



Logic

Space



Coding



Focus



Classroom Discipline

01

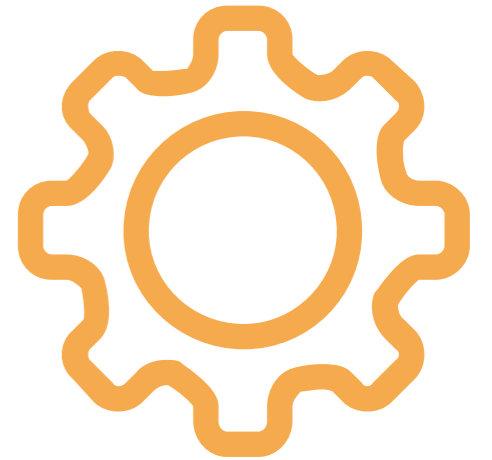
Please sit down and keep quiet in class.

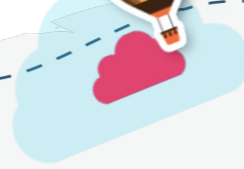
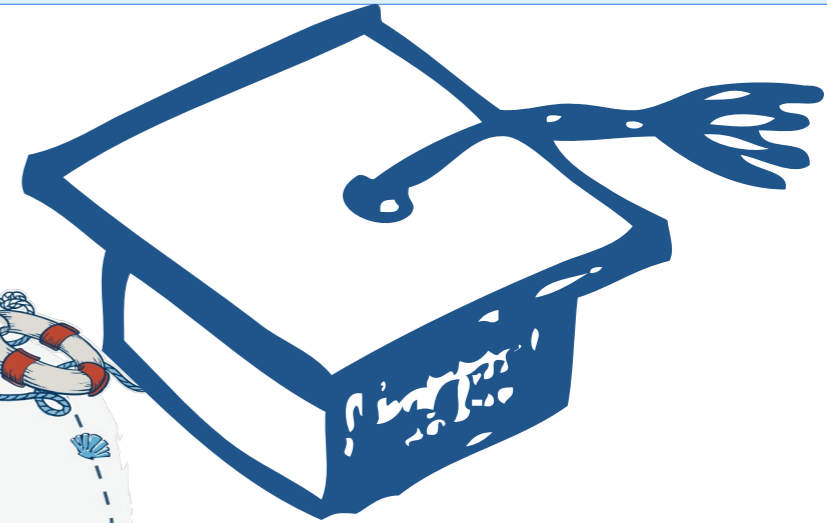
02

Please raise your hand if you have any questions.

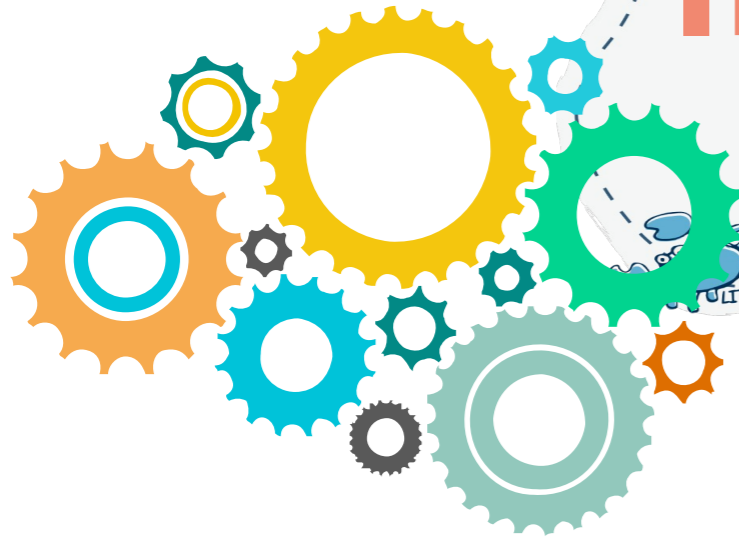
03

Please observe carefully when the pictures are played.





Intelligent Car



Course Goals



Thinkidea

1

Learning goals

2

Project Discussion

3

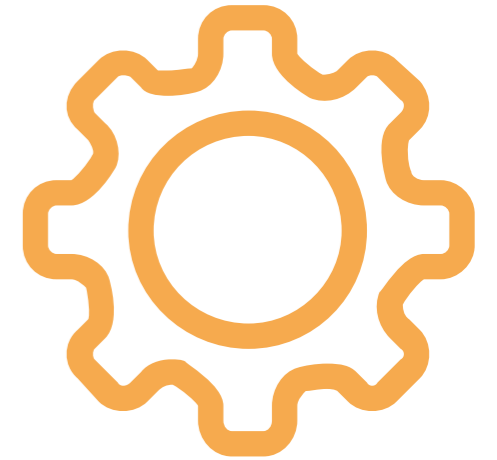
Logic Programming

4

Have a try

5

Consolidate and extend





1

Build a car club where the car automatically reverses when it reaches the edge of the table.

2

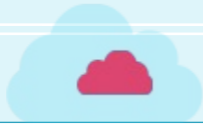
Consolidate modules such as **"if...then..."** 、 **" Operators <"** 、 **" Sense"** .

