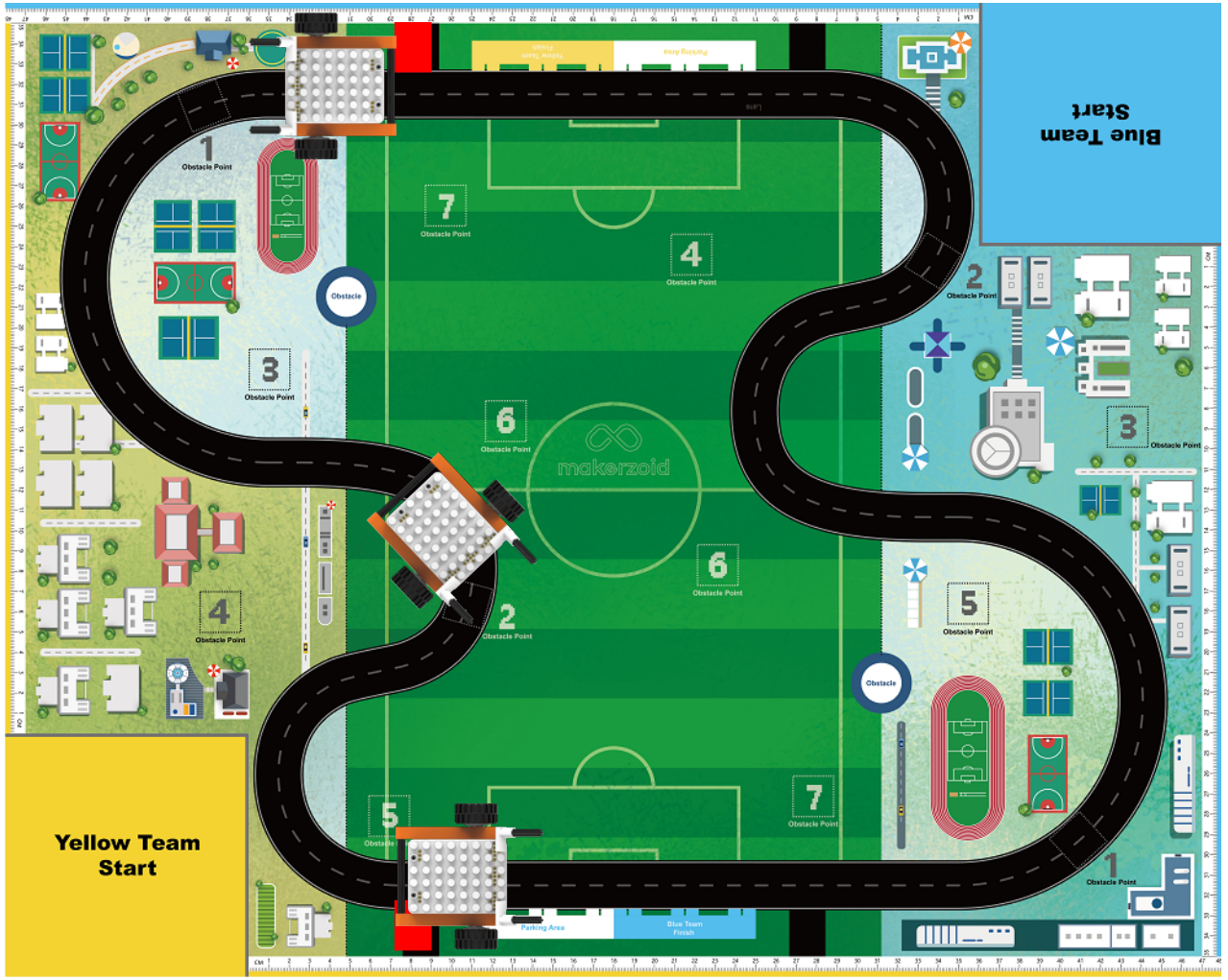


# Course Review

## 3. Complete the race.

Finish Point




Start Point

Please use your own kit.

Do not put any parts in your mouth.

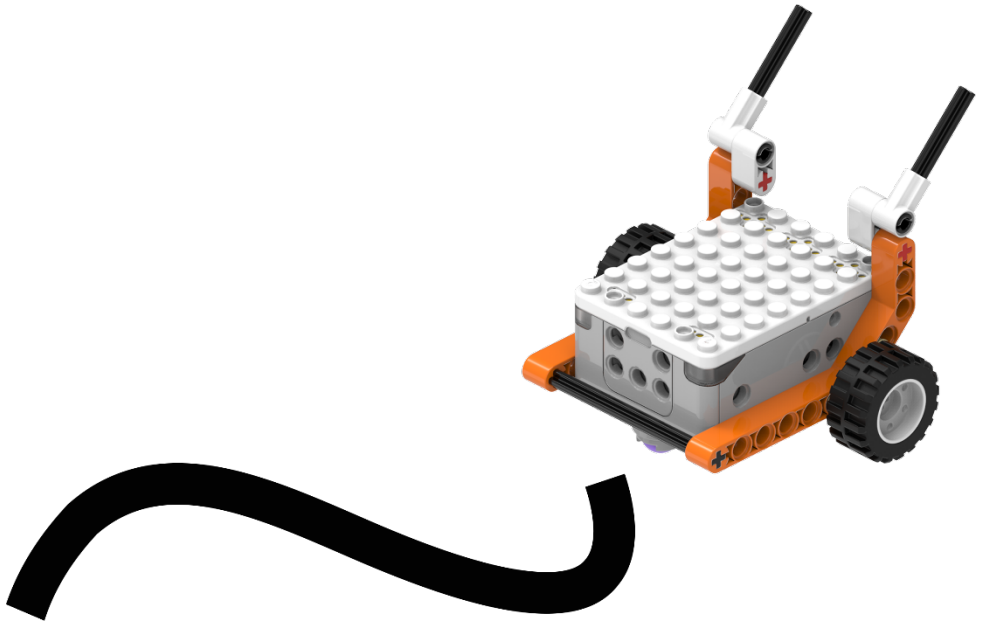
Please clean up after use.

Please raise your hand if you have any questions.

# INTRODUCTION

# Scenarios

In the last lesson, we controlled the small car using gestures to make it move along the black line track. In this lesson, we will make the car automatically follow the black line.



Dear kids:

How does the car recognize the black line?
How can we control the car to follow the black line?

Let’s embark on our exploration journey together with the "Line-following Car"!

