2019

Yahboom Arduino 4WD Robot

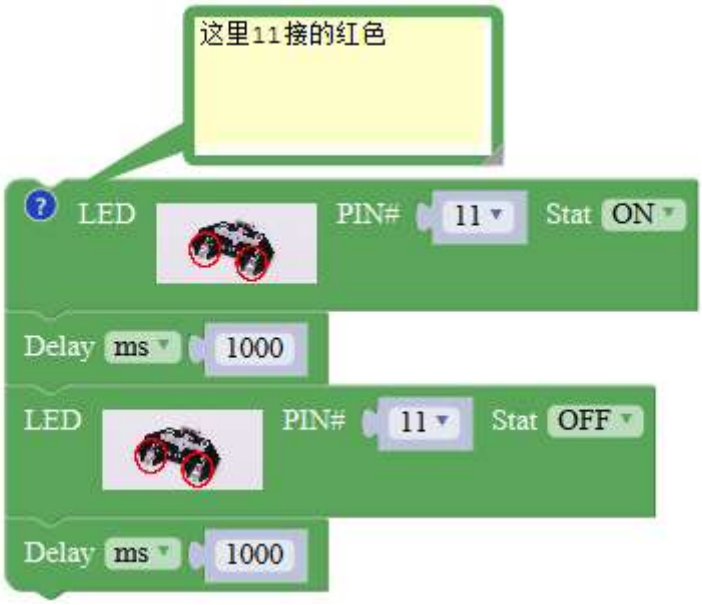
Graphical Programming Tutorials

Graphical programming

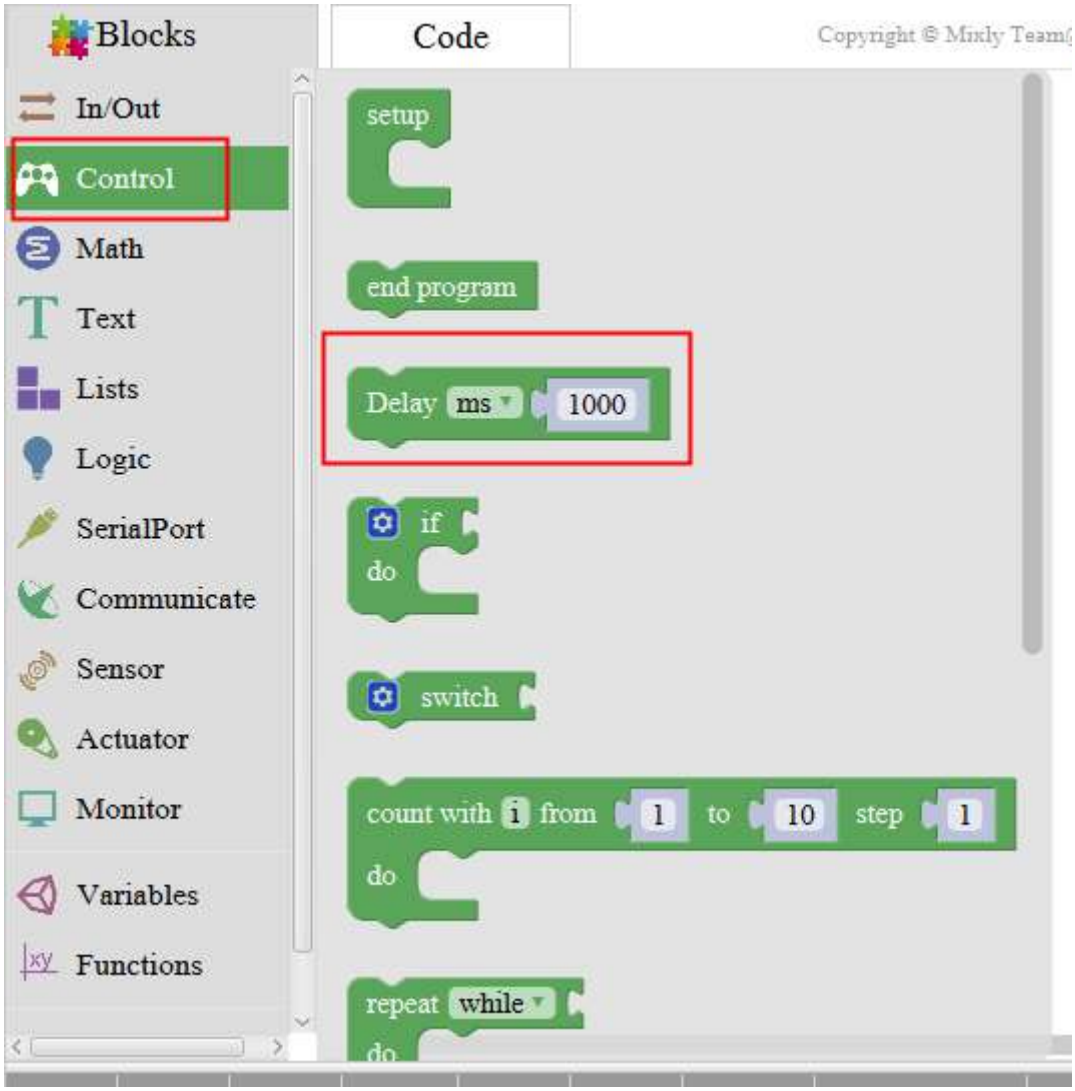
1. LED Twinkle	2
2. Colorful light	4
3. Fan control	8
4. Cloud Terrace control	10
5. Buzzer control	12
6. Button control	15
7. Car movement	17
8. Car pattern movement	19
9. Speed control of car movement	22
10. Infrared obstacle avoidance	25
11. Infrared following	30
12. Seek light	34
13. Color sensor	38
14. Ultrasonic obstacle avoidance	40
15. Ultrasonic obstacle avoidance with Servo pan	44
16. Infrared remote control	49