3

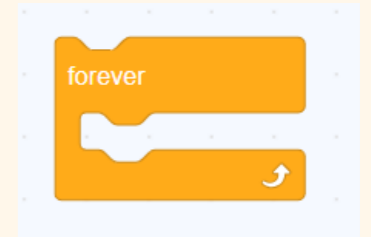
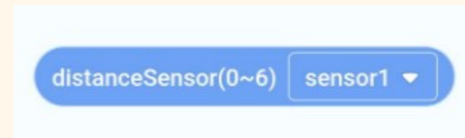
Learn new modules such as **"if...then...else..."** 、 **" light"** .

4

Comprehensively apply the learned modules to complete programming projects and expand.

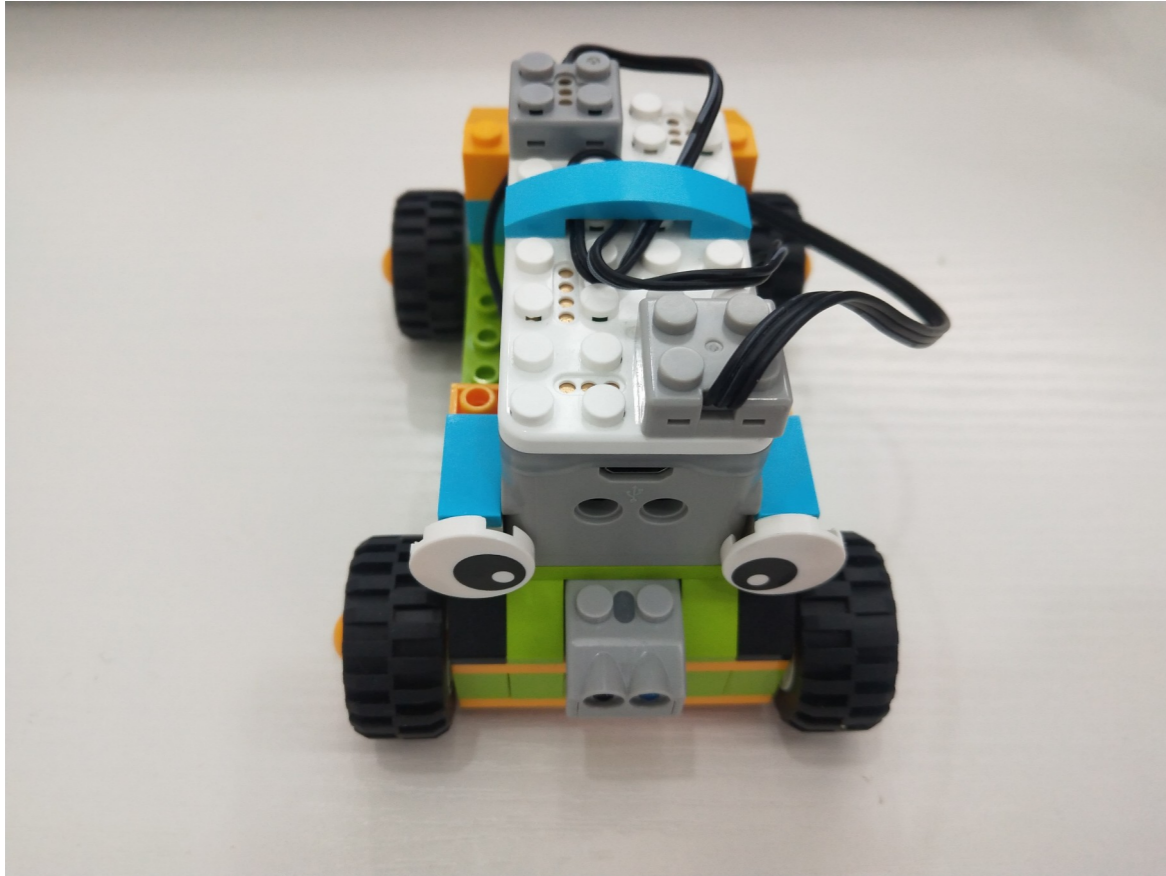


Consolidate modules:



New modules:



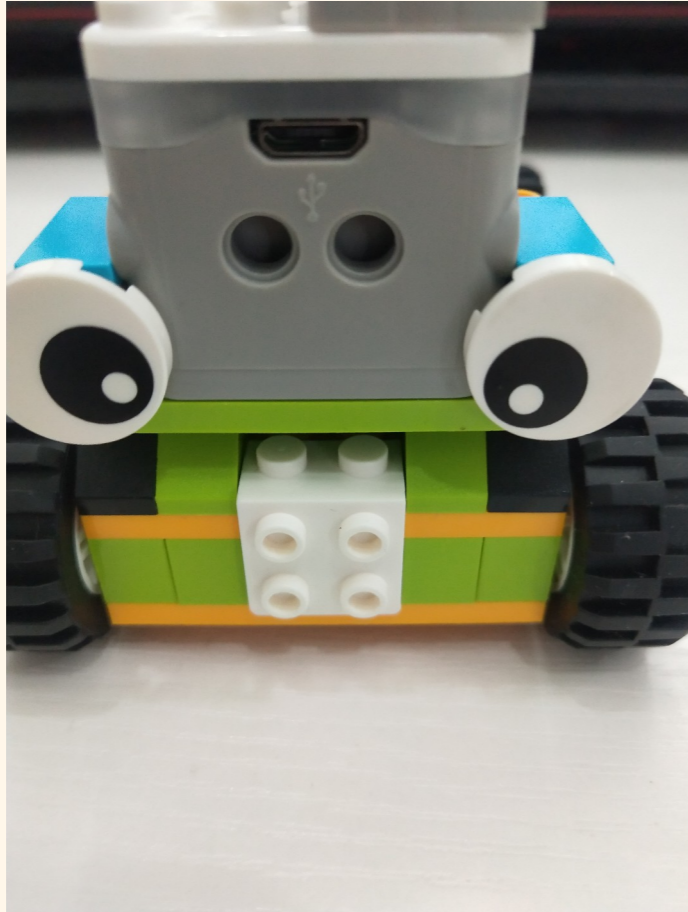


Project Discussion

- 1. Let the car turn on the green light and go forward.**
- 2. Let the car turn on the red light when it reaches the edge of the table.**
- 3. Let the car move backward.**
- 4. Let the car turn on the green light and keep moving forward.**
- 5. Repeat.**

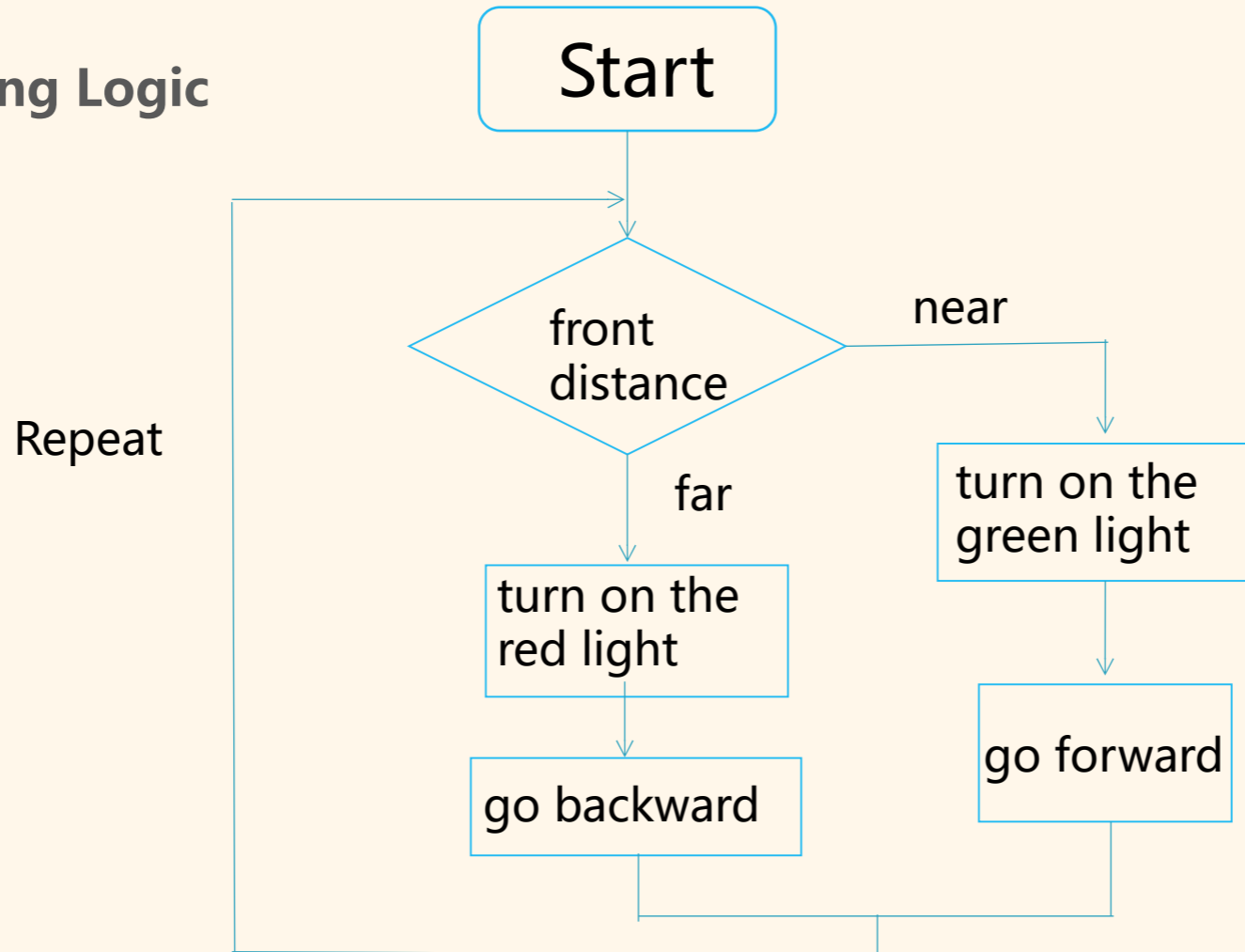


Let's modify the car first!





1. Programming Logic





1. Learning obstacle detection.

1. Learn "if... then..."

Example 1:

Rainy



Hold an umbrella

Will get wet.

If it rains, then hold an umbrella; otherwise, you'll get wet.

Example 2:

The weather is getting cold.