暗物智能
DARKMATTER AI

# Line-following Car

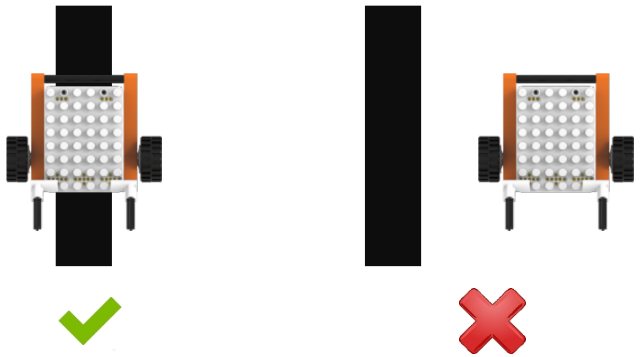
## AI Courses

# Scenarios

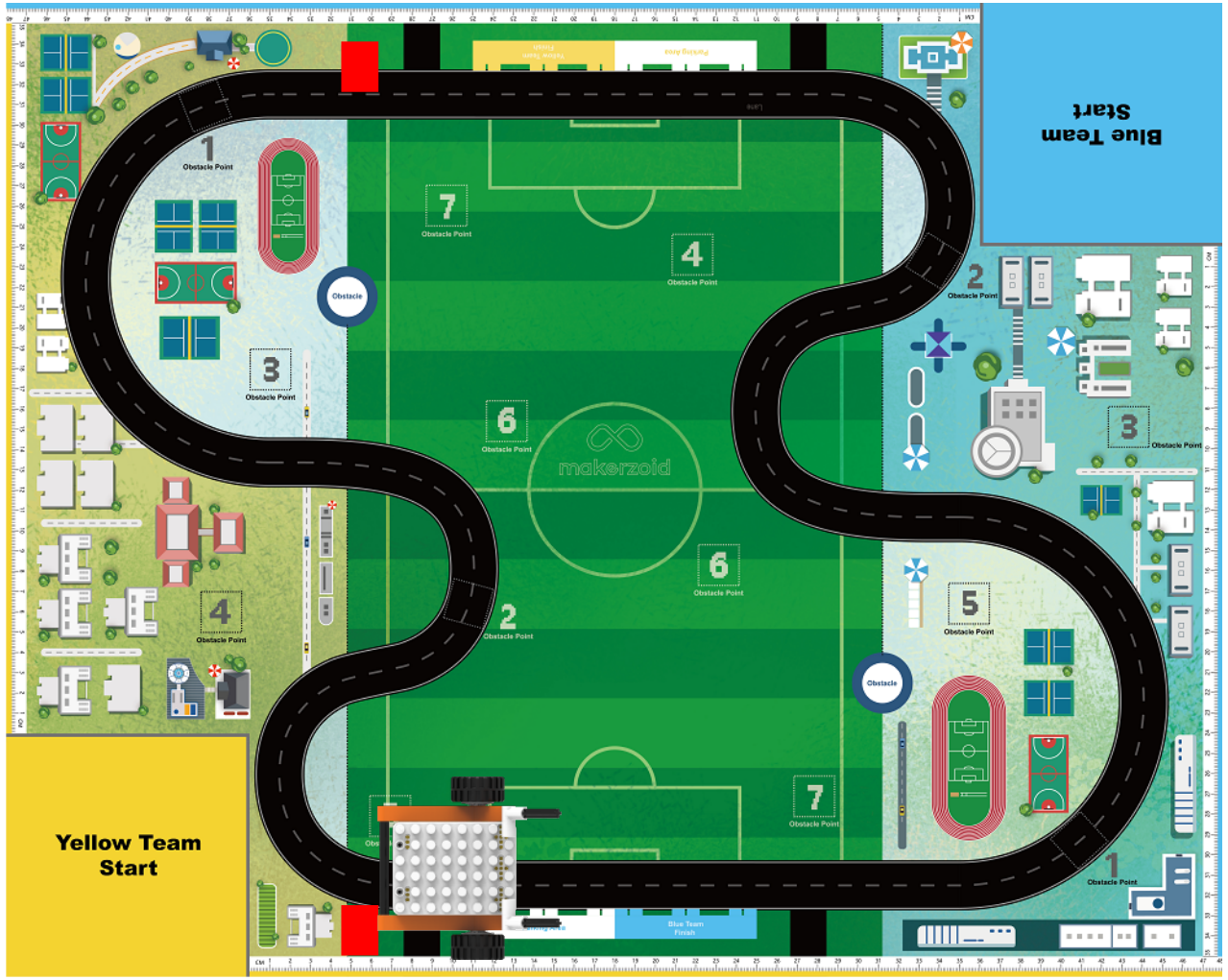
## Competition rules:

1. The cars will start from the starting point and automatically follow the black line to the finish line.

2. Let's see whose car reaches the finish line the fastest.



Finish Point




Start Point

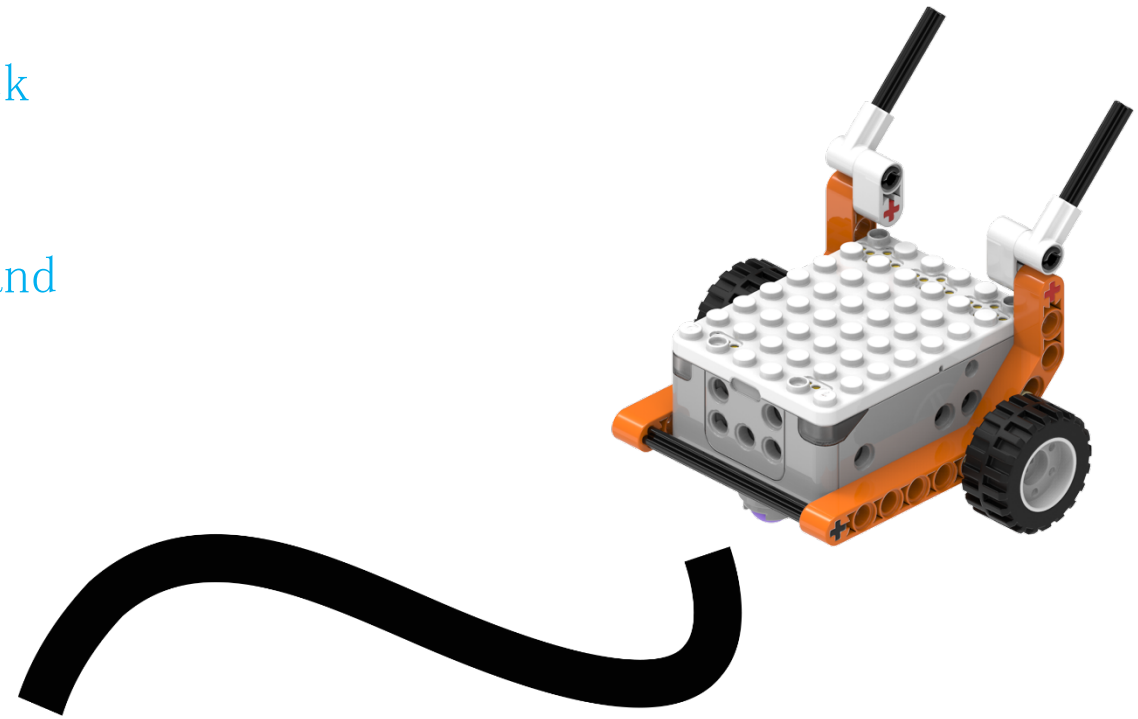
# Scenarios

## Question :

Kids, do you know:

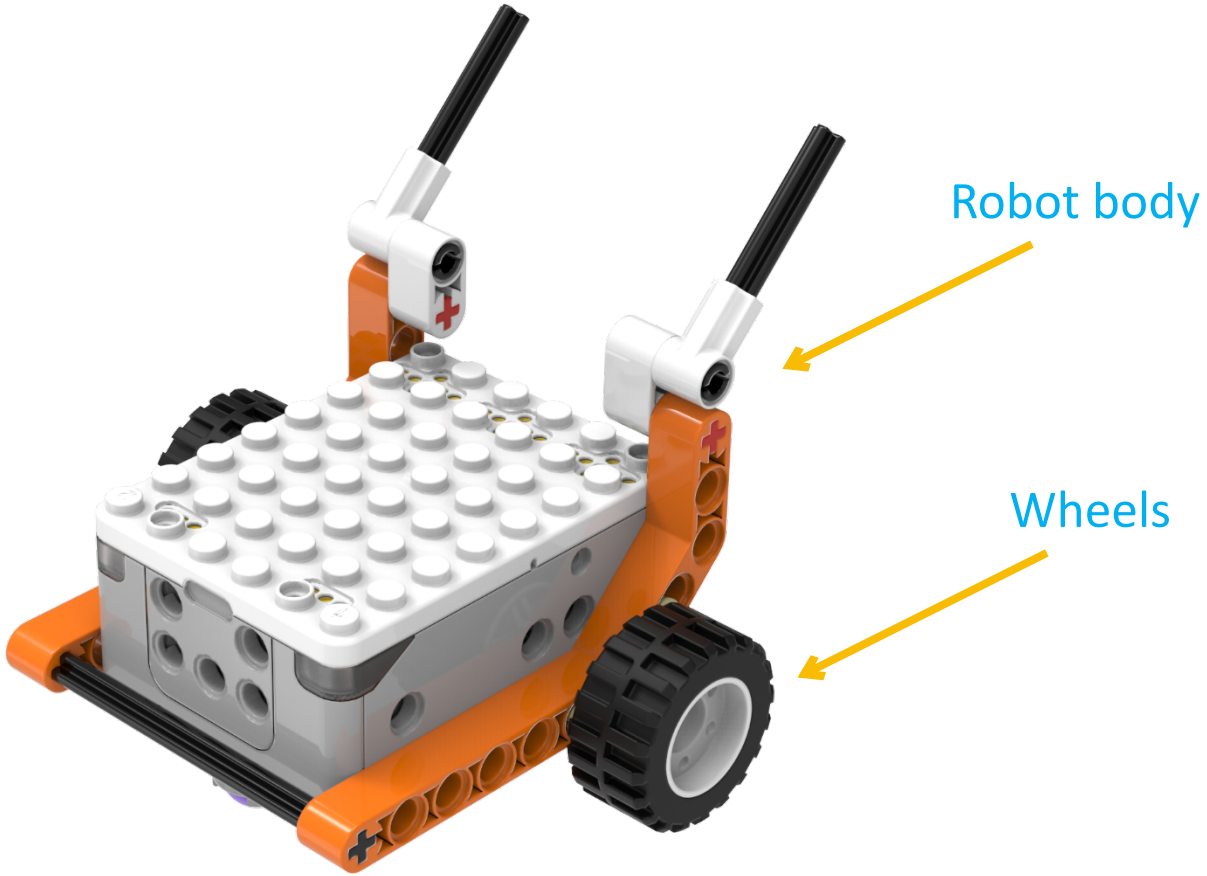
1. How does the car detect the black line?