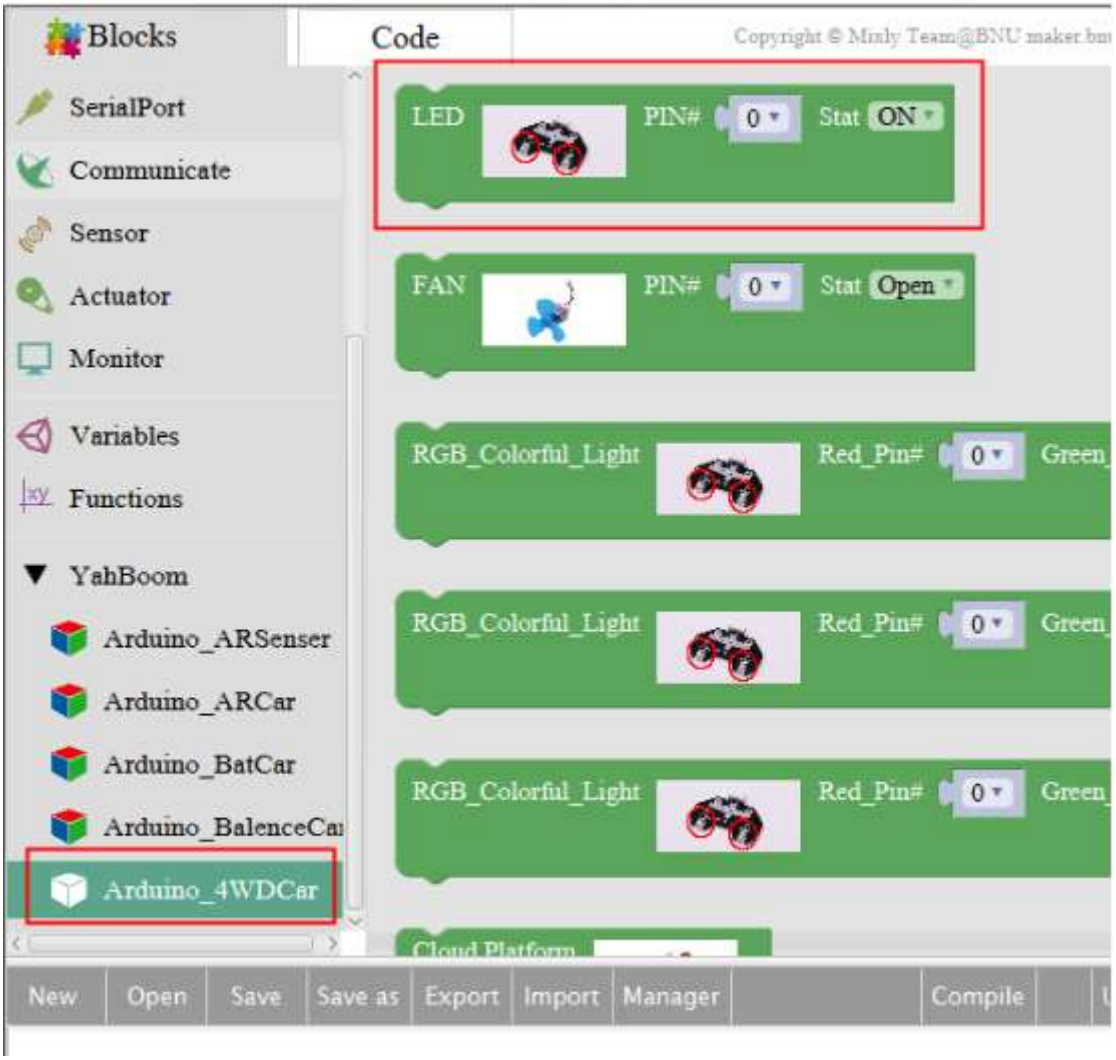
1- LED Twinkle

Follow the steps to splice the building blocks：

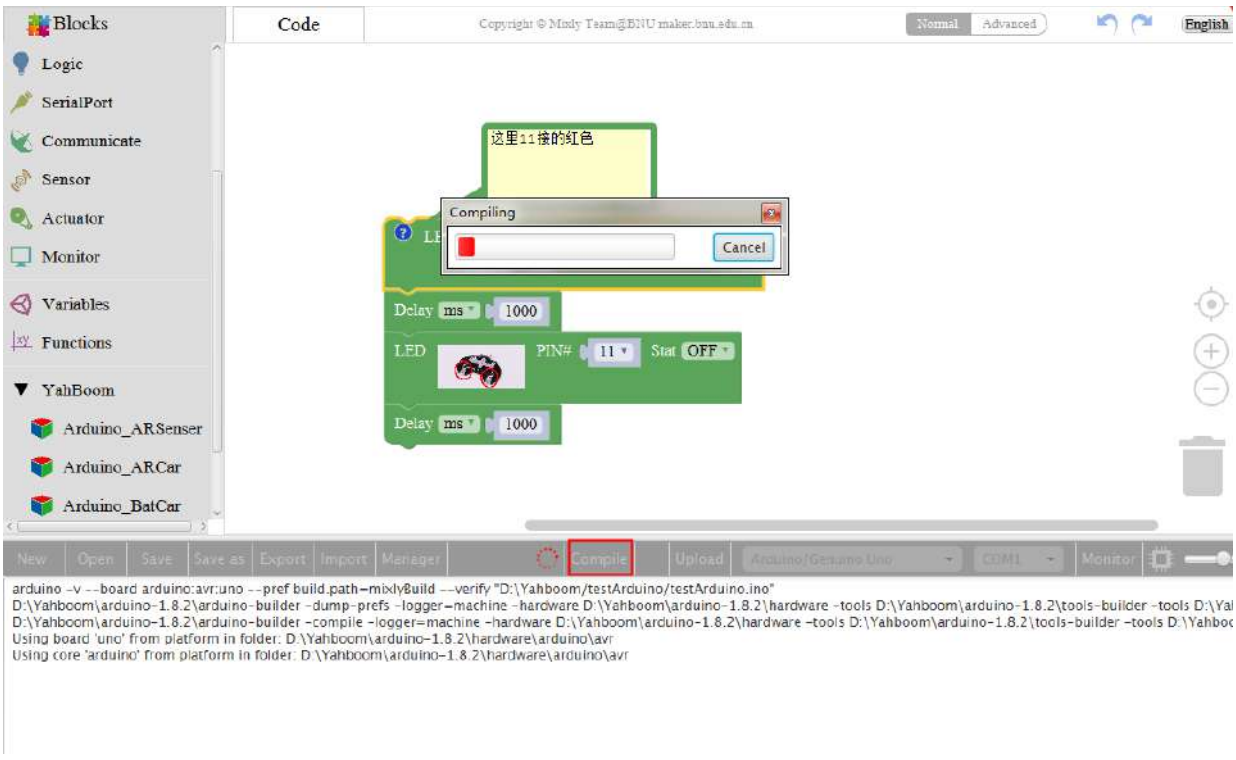


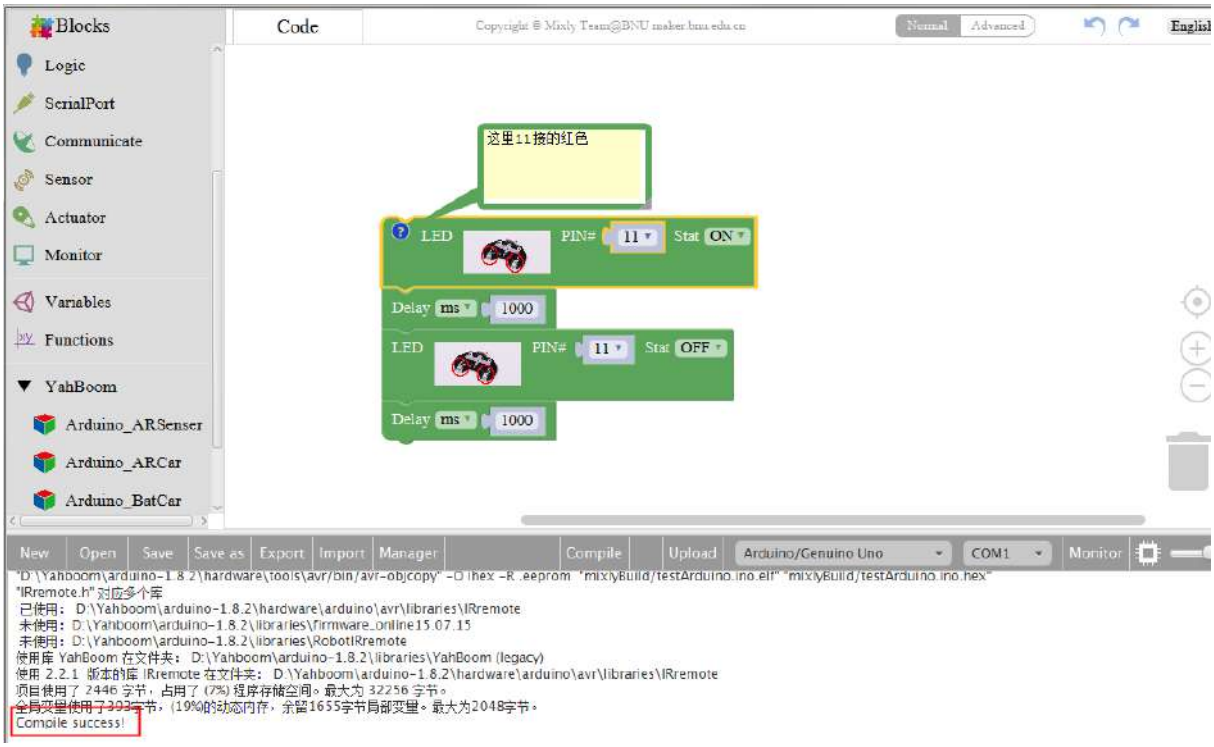
1、Experimental building blocks ：





2、Experimental verification ：

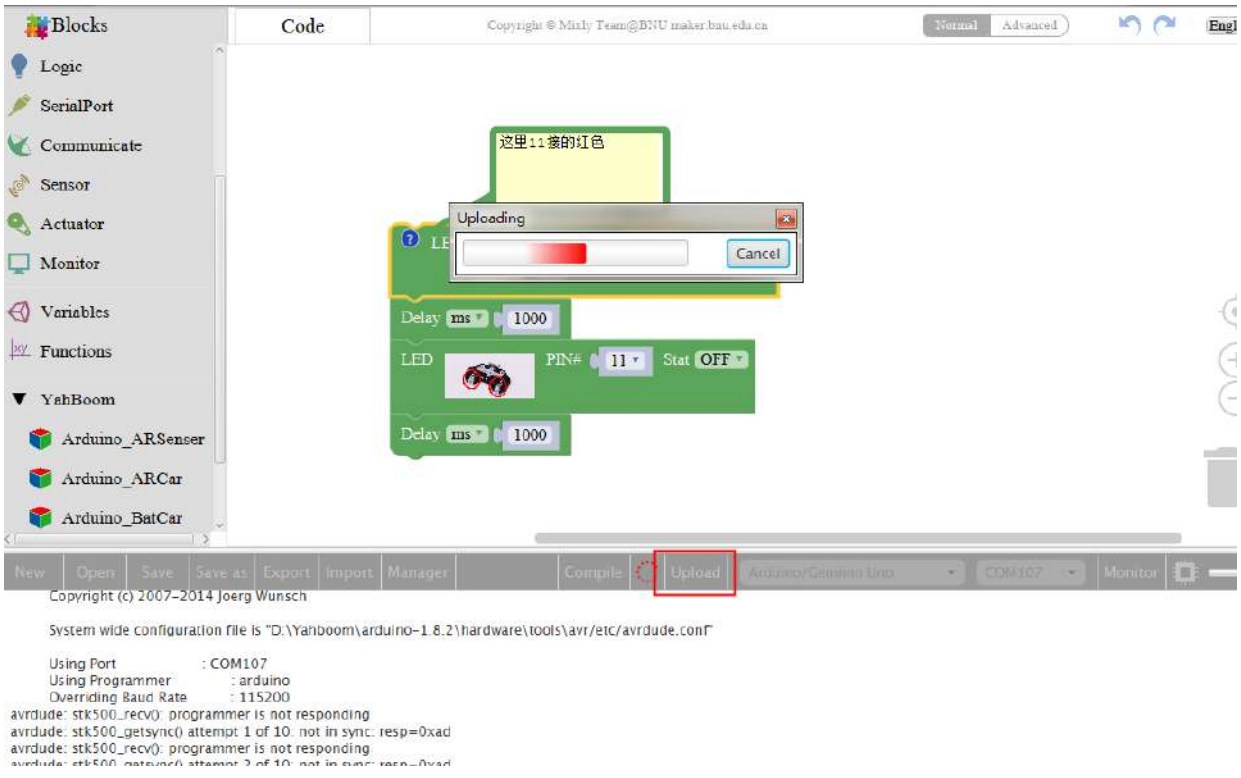




a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.

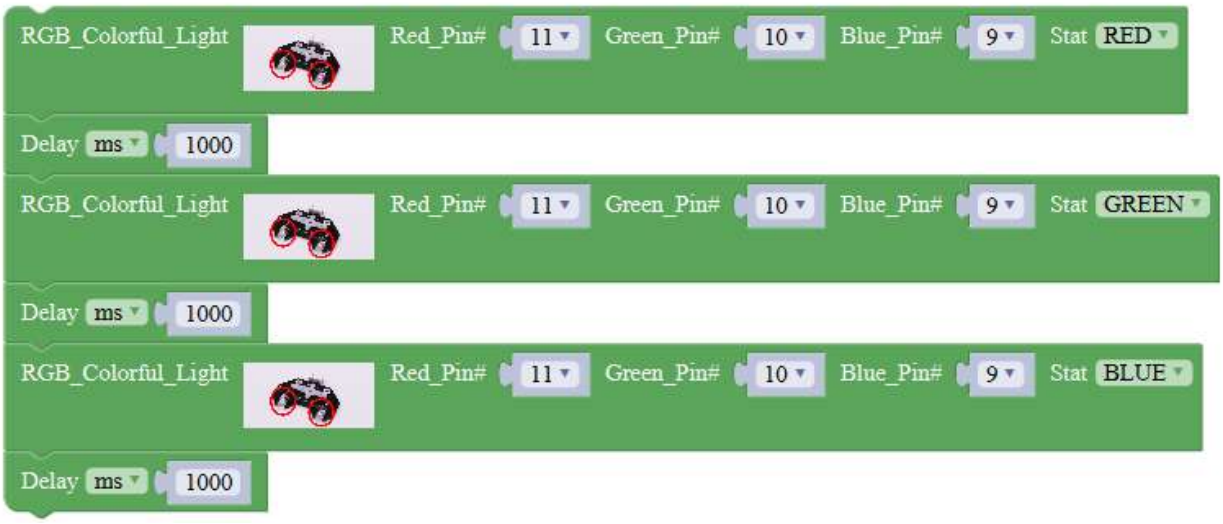
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Observe whether the light blinks in 1 second interval on the broad, we can change the time, and try the above steps to compile upload again, try the effect.



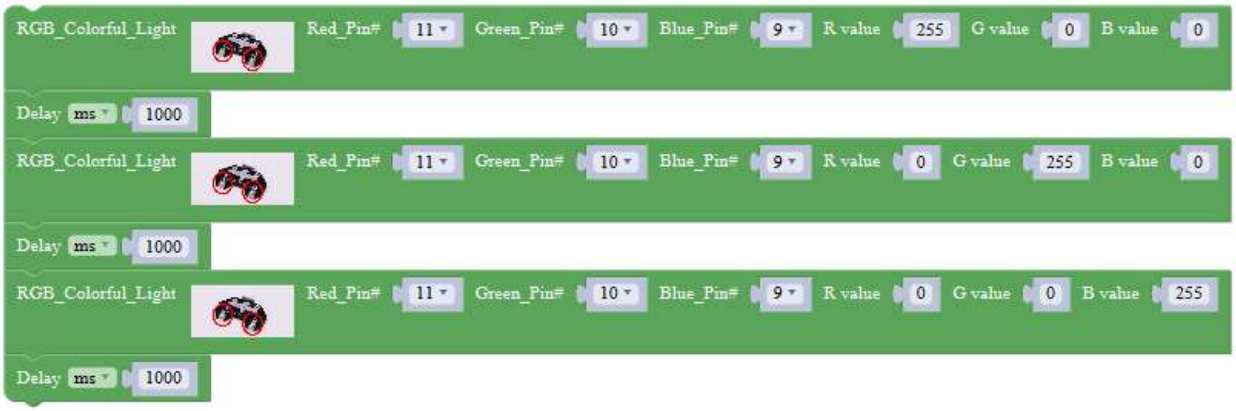
2- Colorful light

Follow the steps to splice the building blocks in 3 ways：

The first way:

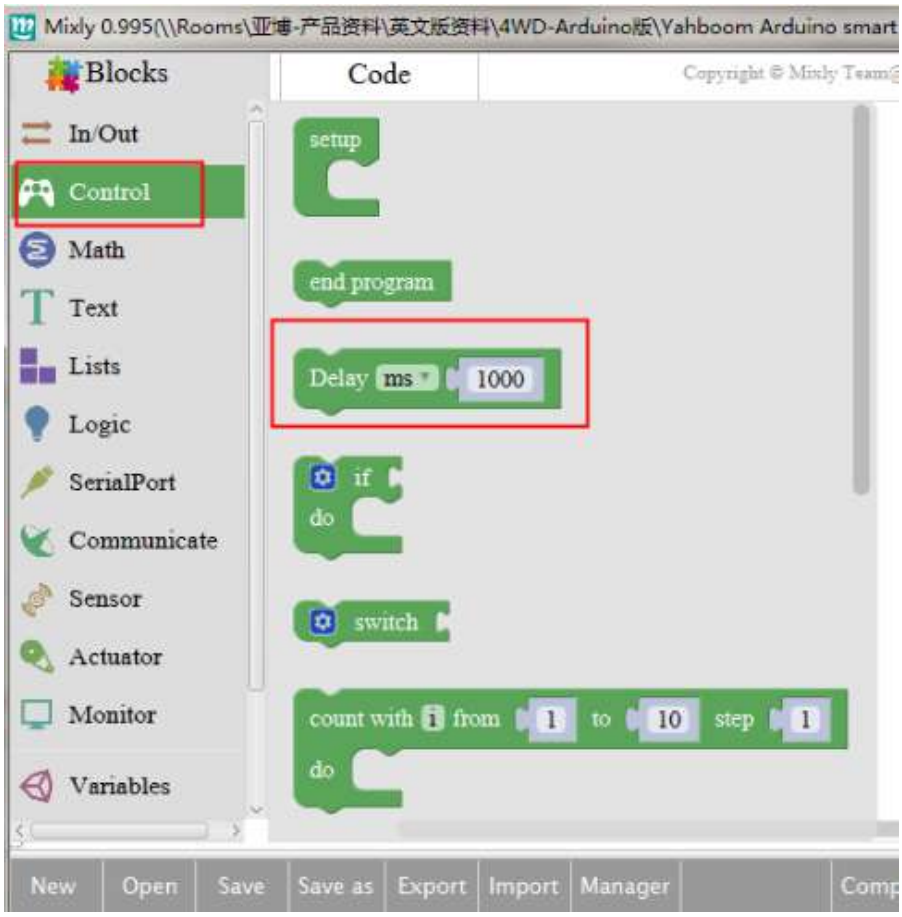


The second way:

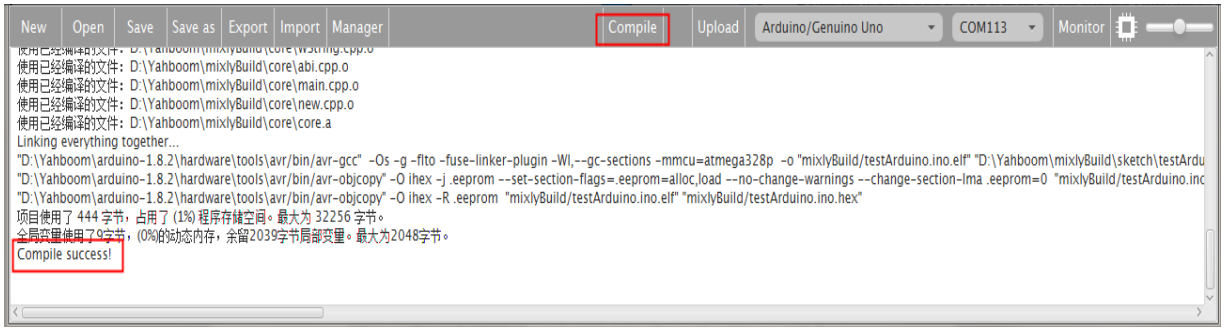


The third way:

1、Experimental building blocks ：

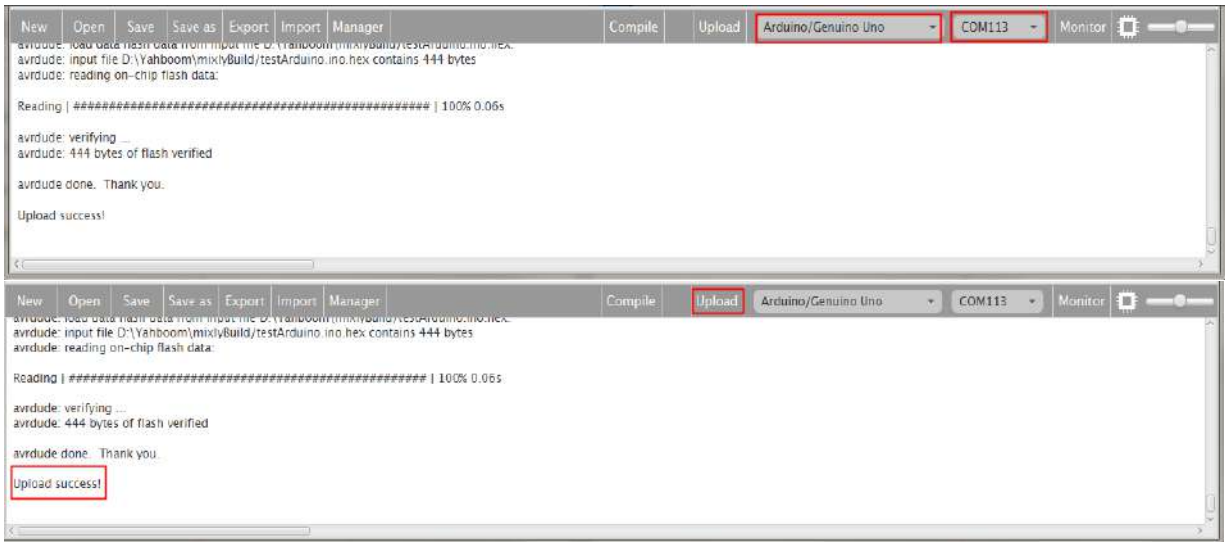


2、Experimental verification：



a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

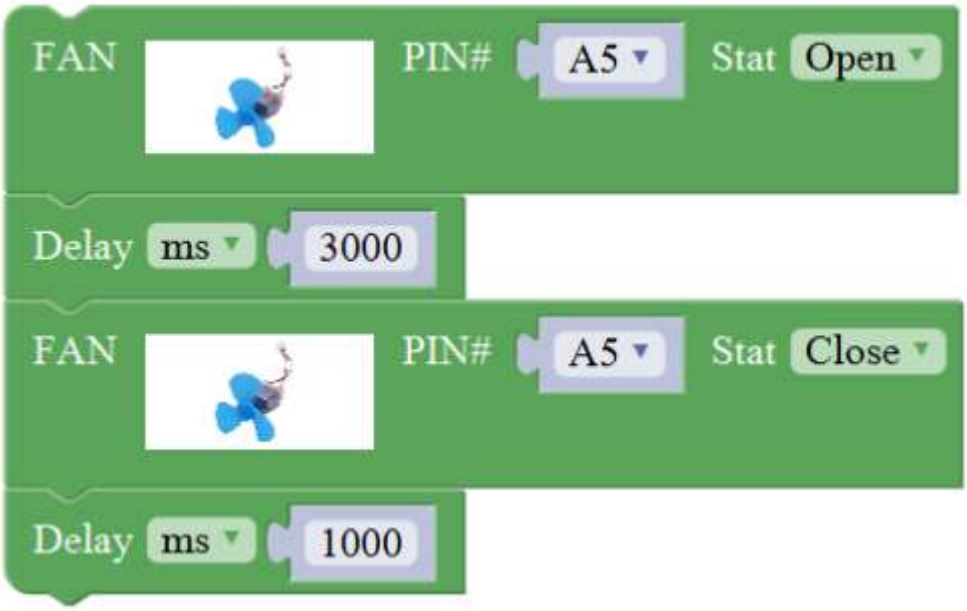
b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.



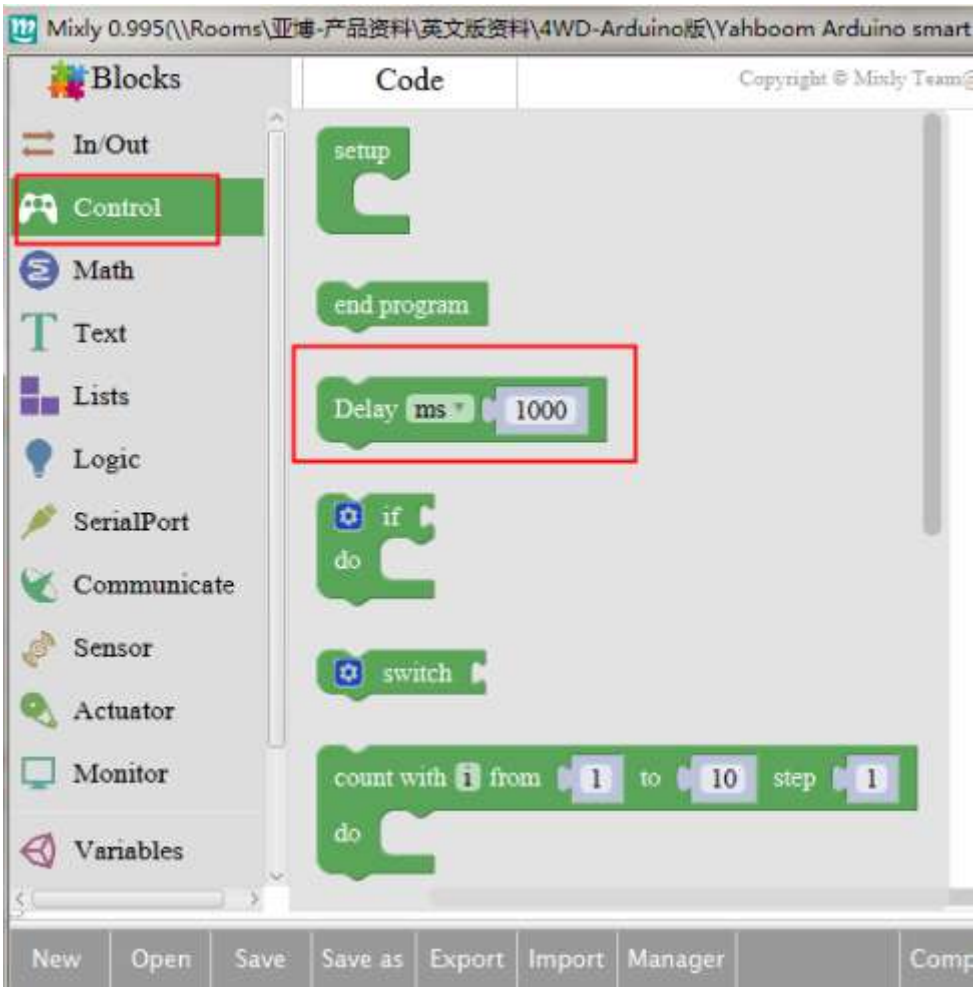
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Observe whether the coloful light blinks in 1 second interval on the broad, we can change the time, and try the above steps to compile upload again, try the effect.

3- Fan control

Follow the steps to splice the building blocks ：



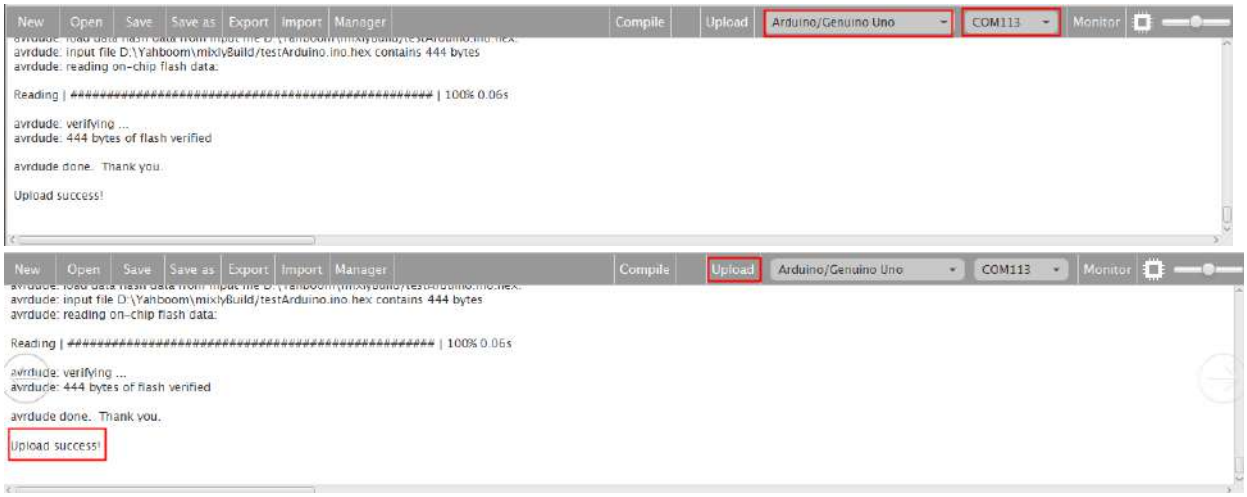
1、Experimental building blocks：



2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

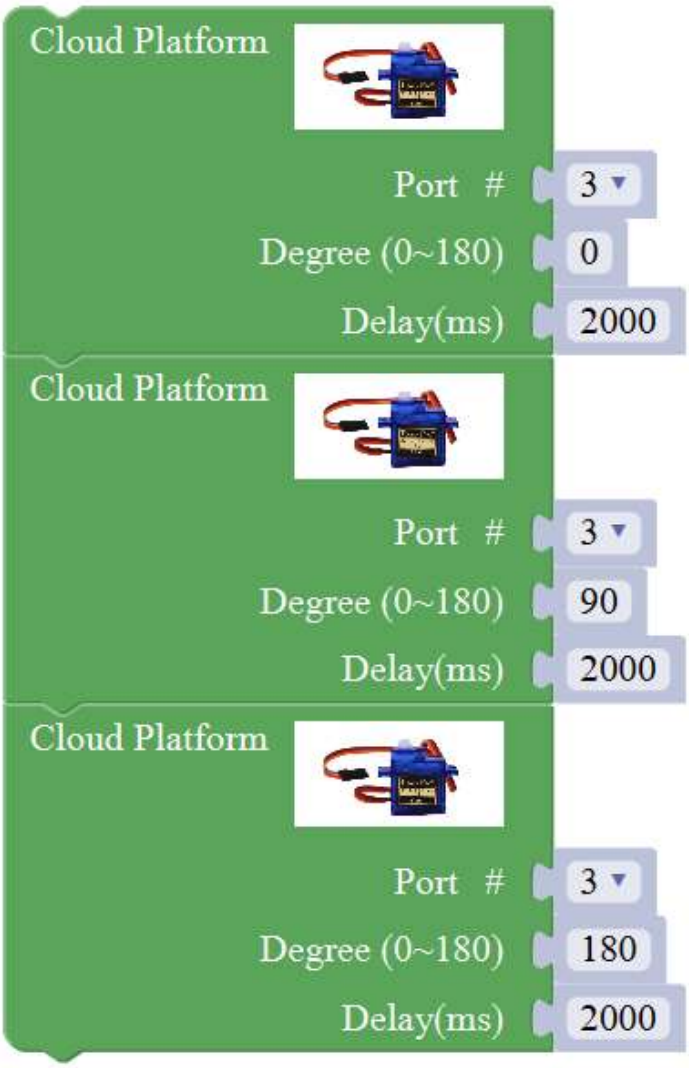
b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.



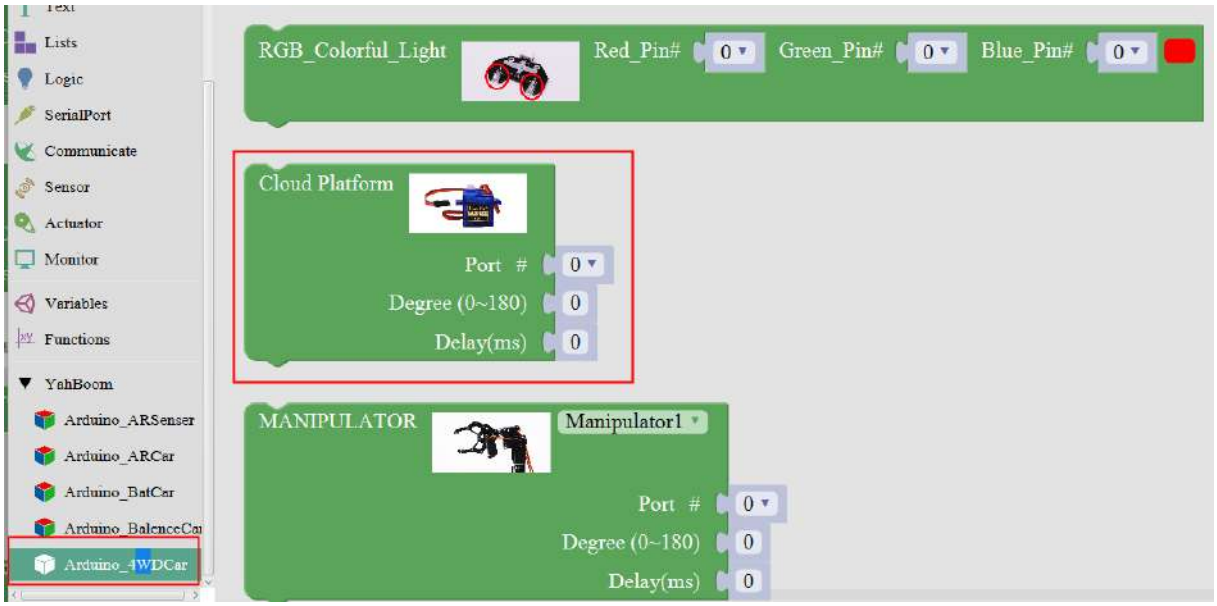
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Observe whether board fan rotates for 3 seconds and stops for 1 second, we can change the time, and try the above steps to compile upload again, try the effect.