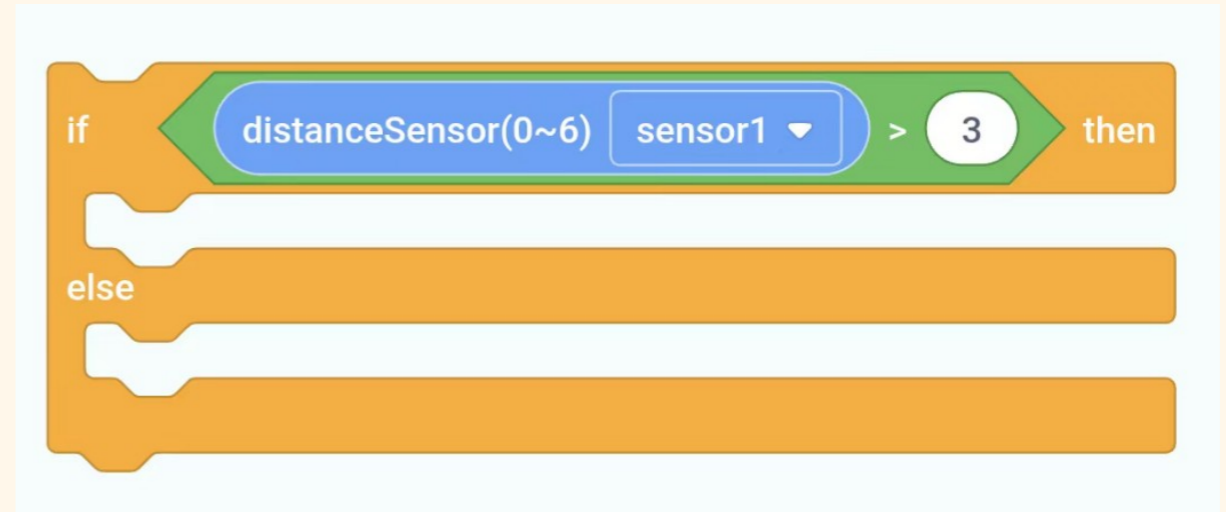
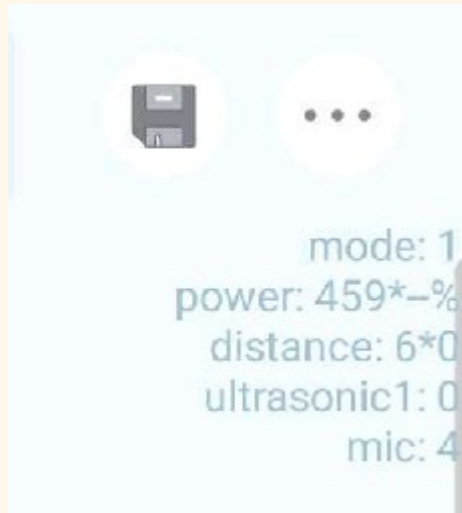
Keep warm

Will catch a cold.

If the weather gets cool, then be sure to keep warm; otherwise, you might catch a cold.

1. Identifying obstacles

1. Learn how to judge



What should we do when the value is greater than 3?

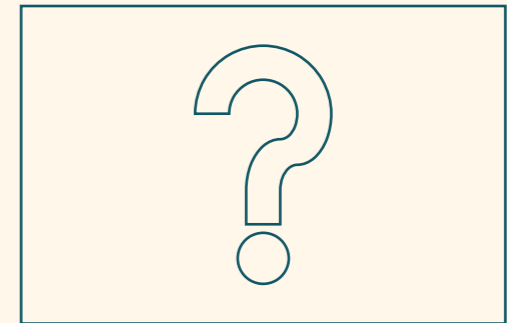
1. Move backward when the distance is far.

```
if distanceSensor(0~6) sensor1 > 4 then
else
```

```
set all to red
```

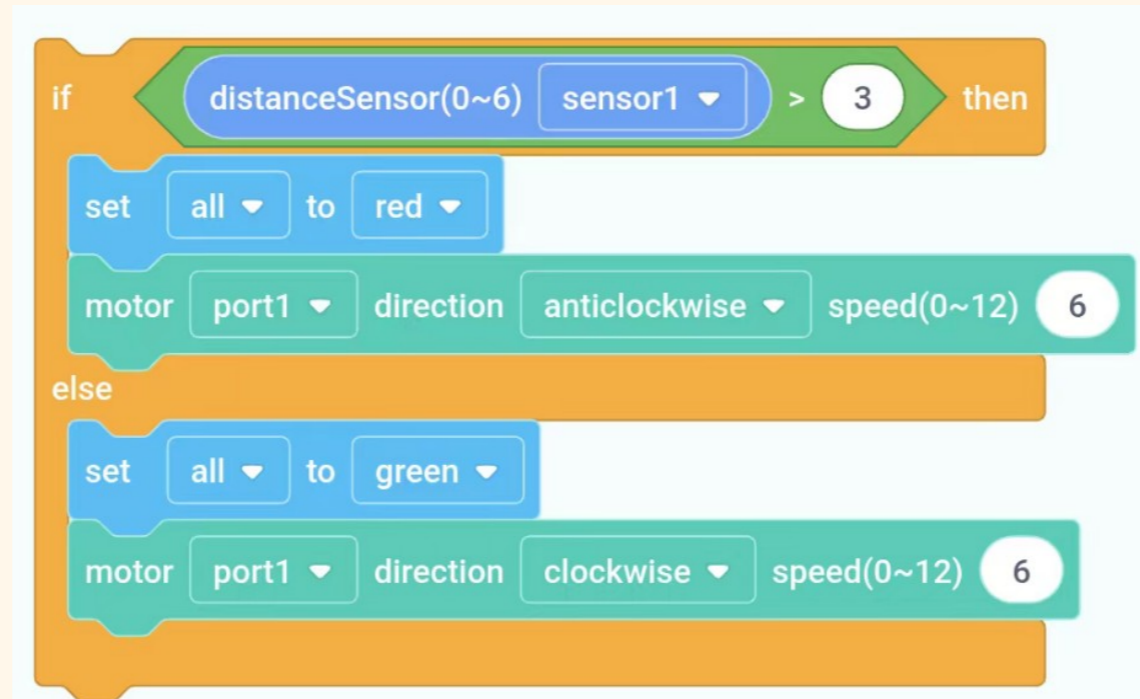
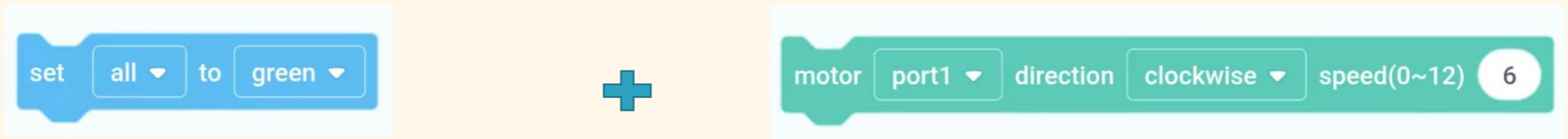
```
motor port1 direction anticlockwise speed(0~12) 6
```