2. How does the car stay on track and follow the black line?



# Scenarios

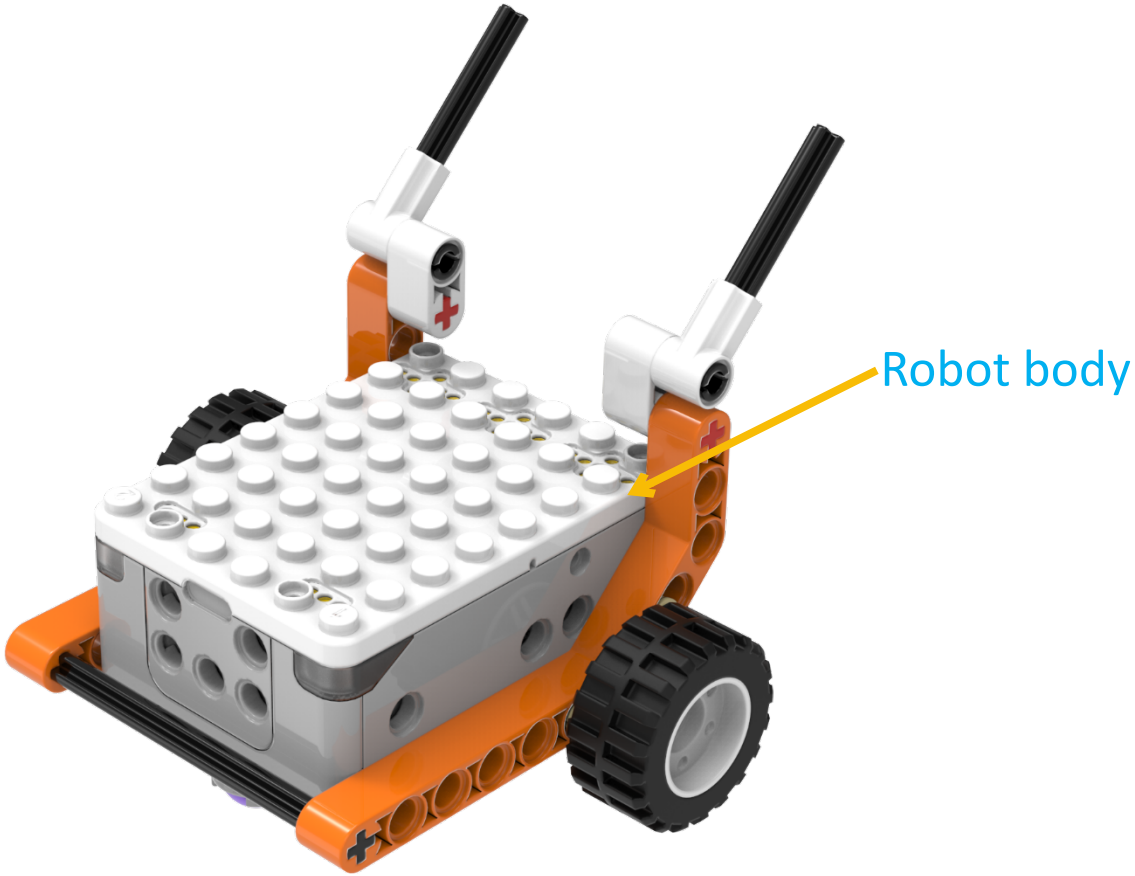
**Today, everyone is a junior engineer. Let's work together to complete the gesture control course!**