4- Cloud Terrace control

Follow the steps to splice the building blocks：



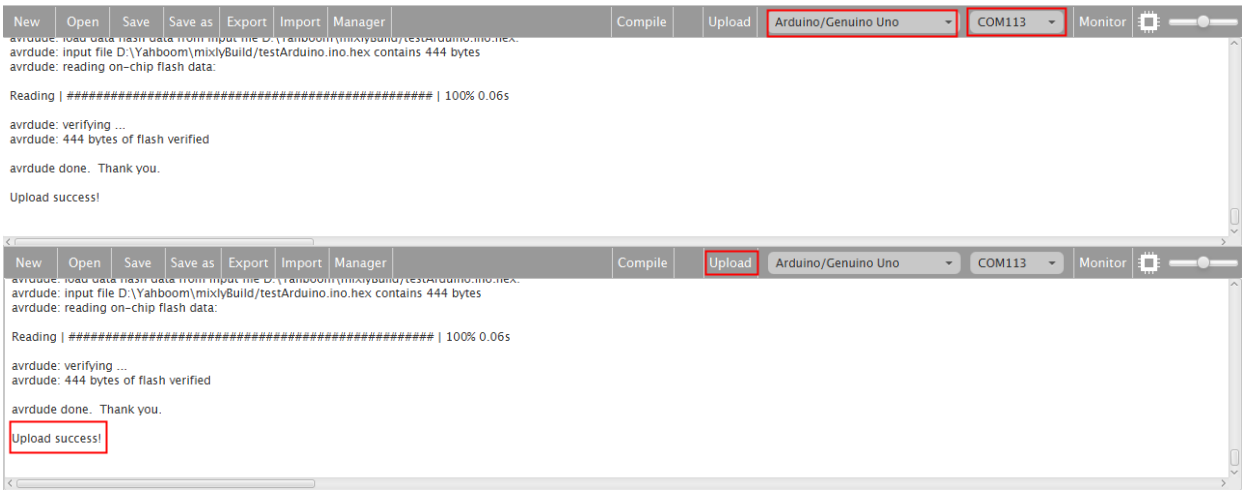
1、Experimental building blocks ：



2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

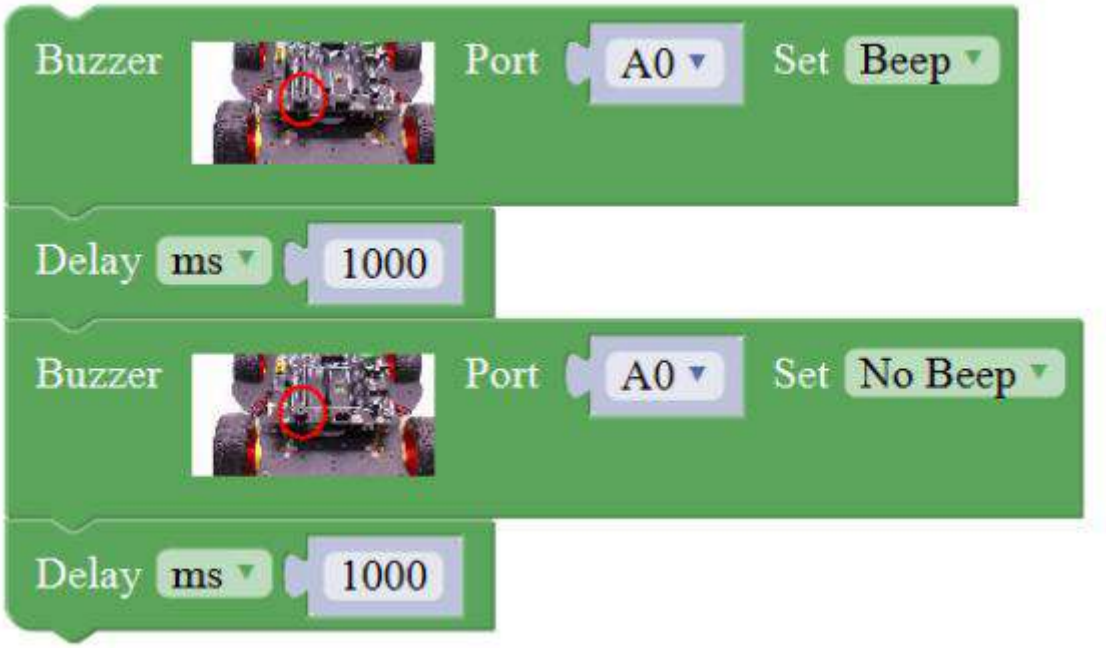
b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.



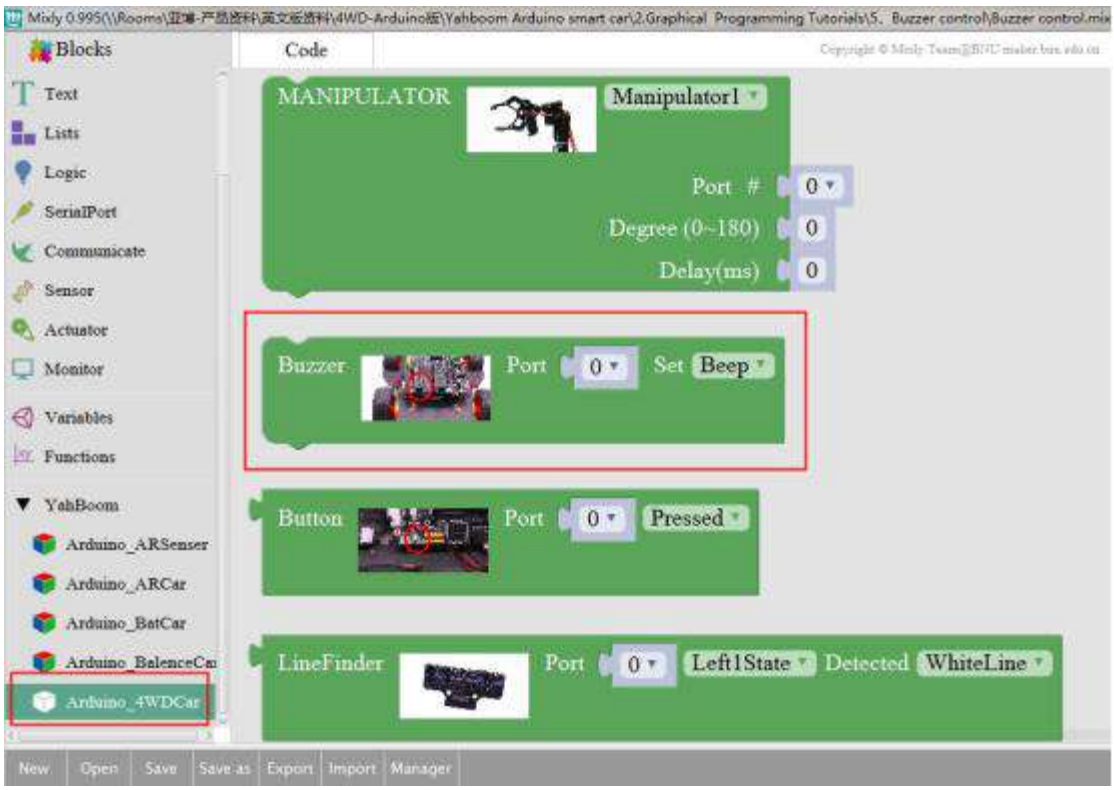
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Observe whether Cloud Terrace rotates 0 degrees to the right, then forward 90 degrees, and finally to the left 180 degrees ,we can change the degrees and time, and try the above steps to compile upload again, try the effect.

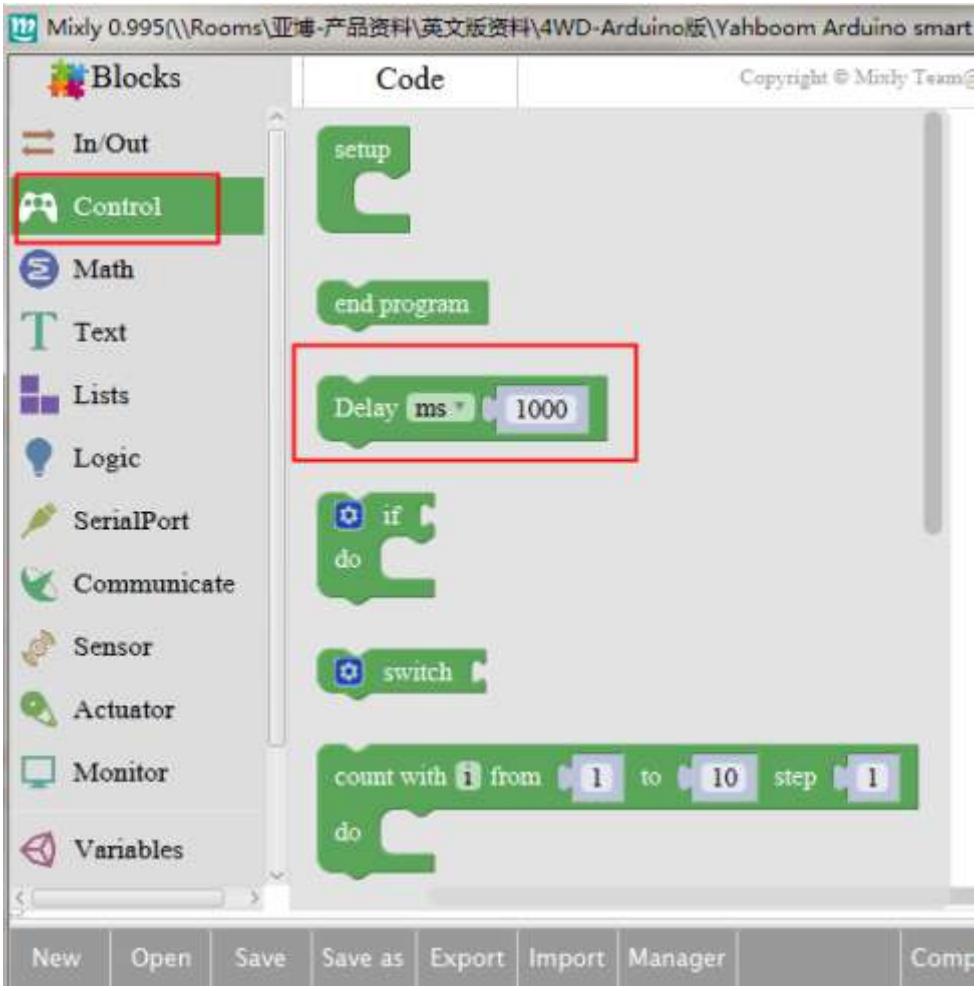
5- Buzzer control

Follow the steps to splice the building blocks：



1、Experimental building blocks ：

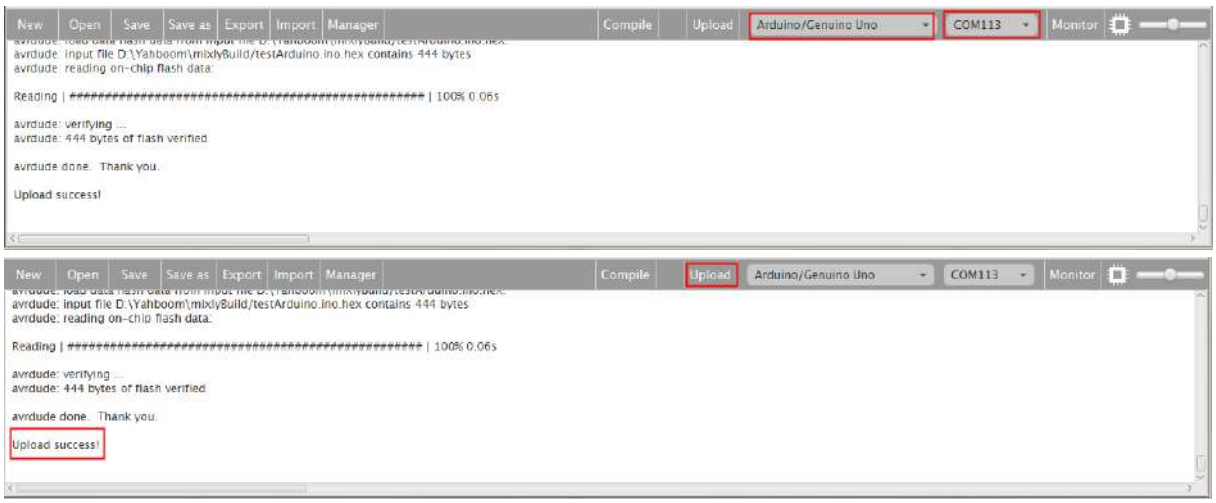




2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

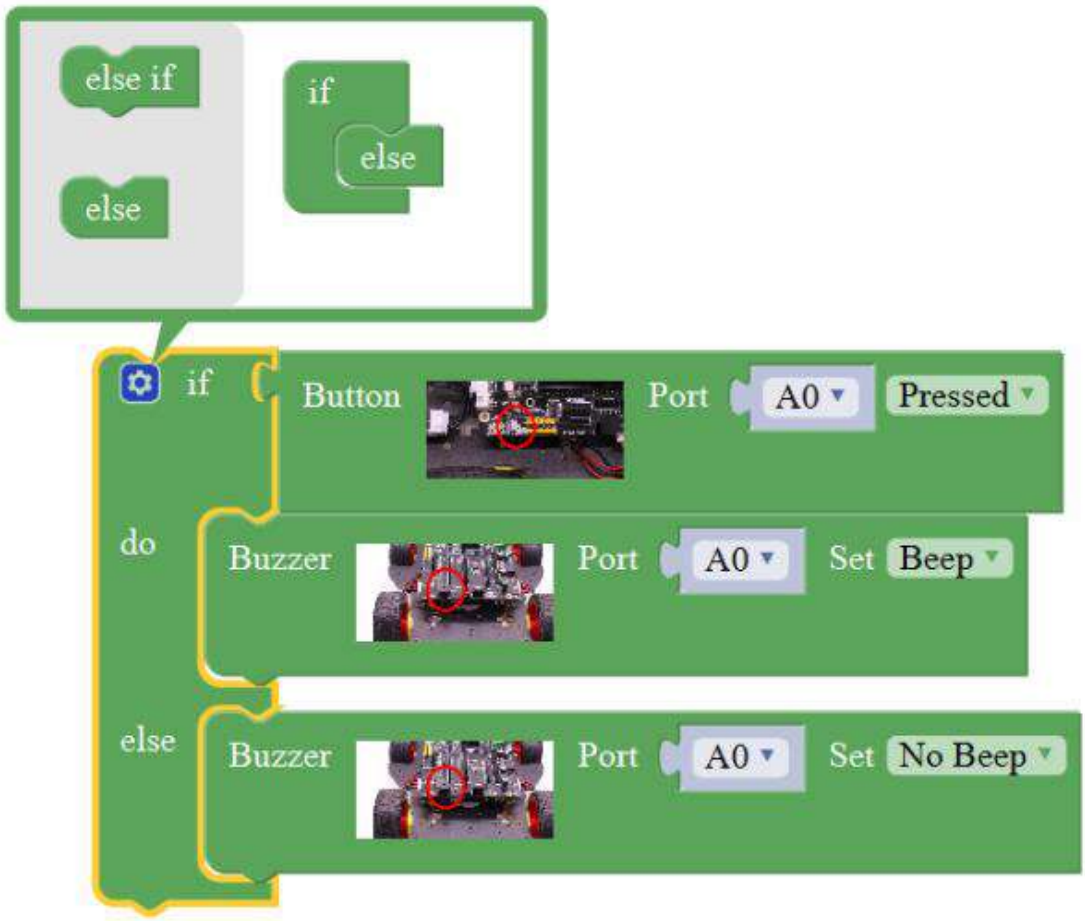
b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.