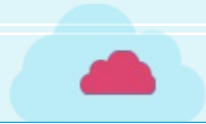
```
if distanceSensor(0~6) sensor1 > 3 then
  set all to red
  motor port1 direction anticlockwise speed(0~12) 6
else
```



1. Move forward when the distance is close.

1. Judgment Logic





1. Don't forget the "repeat" module!

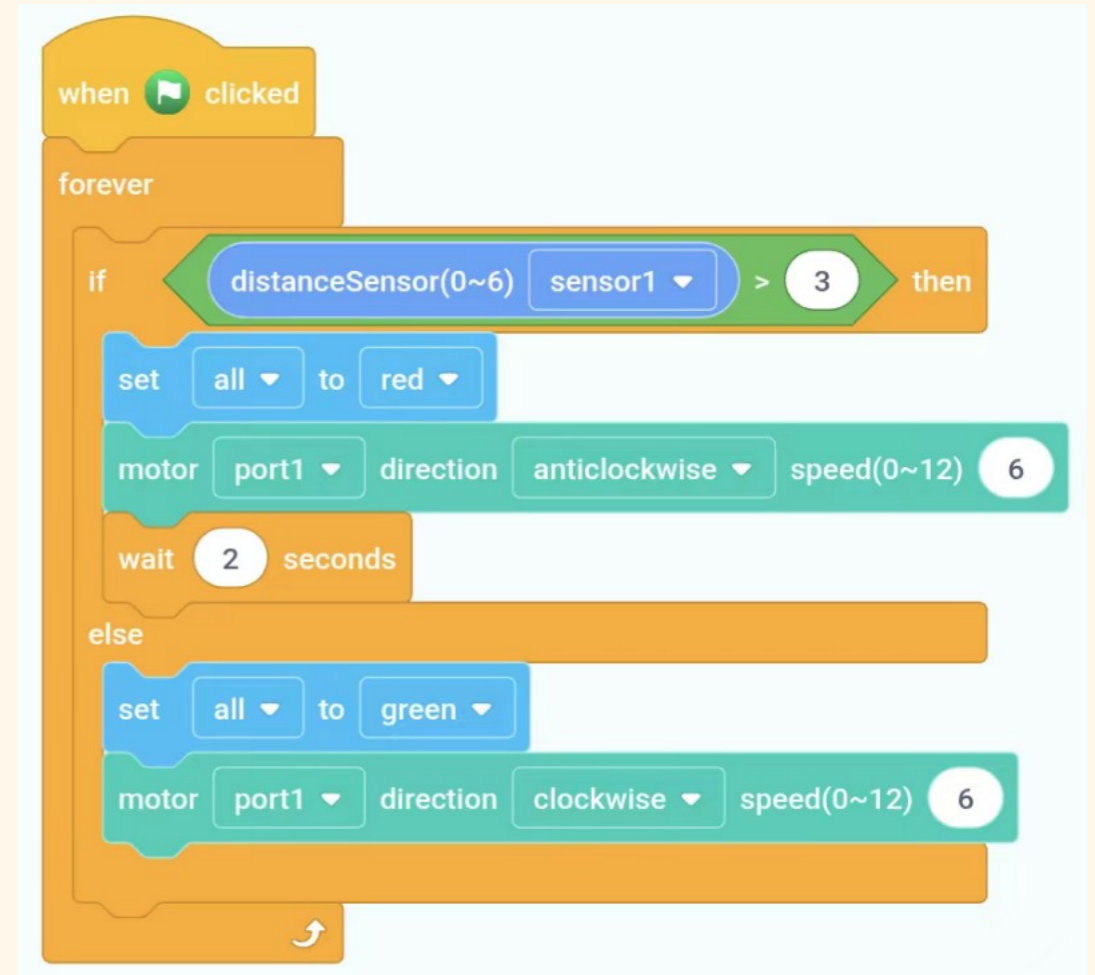
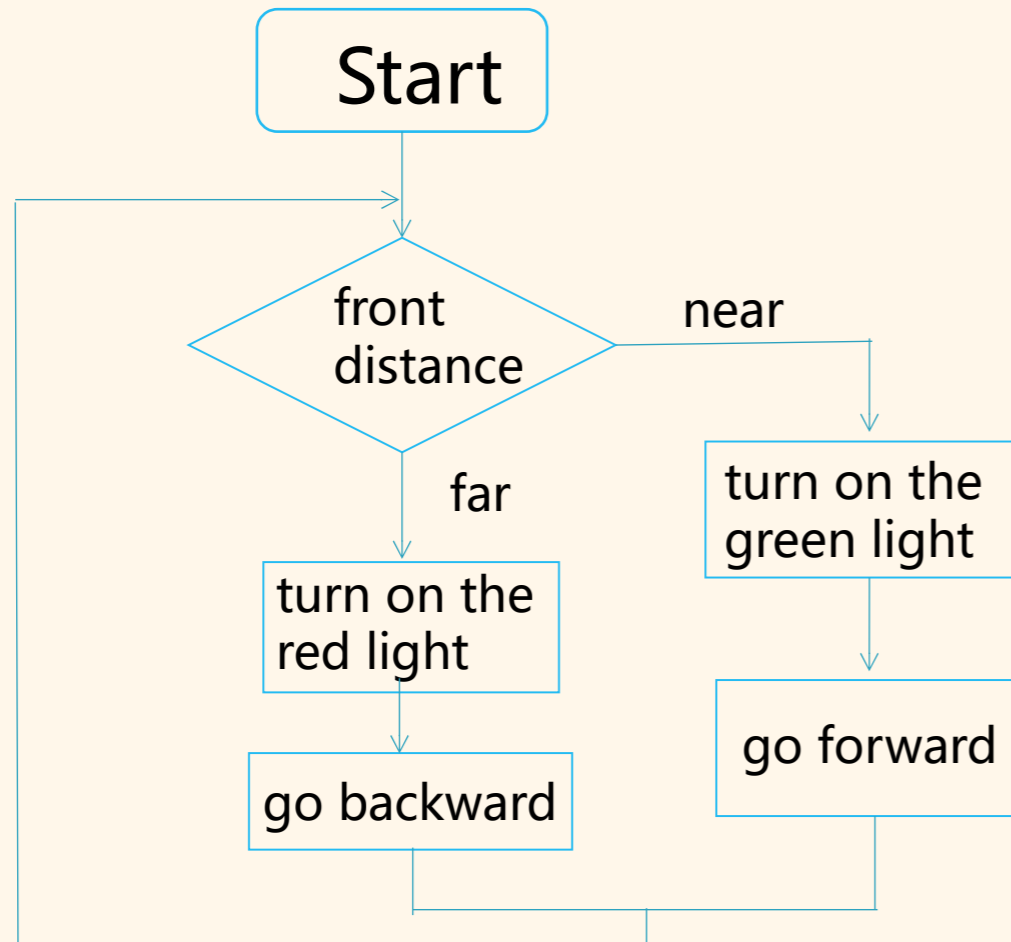
```
when clicked
  forever
    if distanceSensor(0~6) sensor1 > 3 then
      set all to red
      motor port1 direction anticlockwise speed(0~12) 6
      wait 2 seconds
    else
      set all to green
      motor port1 direction clockwise speed(0~12) 6
```