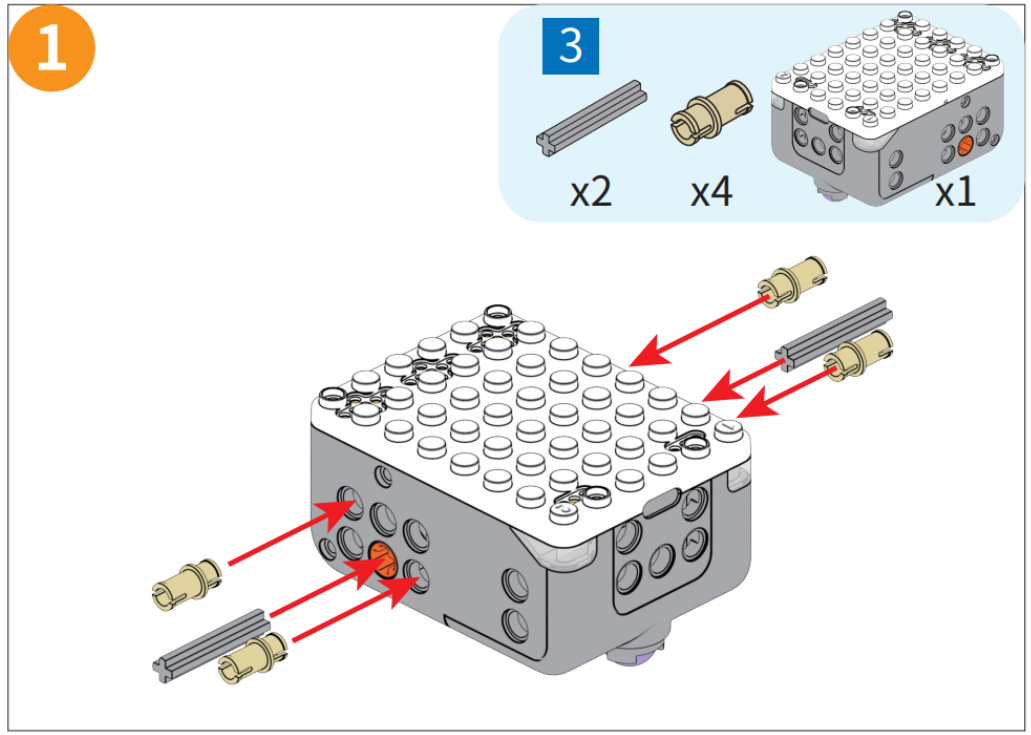
# ASSEMBLY

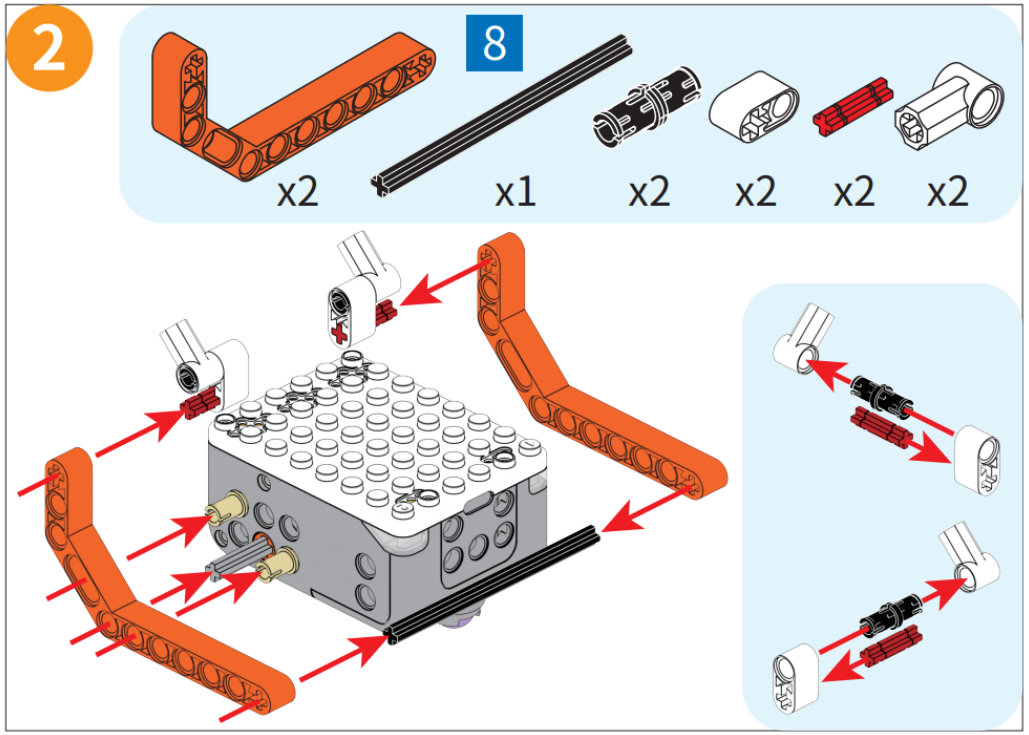
# The Final Model

## Robot body assembly



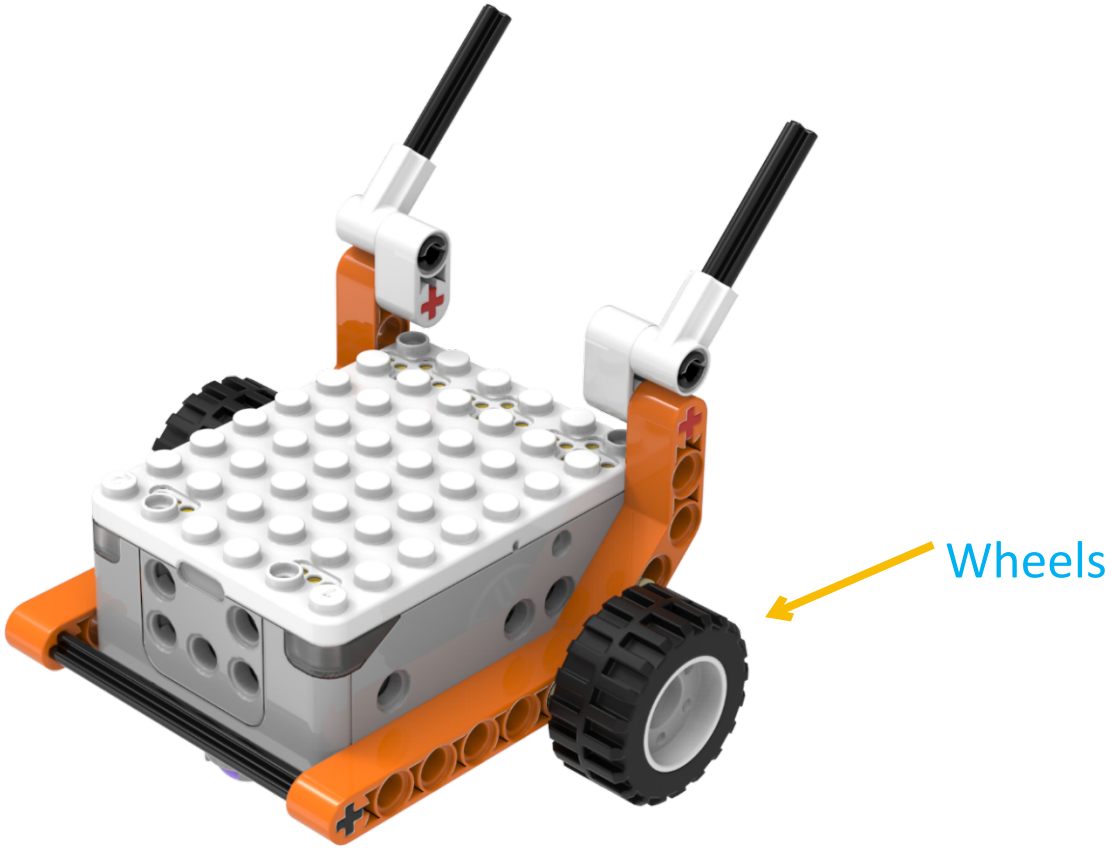
# Assembly



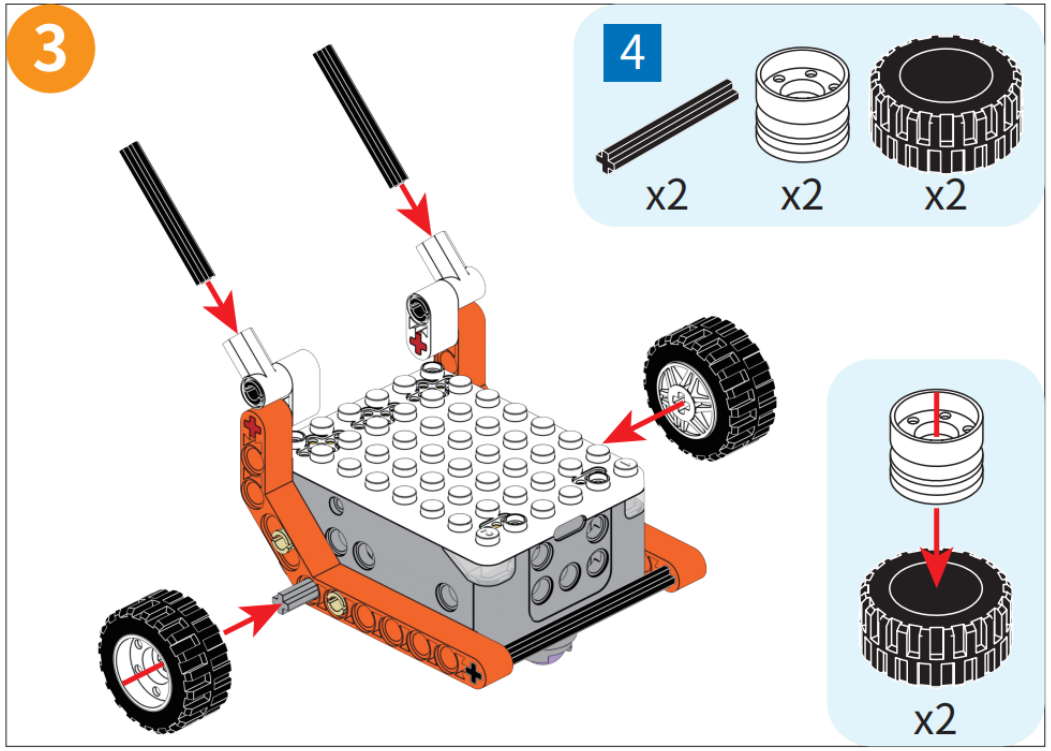



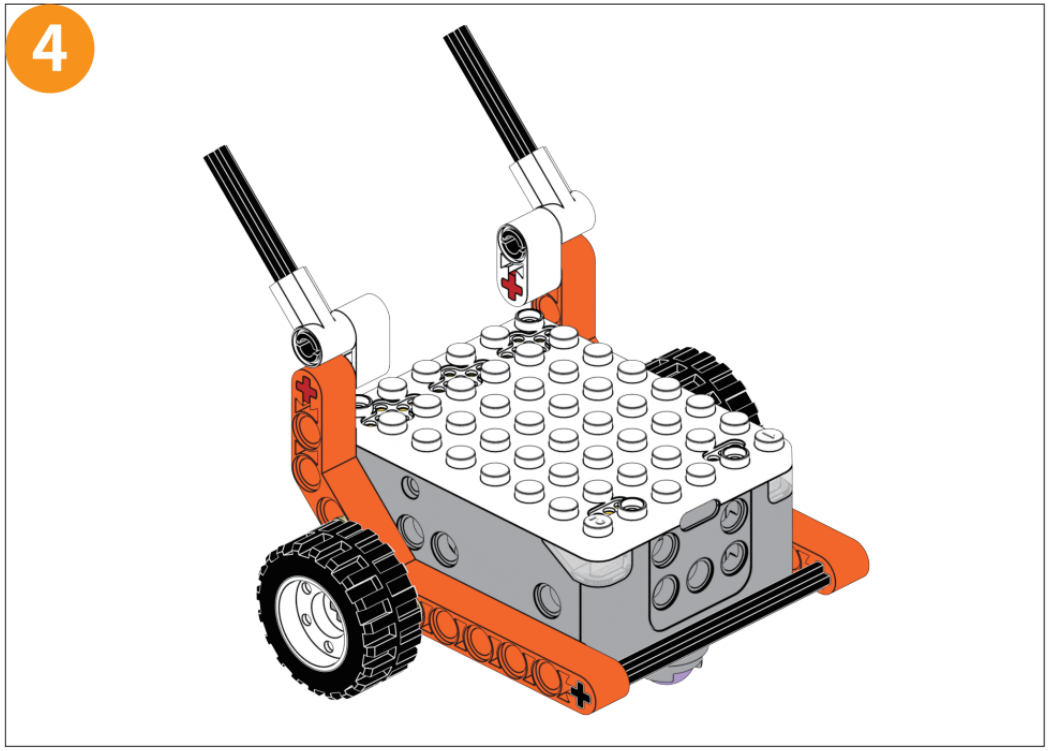
# Assembly

## Wheels assembly



# Assembly



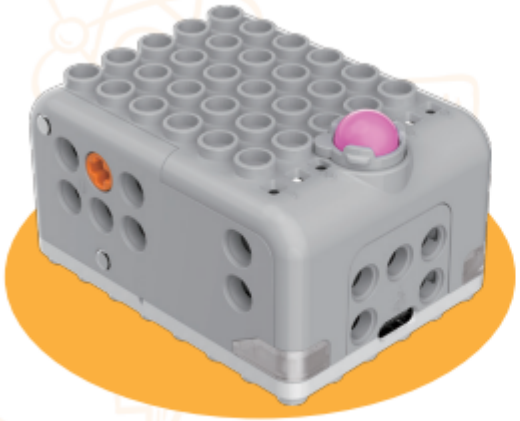



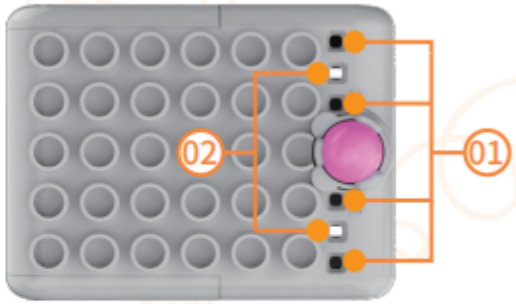
# PROGRAMMING

# Introductions

## Module Explanation

A 4-way line-tracking sensor can be used to detect the black line.



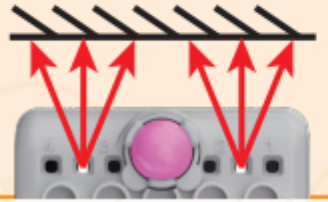