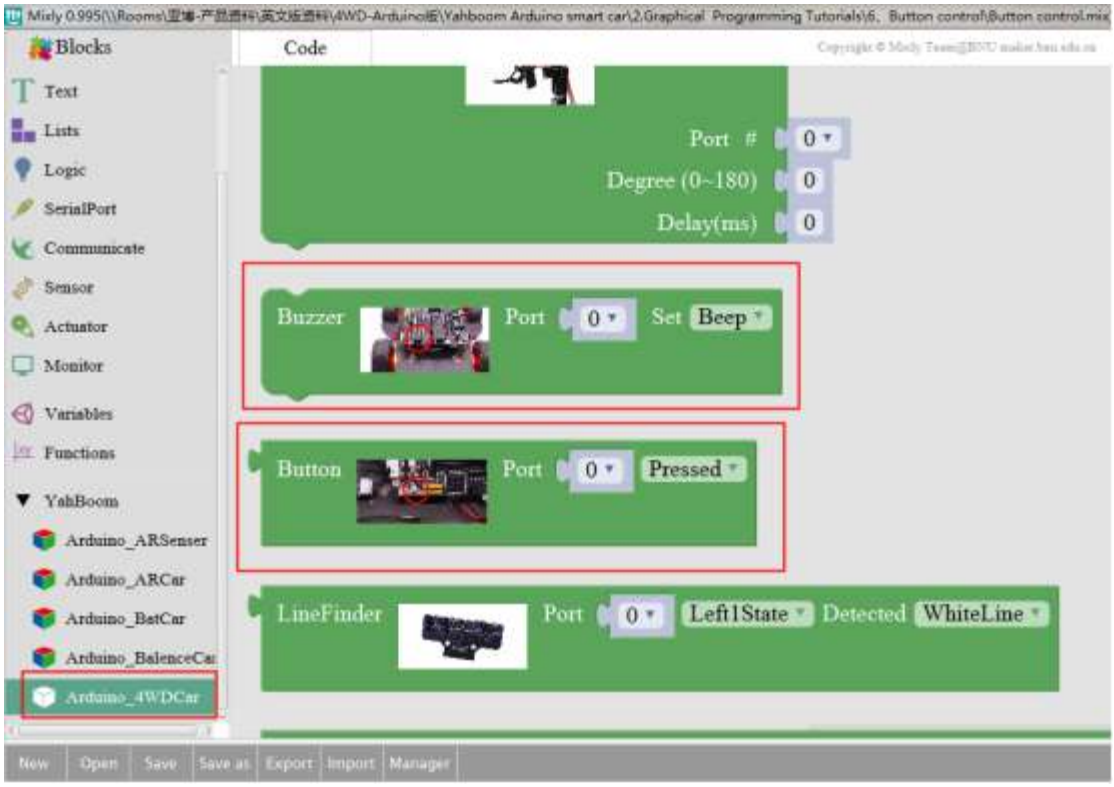
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Observe whether the buzzer calls once in a second,we can change the time, and try the above steps to compile upload again, try the effect.

6- Button control

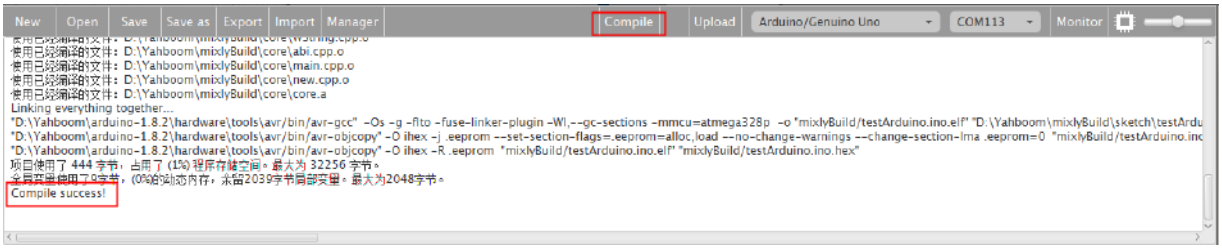
Follow the steps to splice the building blocks ：



1、Experimental building blocks :

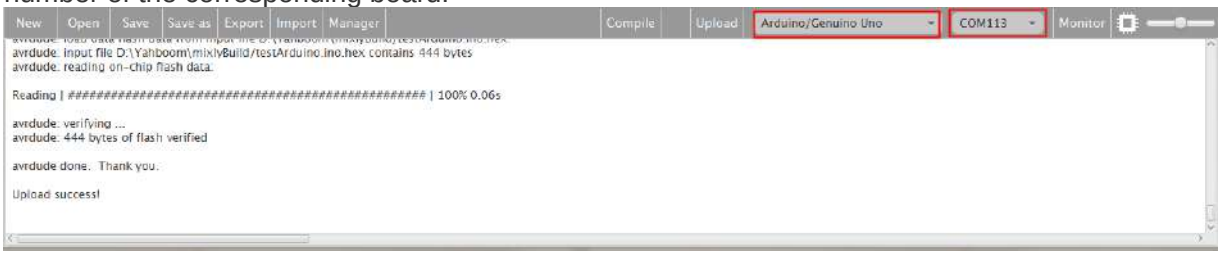


2、Experimental verification：

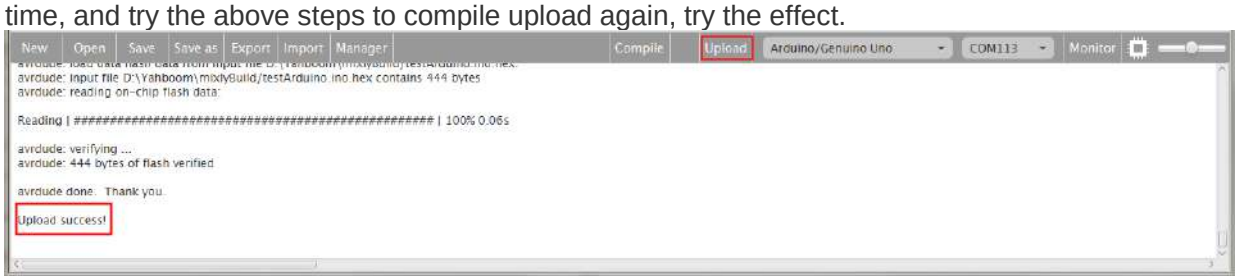


a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.

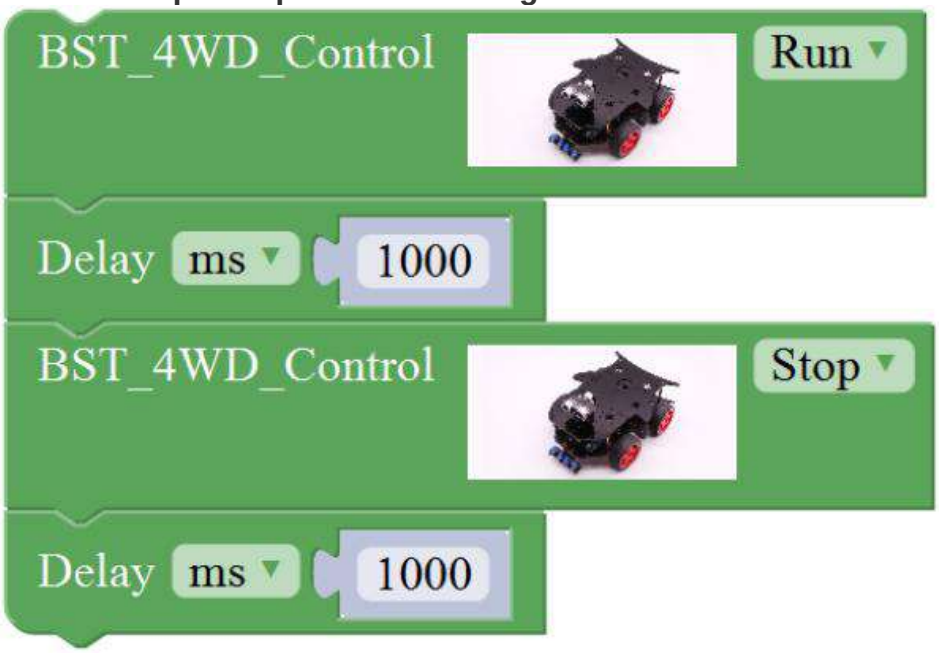


c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Observe whether the buzzer calls when pressing the button, we can change the time, and try the above steps to compile upload again, try the effect.



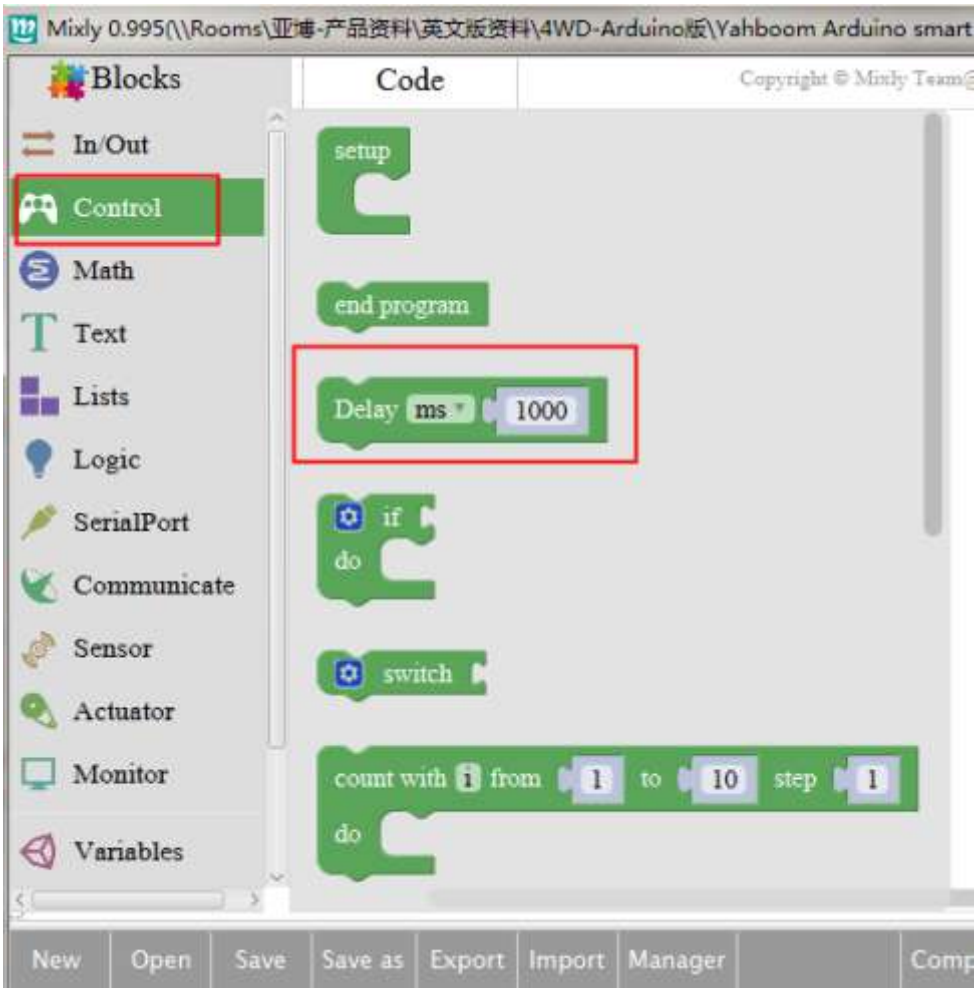
7- Car movement

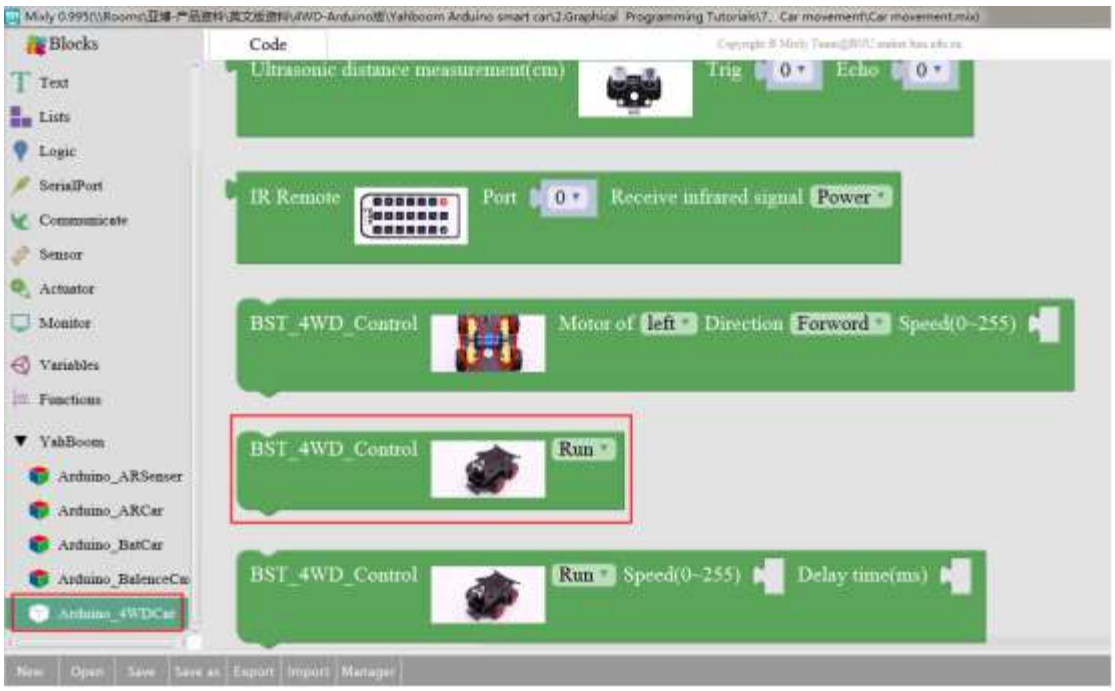
Follow the steps to splice the building blocks