The image shows a Scratch script starting with a 'when clicked' event block. This is followed by a 'forever' loop block. Inside the loop, there is an 'if' block that checks if the distance sensor (0~6) on sensor1 is greater than 3. If true, it sets all lights to red, sets motor port1 to anticlockwise direction at speed 6, and waits for 2 seconds. If false, it sets all lights to green and sets motor port1 to clockwise direction at speed 6. The loop block has a refresh arrow at the bottom, indicating it repeats indefinitely.

1. Have a try

Task 1: Place the infrared sensor at the back of the car and write down your programming idea!

Repeat



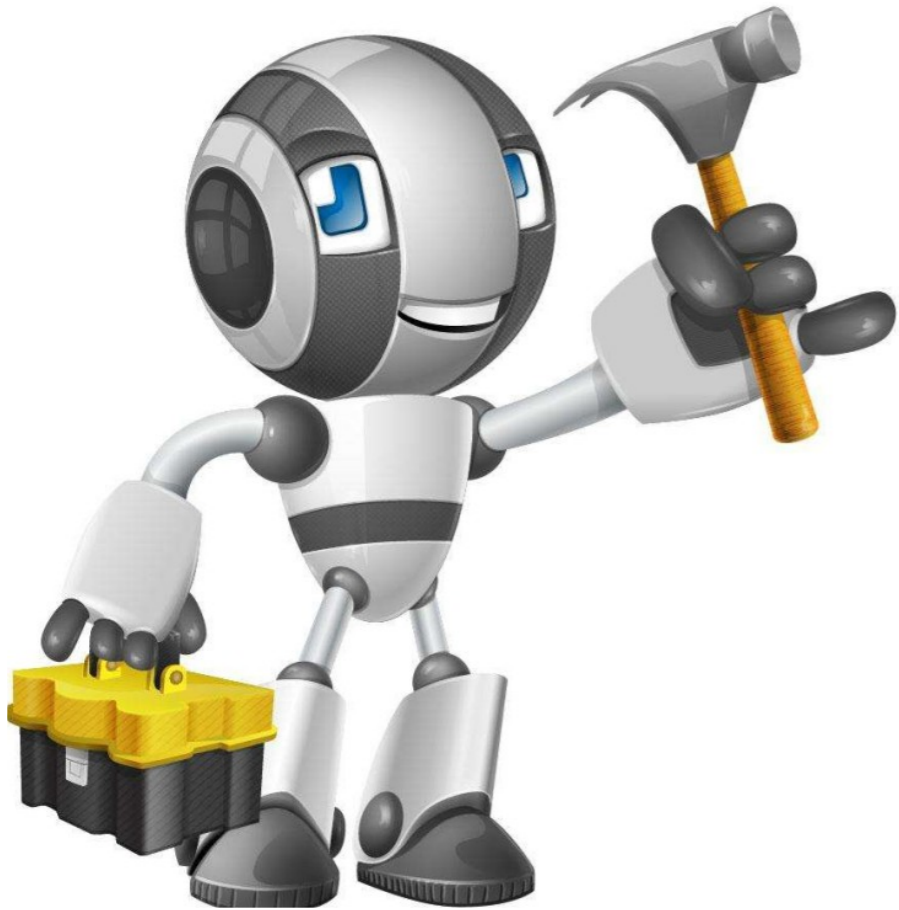


Consolidate and extend

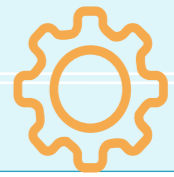
Q1 : Alex wrote a program for the car but it keeps moving backward. What happened?

```
when clicked
  forever