01. sensor receiving tube

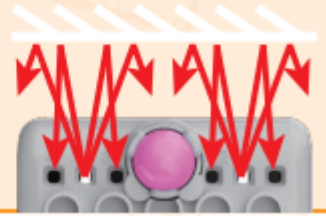
02. sensor transmitting tube

### Color Influence

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.

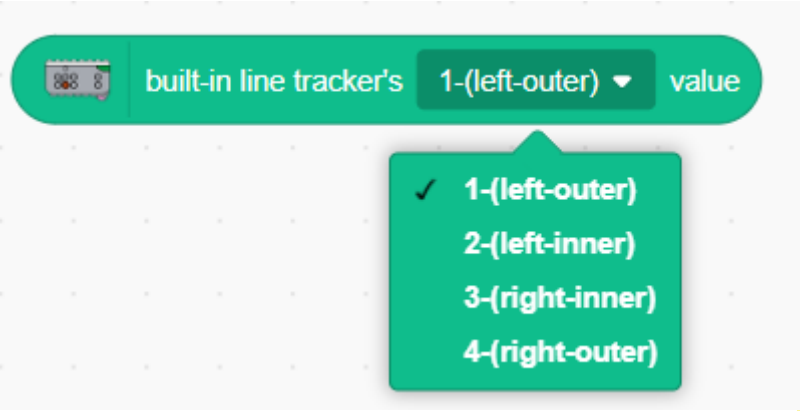


When the ground is white, white reflects all the light.
So the sensor receiving tube can receive the signal light from the sensor transmitting tube.

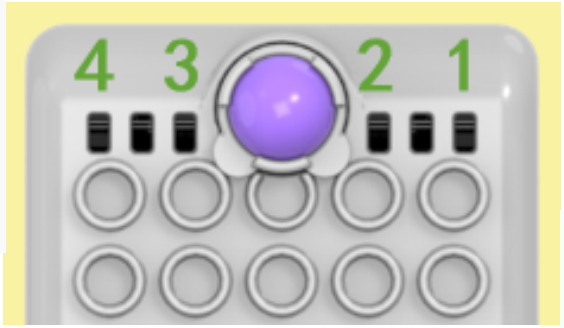


# Introductions

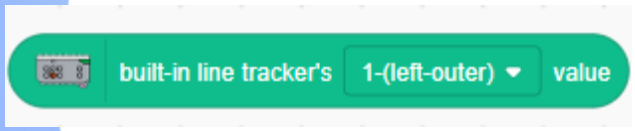
## Module Explanation



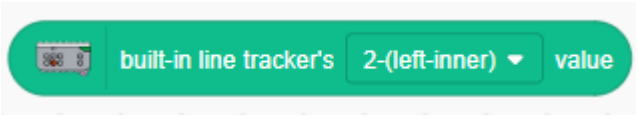

The corresponding sensor values can be read.