:

1、Experimental building blocks :

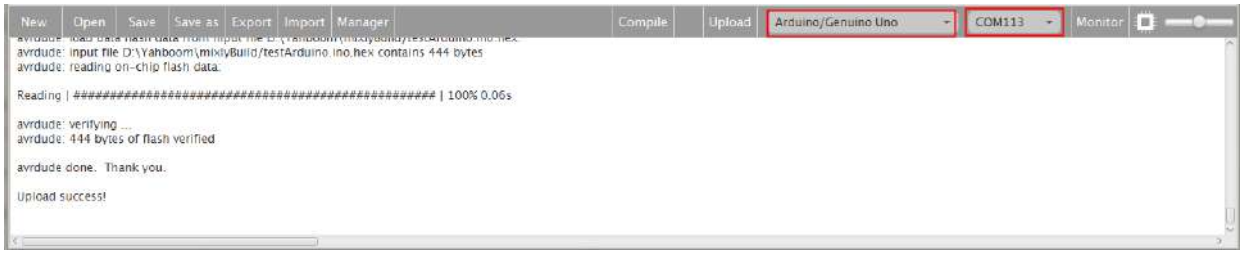




2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

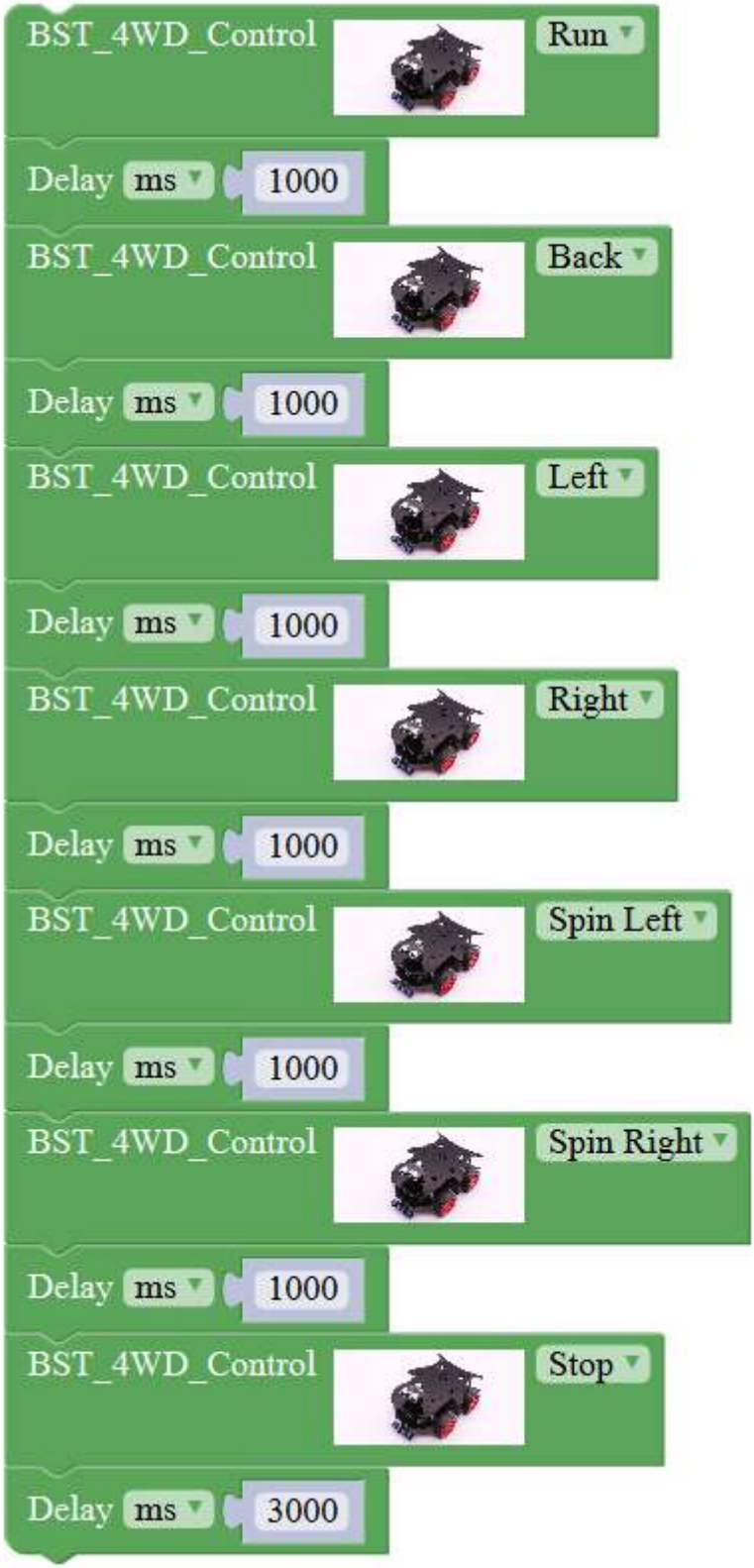
b、After compiled , select Arduino/Genuino Uno follow the picture, selects the serial number of the corresponding board.



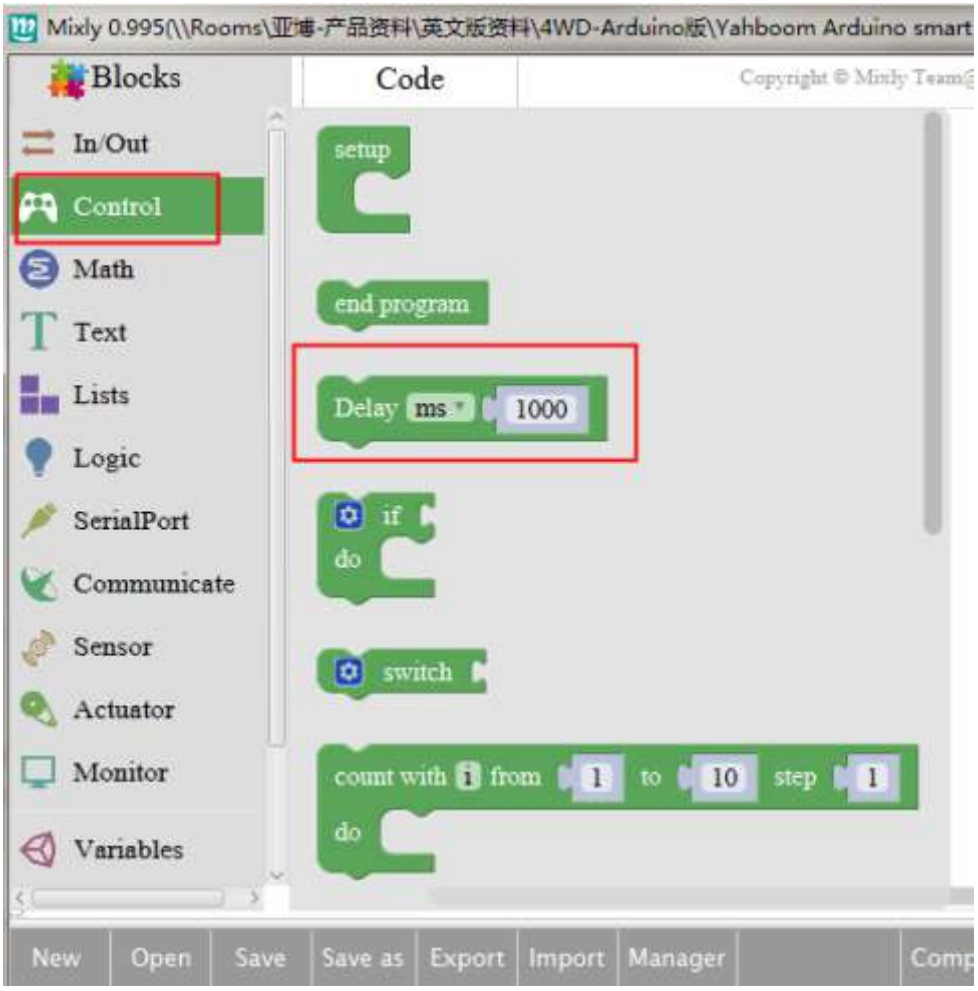
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully.Observe whether the car is forward one second, stop one second and continue to move forward, we can change the direction, and try the above steps to compile upload again, try the effect.

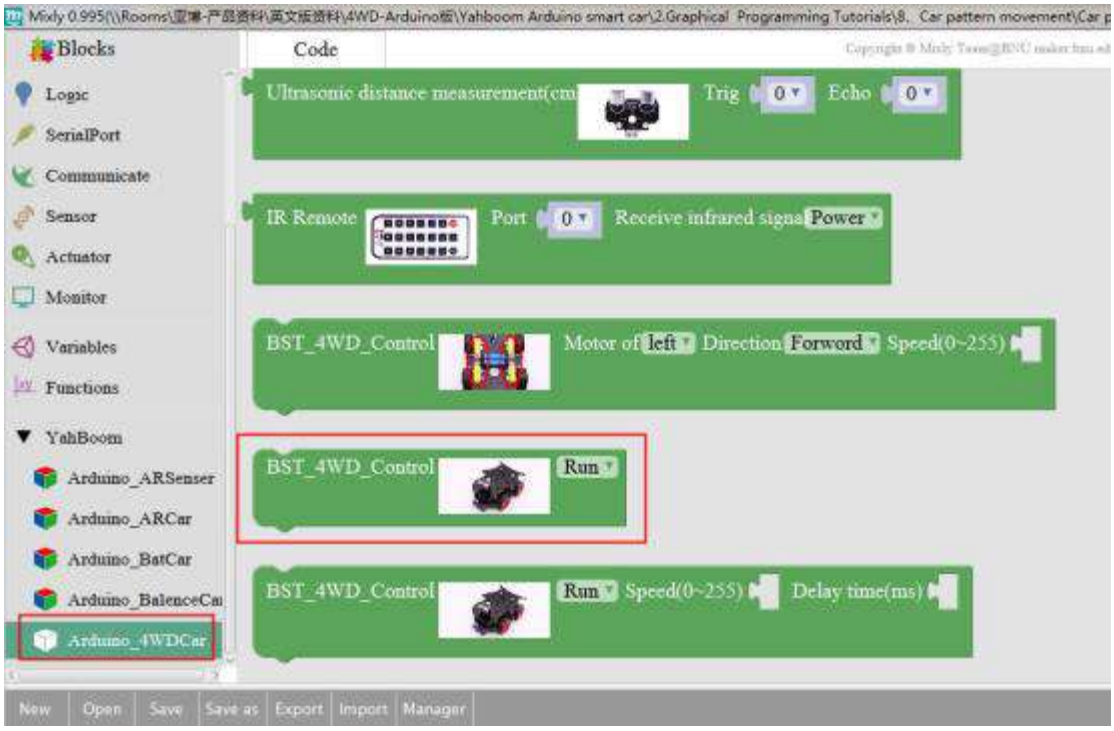
8- Car pattern movement

Follow the steps to splice the building blocks ：



1、Experimental building blocks :

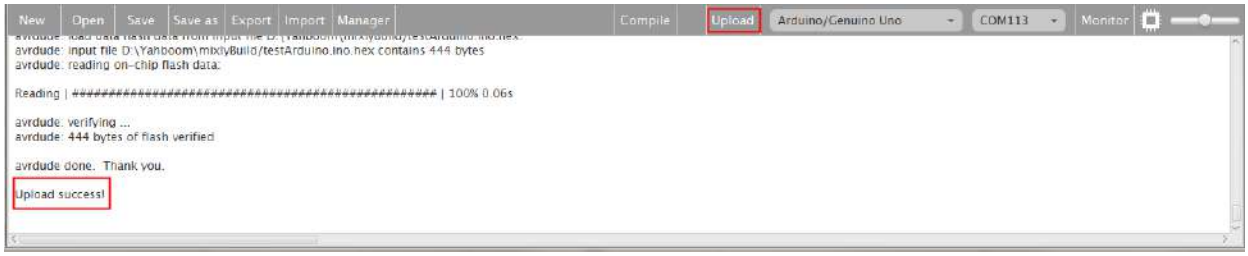

Mixly 0.995(\\Rooms\亚博-产品资料\英文版资料\4WD-Arduino版\Yahboom Arduino smart
Blocks
Code
Copyright © Mixly Team
In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
setup
end program
Delay ms 1000
if
do
switch
count with i from 1 to 10 step 1
do
New
Open
Save
Save as
Export
Import
Manager


Blocks
Code
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
Ultrasonic distance measurement(cm
Trig 0
Echo 0
IR Remote
Port 0
Receive infrared signa Power
BST_4WD_Control
Motor of left Direction Forword Speed(0~255)
BST_4WD_Control
Run
BST_4WD_Control
Run Speed(0~255)
Delay time(ms)
New
Open
Save
Save as
Export
Import
Manager

2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.