    if distanceSensor(0~6) sensor1 > 5 then
      set all to red
      motor port1 direction anticlockwise speed(0~12) 6
      wait 2 seconds
    else
      set all to green
      motor port1 direction clockwise speed(0~12) 6
```

A1 : Because the sensor value is too high.



Q &
A



Knowledge Review



(1)



The “If” command — “if...then...else” — is a commonly used logic script, usually used together with a repeat (loop) script.

(2)

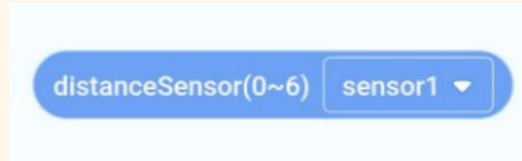


Use the Comparison block to check which side has the larger or smaller value between the two spaces.

Knowledge Review

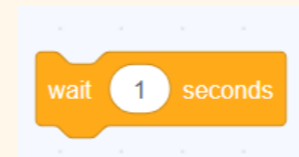


(3)



Distance sensor module.

(4)

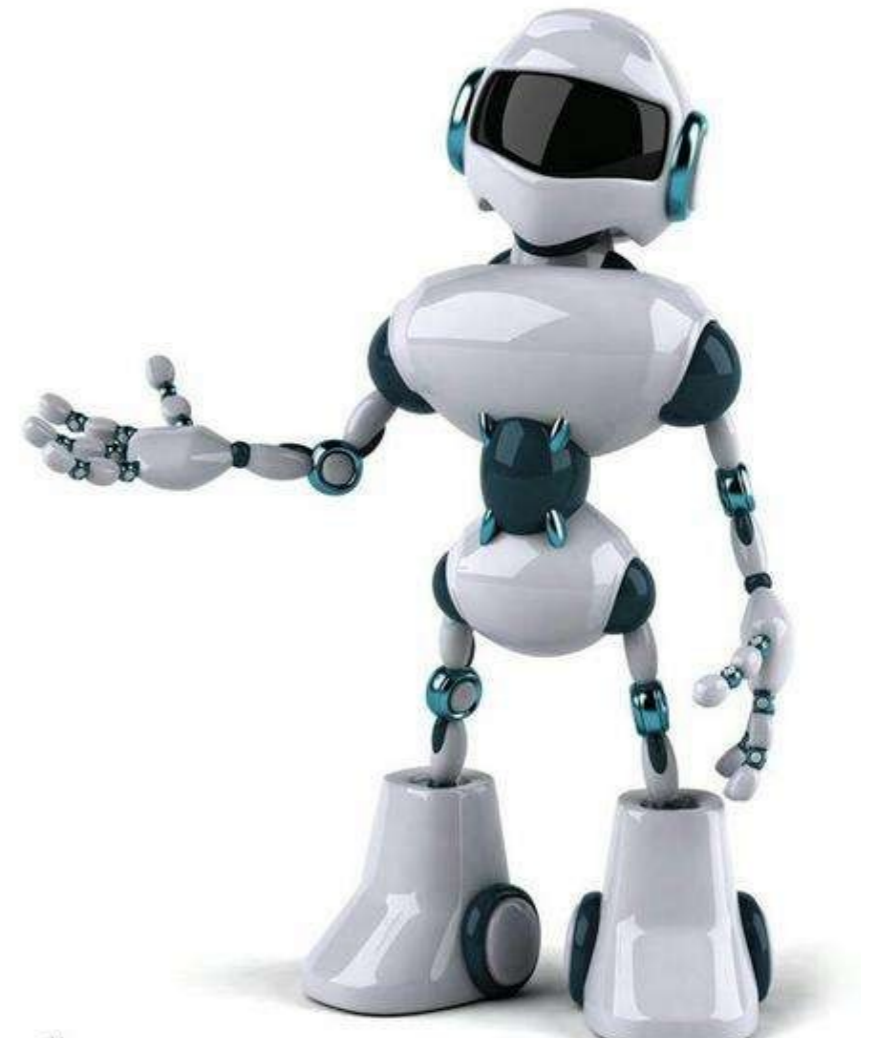


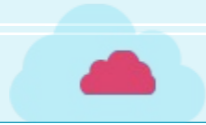
The programs are executed sequentially, with a waiting time interval between two programs.