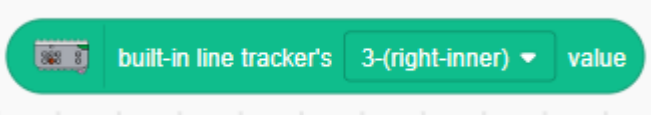

超霸mini巡线: 27*21*27*33



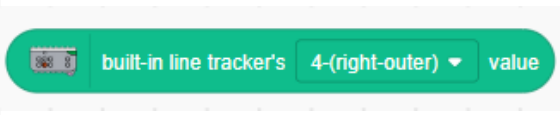

27




21



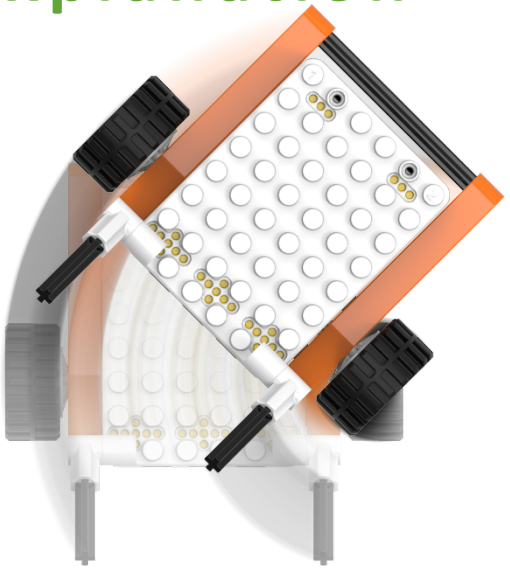

26

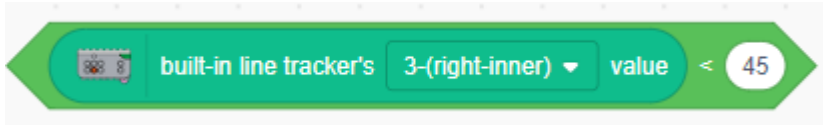


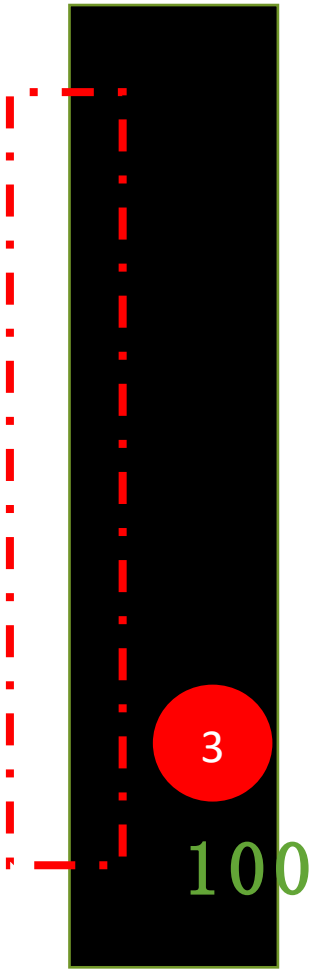

33

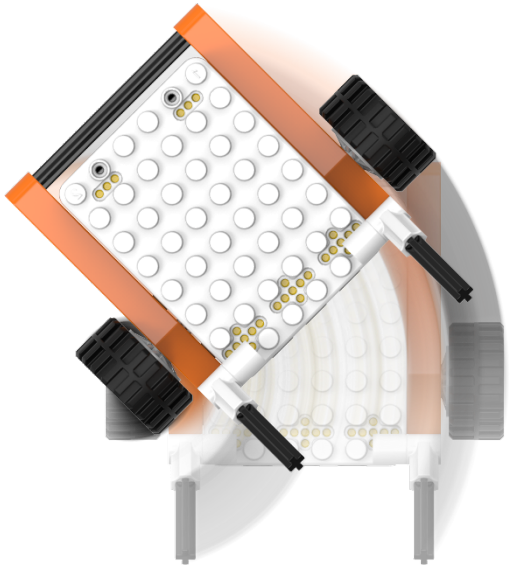
# Introductions

## Program Explanation





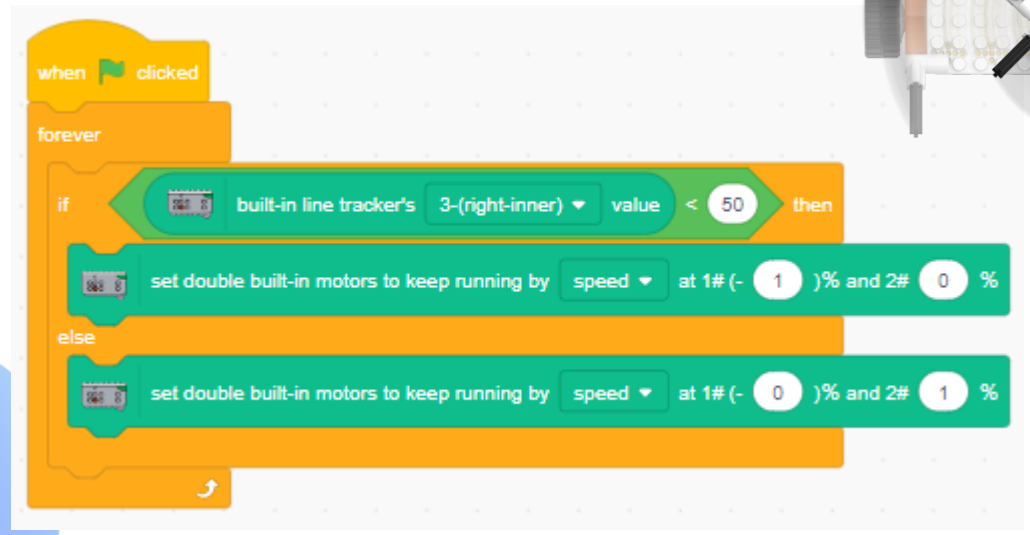



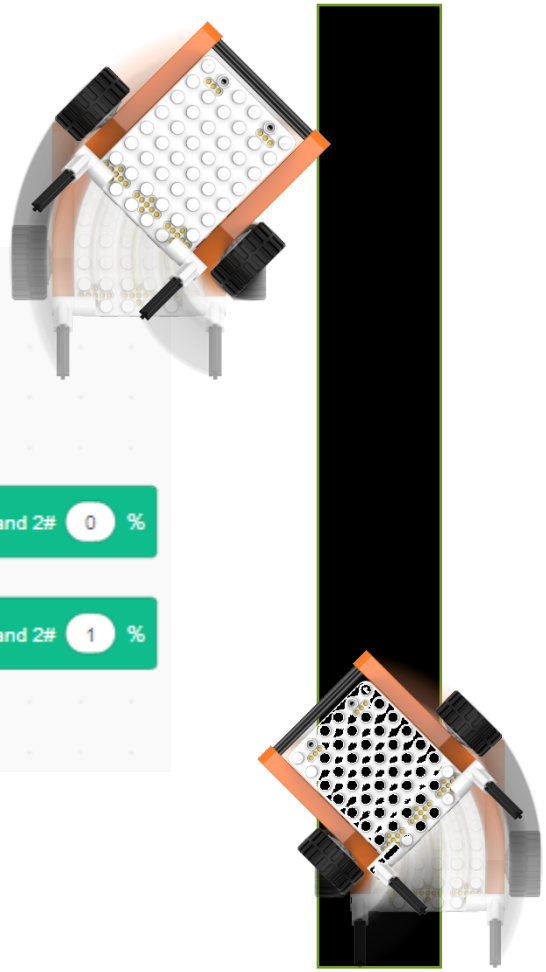



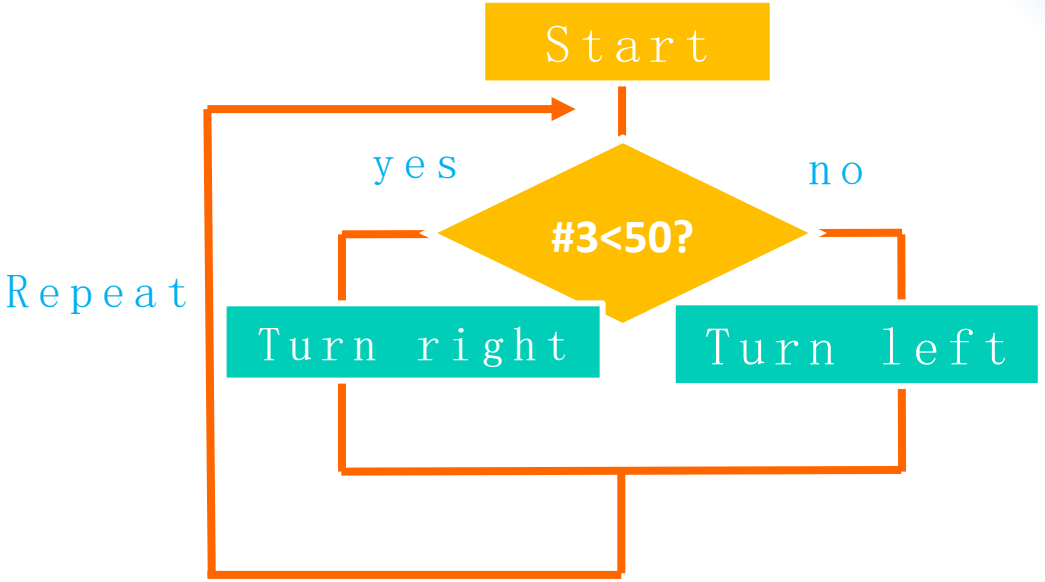
average value= ( 100+0 ) /2 = 50

# Introductions

## Module Explanation



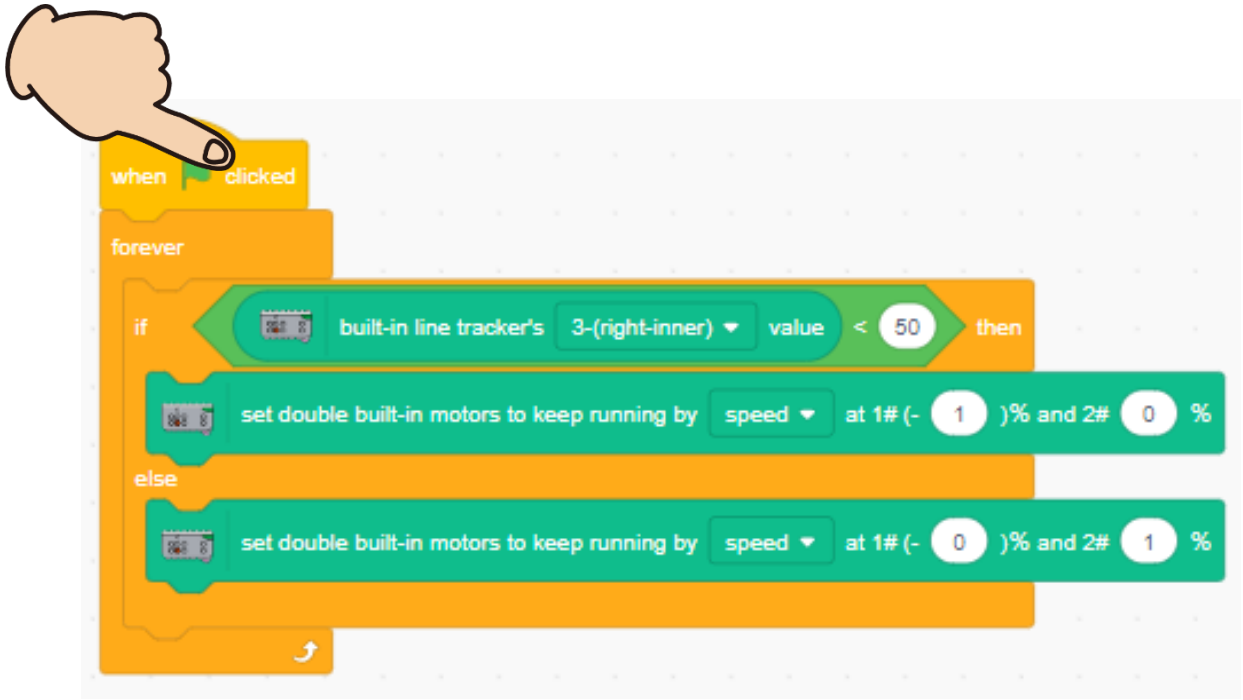