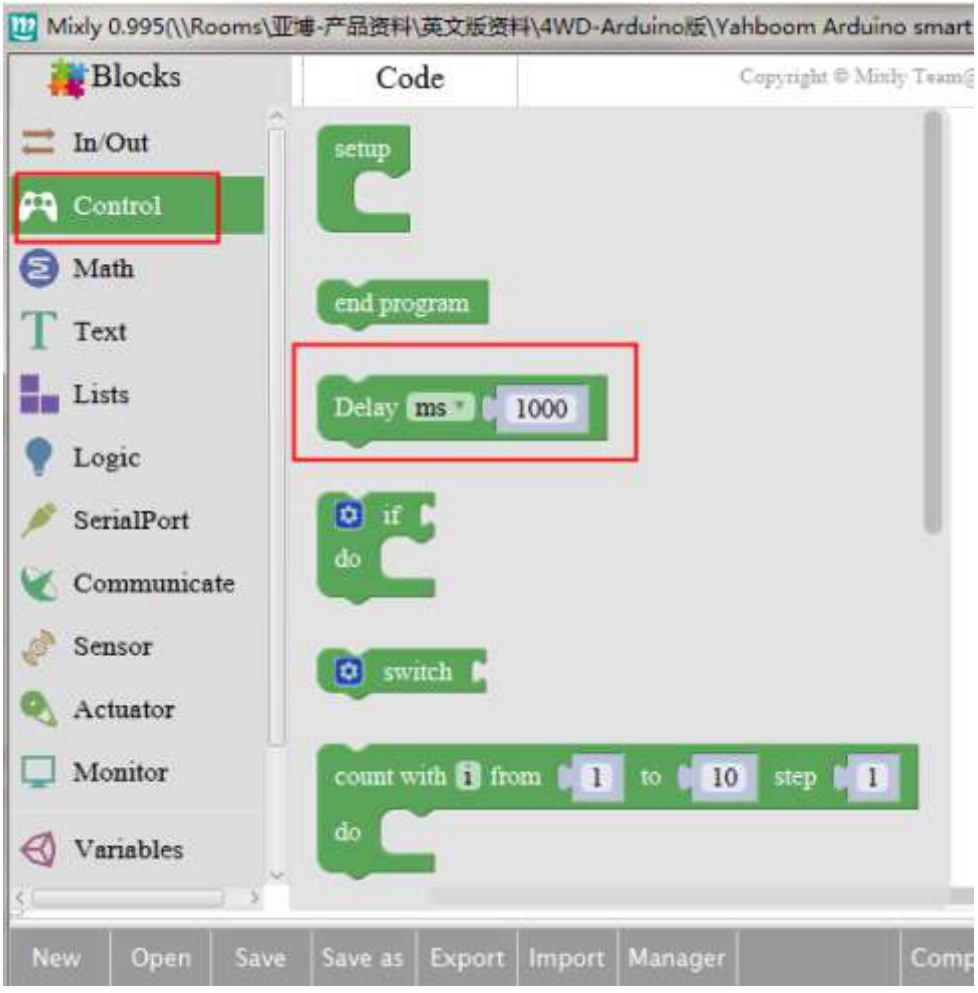


c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Observe whether the car is left and right, left and right one second, and then repeat the front steps, we can change the direction and time, and try the above steps to compile upload again, try the effect.

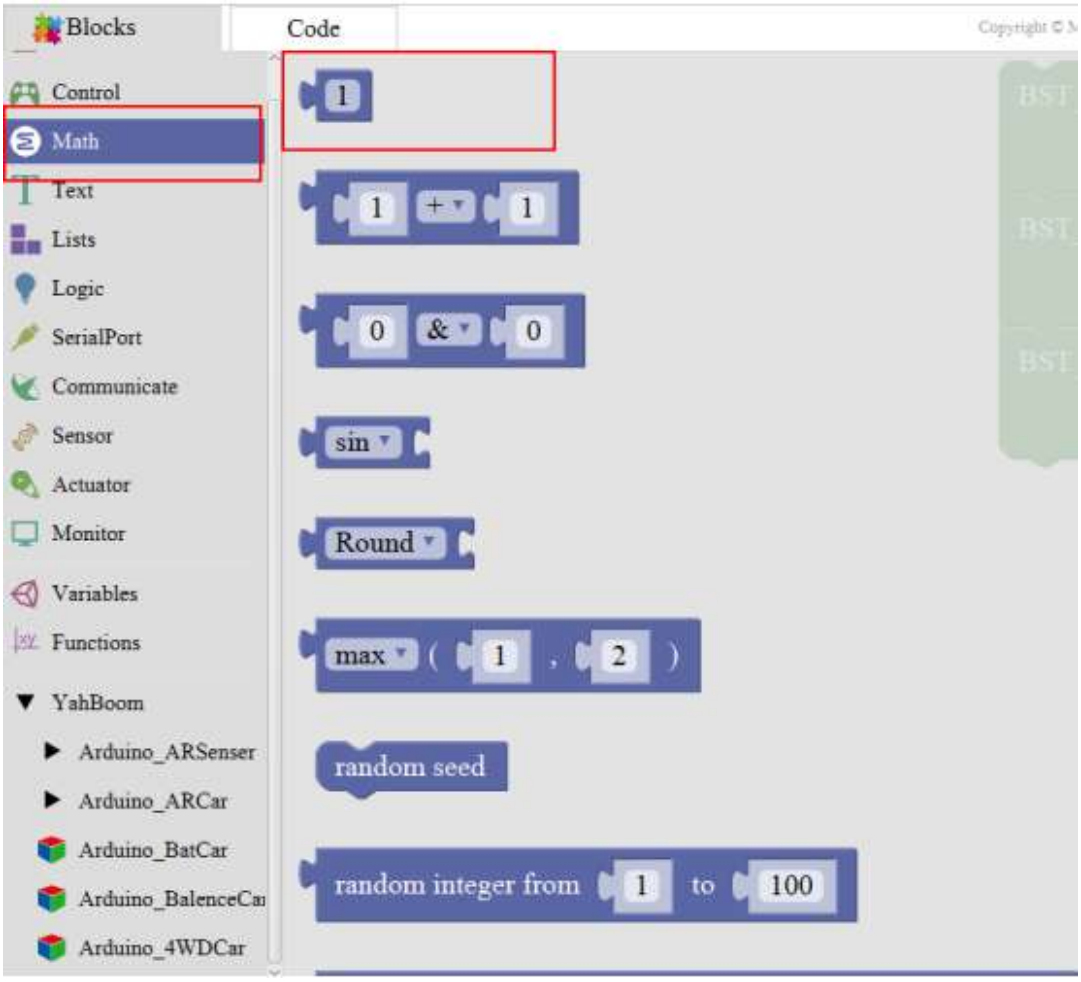
9- Speed control of car movement

Follow the steps to splice the building blocks ：

1、Experimental building blocks :



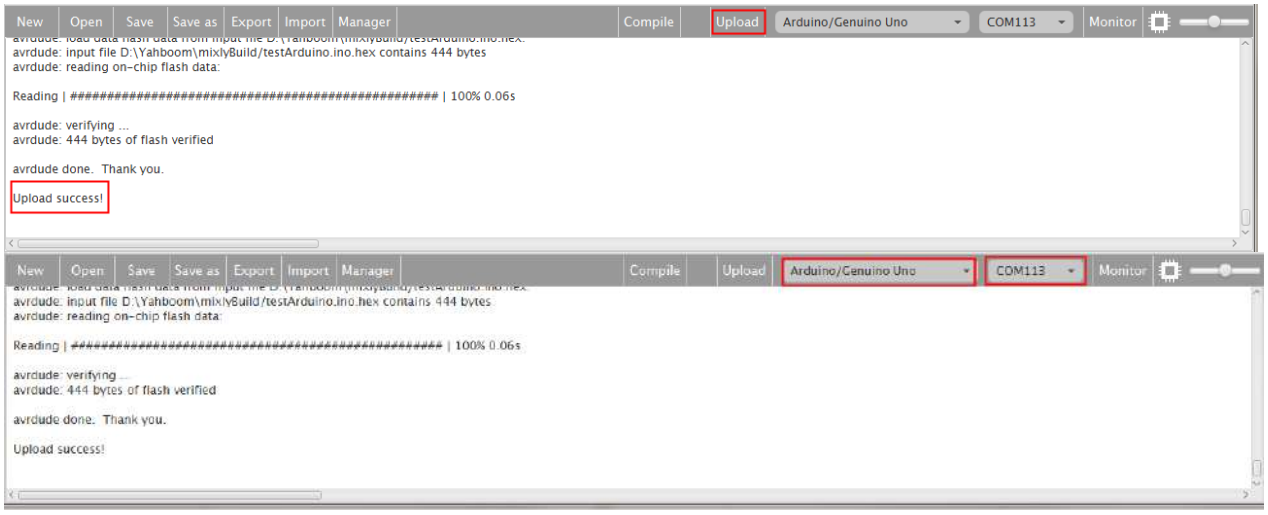
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
LightSeeking
Port 0 The left of car Detected Light
Color_Sensor(0~1024)
Port 0
Ultrasonic distance measurement(cm)
Trig 0 Echo 0
IR Remote
Port 0 Receive infrared signal Power
BST_4WD_Control
Motor of left Direction Forword Speed(0~255)
BST_4WD_Control
Run
BST_4WD_Control
Run Speed(0~255) Delay time(ms)
New
Open
Save
Save as
Export
Import
Manager


Blocks
Code
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
1
1 + 1
0 & 0
sin
Round
max (1 , 2)
random seed
random integer from 1 to 100

2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

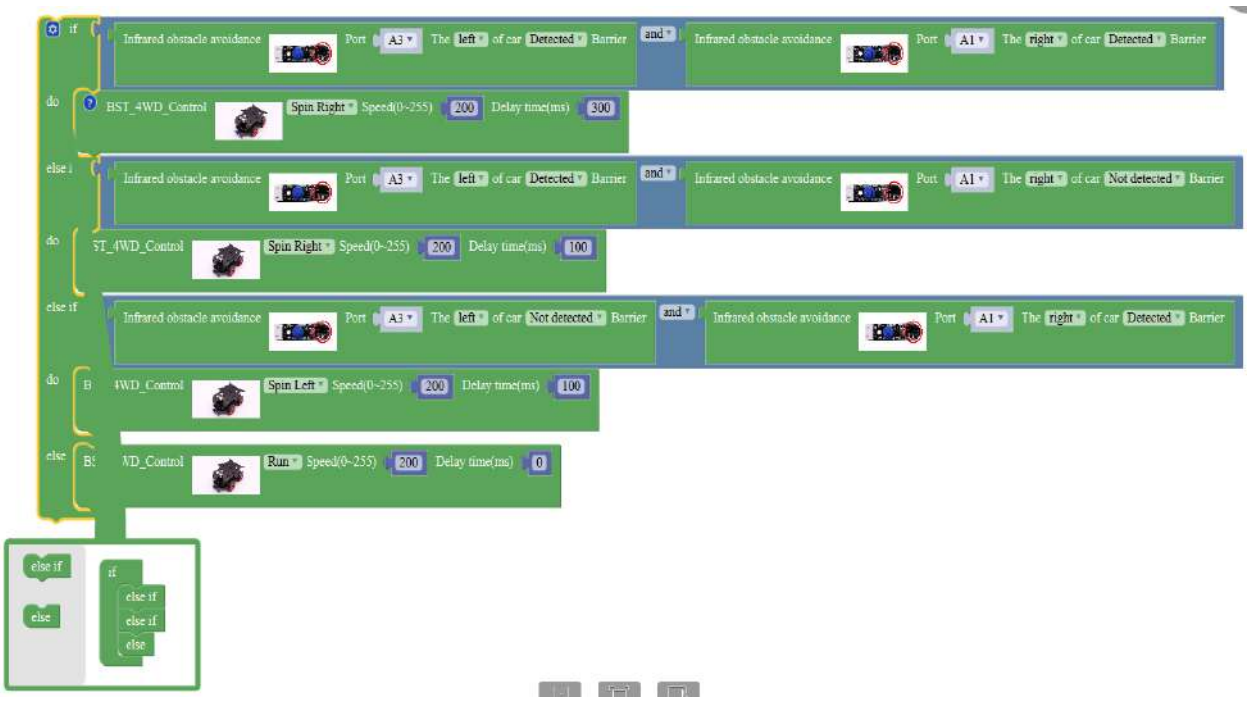
b、After compiled , select Arduino/Genuino Uno follow the picture, selects the serial number of the corresponding board.