Alex wrote such a program for the car, the sensor is in front of the car, but it keeps moving backward when it detects a long distance. Why is that? ()

```
when clicked
  forever
    if distanceSensor(0~6) sensor1 > 5 then
      set all to red
      motor port1 direction anticlockwise speed(0~12) 6
    else
      set all to green
      motor port1 direction clockwise speed(0~12) 6
```

- A** The backward time was not set. **B** The motor direction was set incorrectly.
- C** The sensor is broken. **D** Because added the "forever" module.

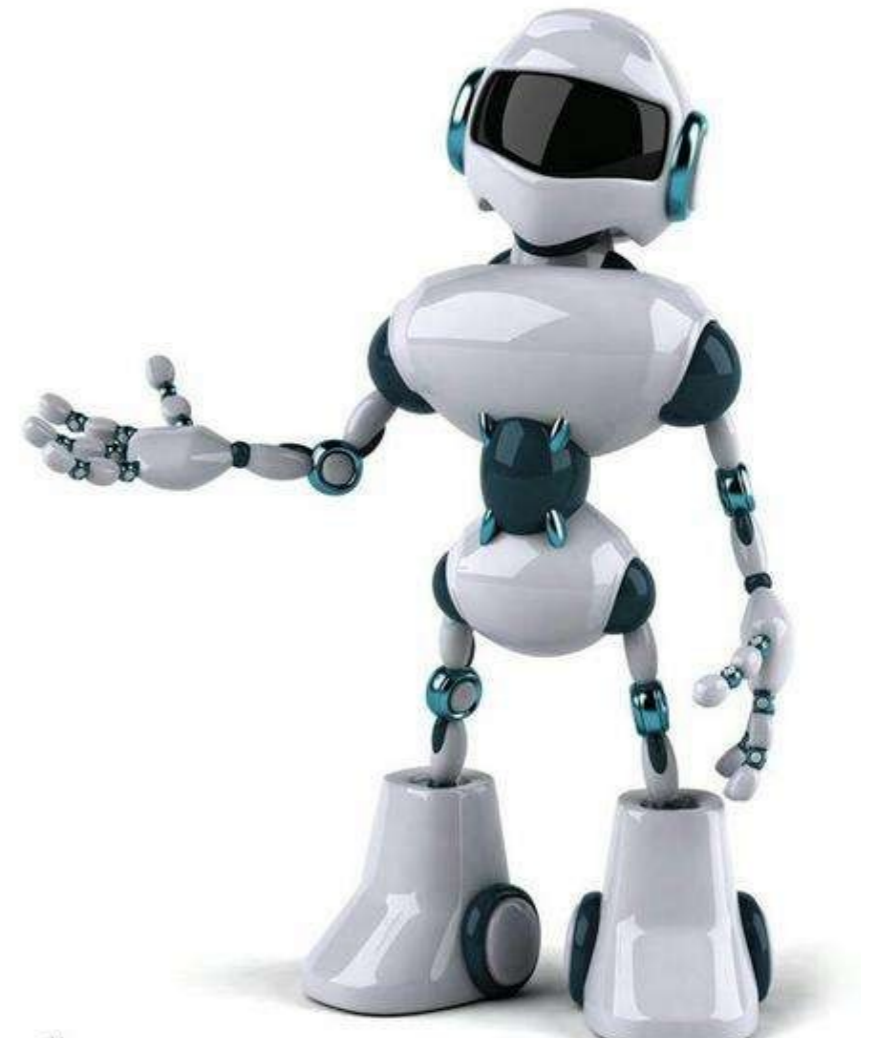




Answer : **A**

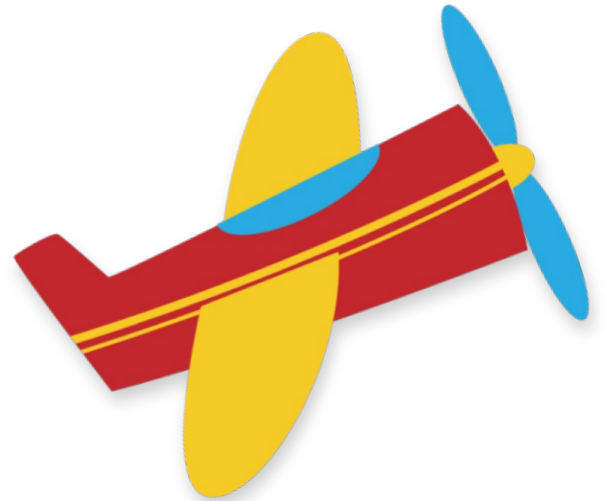
Analysis : **Because the backward time was not set.**

```
when clicked
  forever
    if distanceSensor(0~6) sensor1 > 5 then
      set all to red
      motor port1 direction anticlockwise speed(0~12) 6
      wait 2 seconds
    else
      set all to green
      motor port1 direction clockwise speed(0~12) 6
```





Talk





THANKS