# Play and Try

## Let's play:

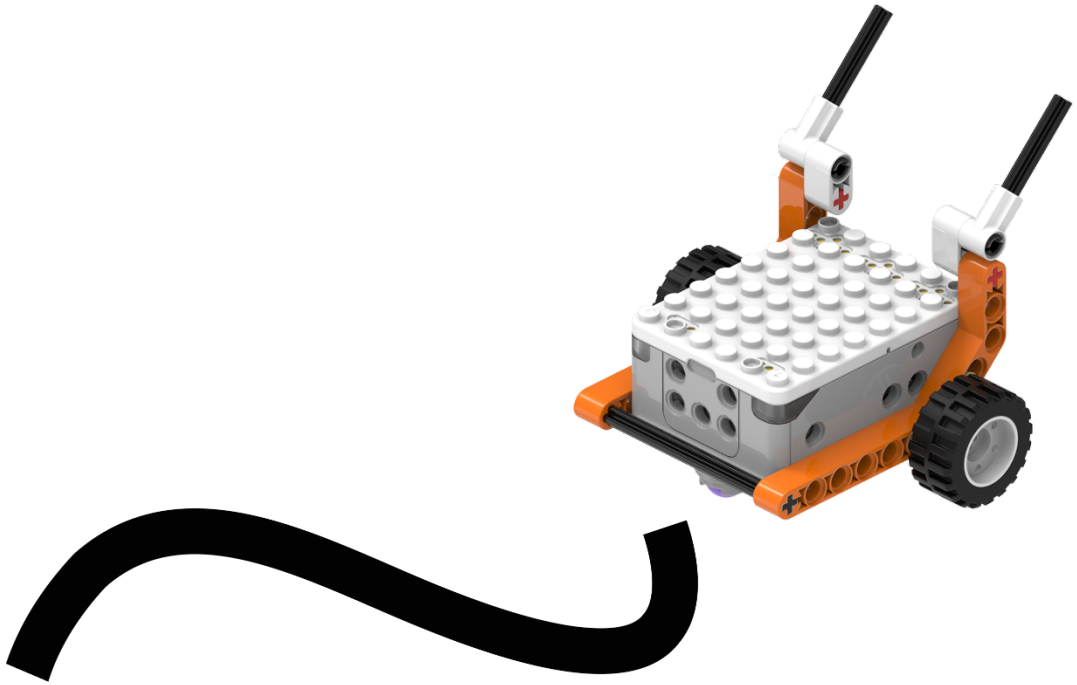
Click the start button to see if the robot can move along the black line.




# Play and Try

## Let's compete:

Competitors, get ready! Let's see whose car reaches the finish line the fastest!

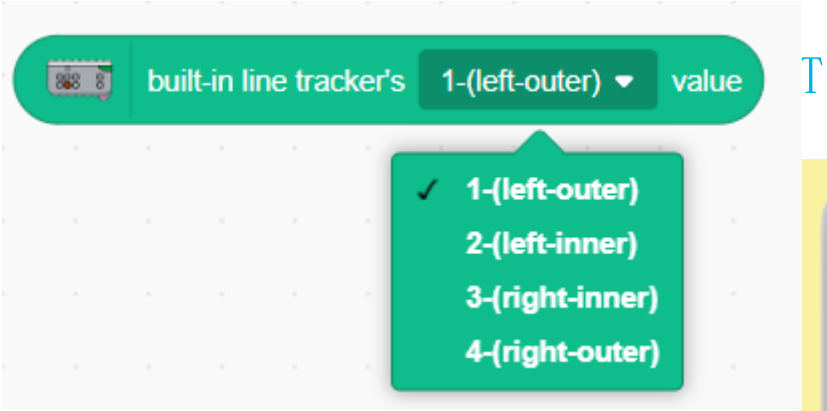


Kids, is there a way to make the robot even stronger?

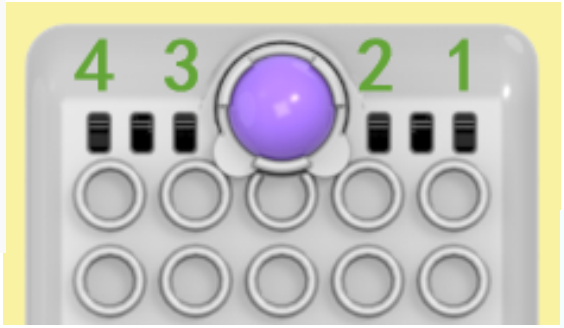
# SUMMARY

# Summary

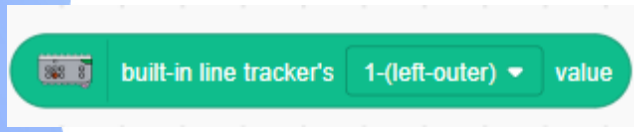
## 1.Module Explanation



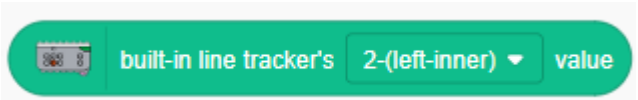

The corresponding sensor values can be read.



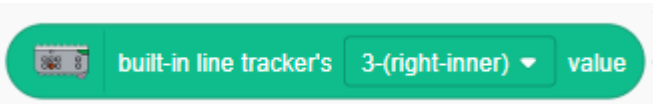

超霸mini巡线: 27*21*27*33



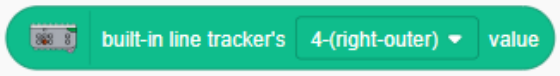

27




21



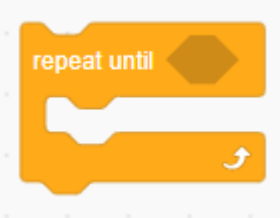

26



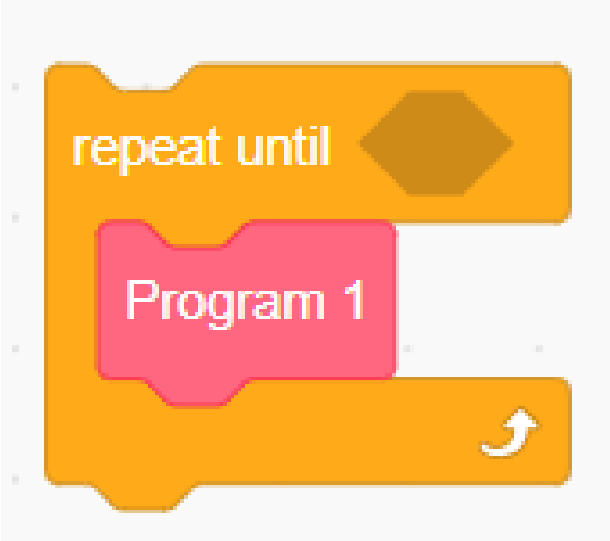

33

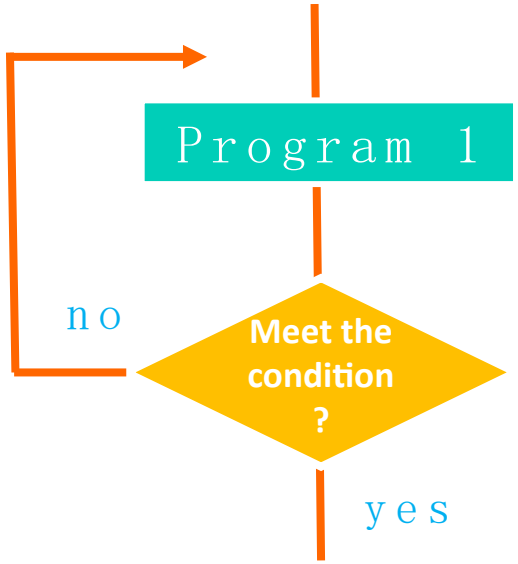
# Summary

## 2. Conditional loop



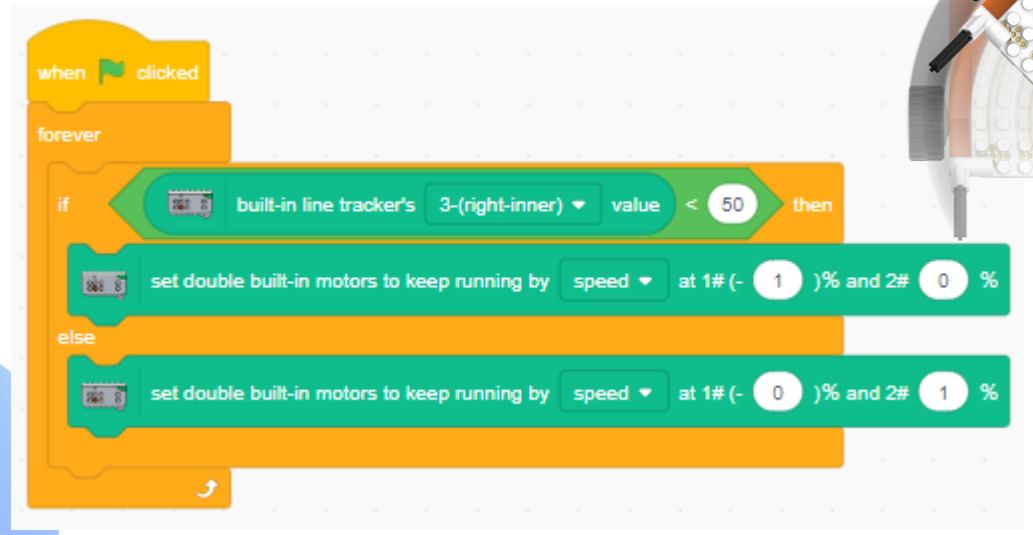

The robot can repeatedly execute the program and stop the loop when the condition is met.

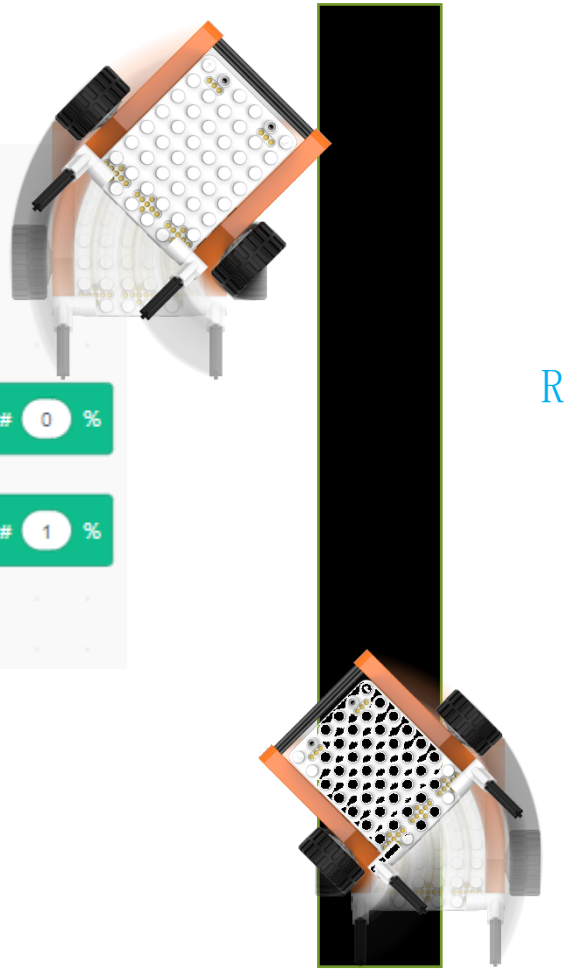


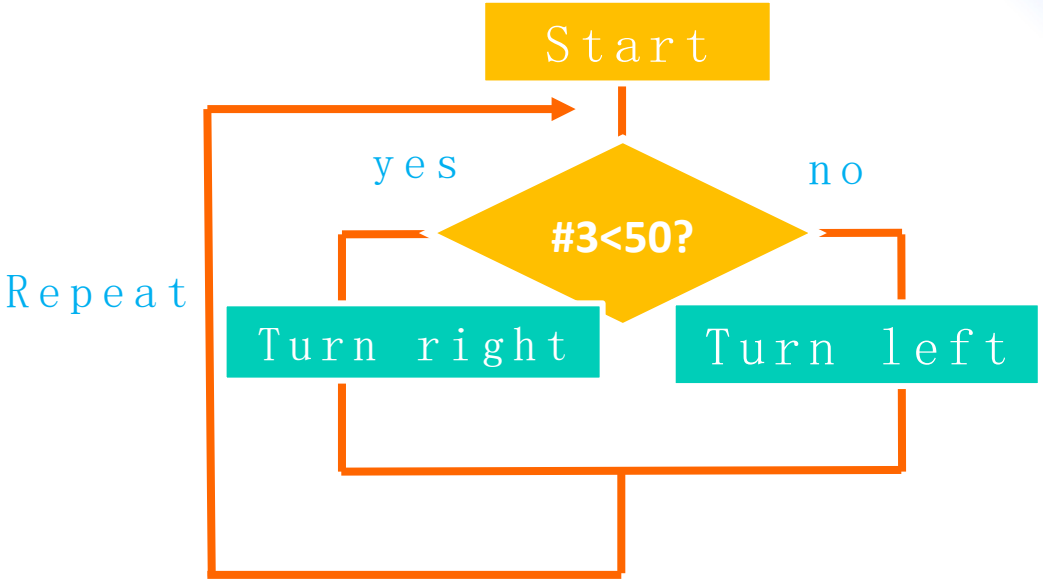



# Summary

## 3. Routing principle





# SHARE WITH YOUR PARENTS

**Share the knowledge about the Patrol Robot with your mom and dad when you get home!**