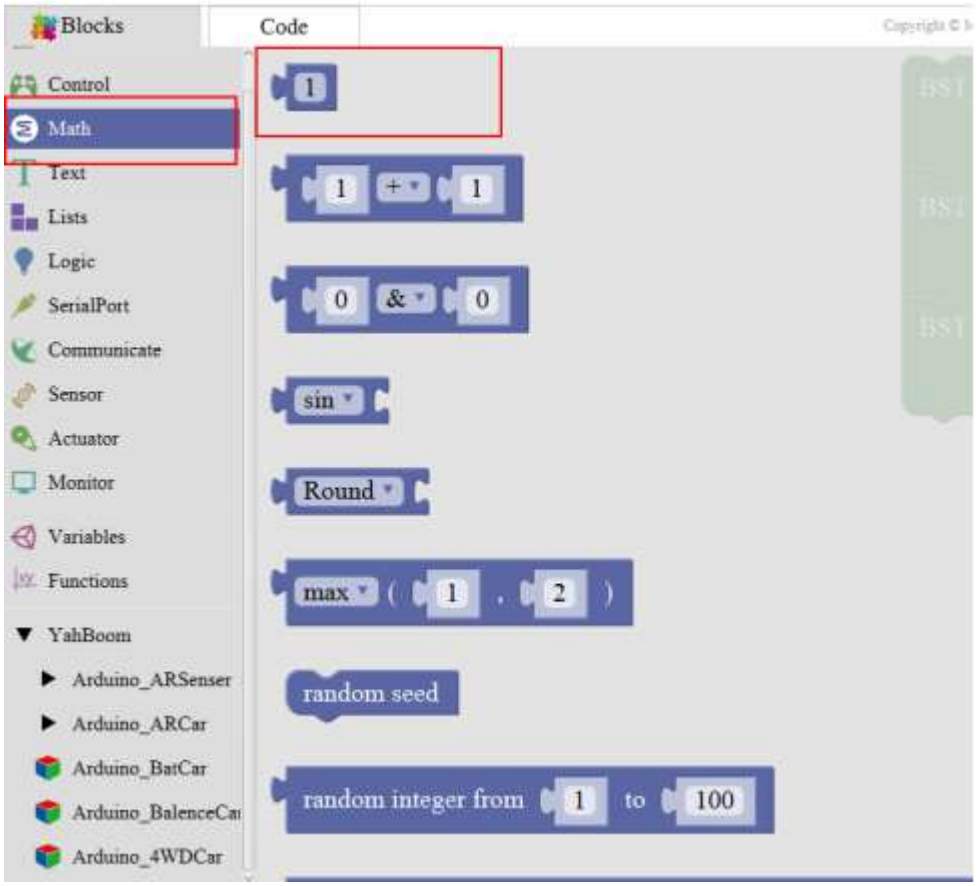
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Observe whether the car three speeds gradually increase the effect, and then go back to the slowest speed repeat the front steps, we can change the direction and time, and try the above steps to compile upload again, try the effect.

10- Infrared obstacle avoidance

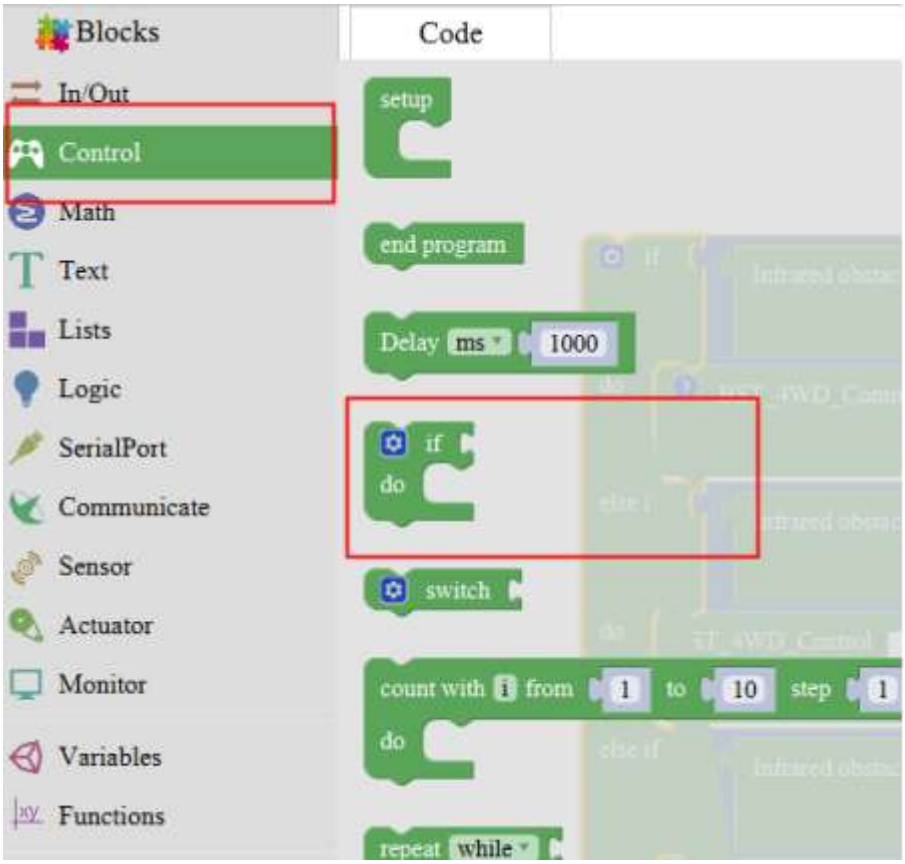
Follow the steps to splice the building blocks：



1、Experimental building blocks ：

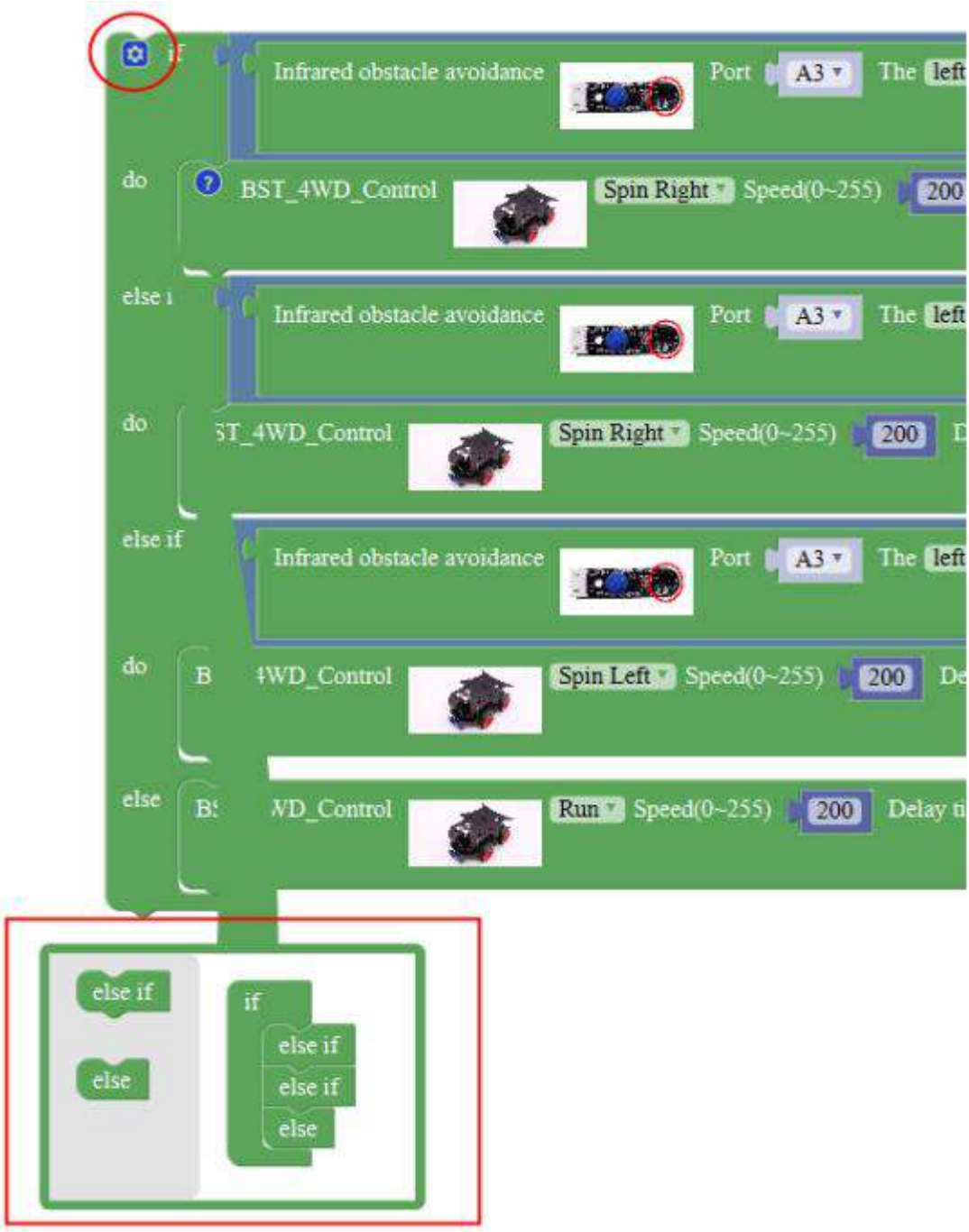

Blocks
Code
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
1
1 + 1
0 & 0
sin
Round
max (1 , 2)
random seed
random integer from 1 to 100

In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
Port # 0
Degree (0~180) 0
Delay(ms) 0
MANIPULATOR
Manipulator1
Buzzer
Port 0
Set Beep
Button
Pressed
LineFinder
Left1State
Detected
WhiteLine
Infrared obstacle avoidance
The left of car Detected
LightSeeking
Light


Blocks
Code
In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
setup
end program
Delay ms 1000
if
do
switch
count with i from 1 to 10 step 1
do
repeat while

Blocks
Code
In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
=
and
not
true
null
if true
if false

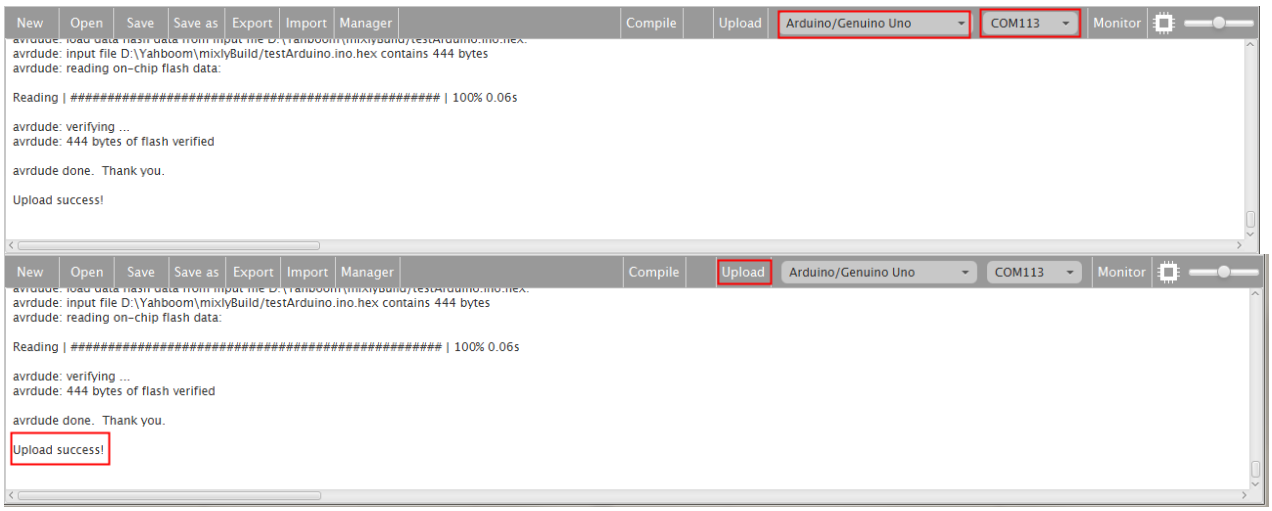
Note:



2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

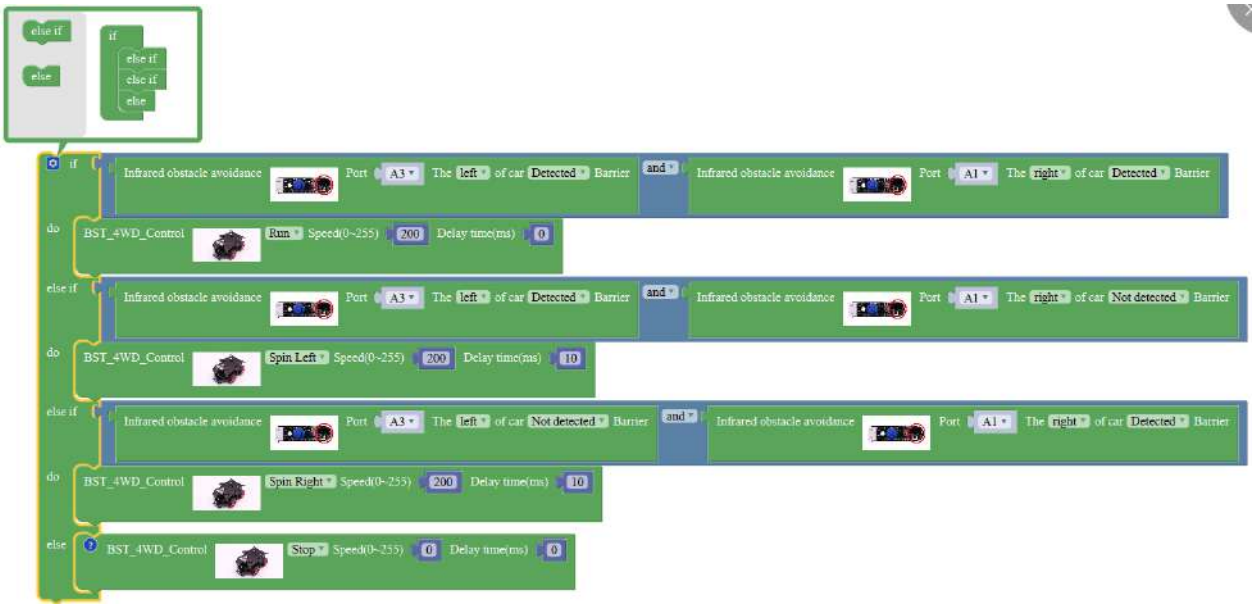
b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.



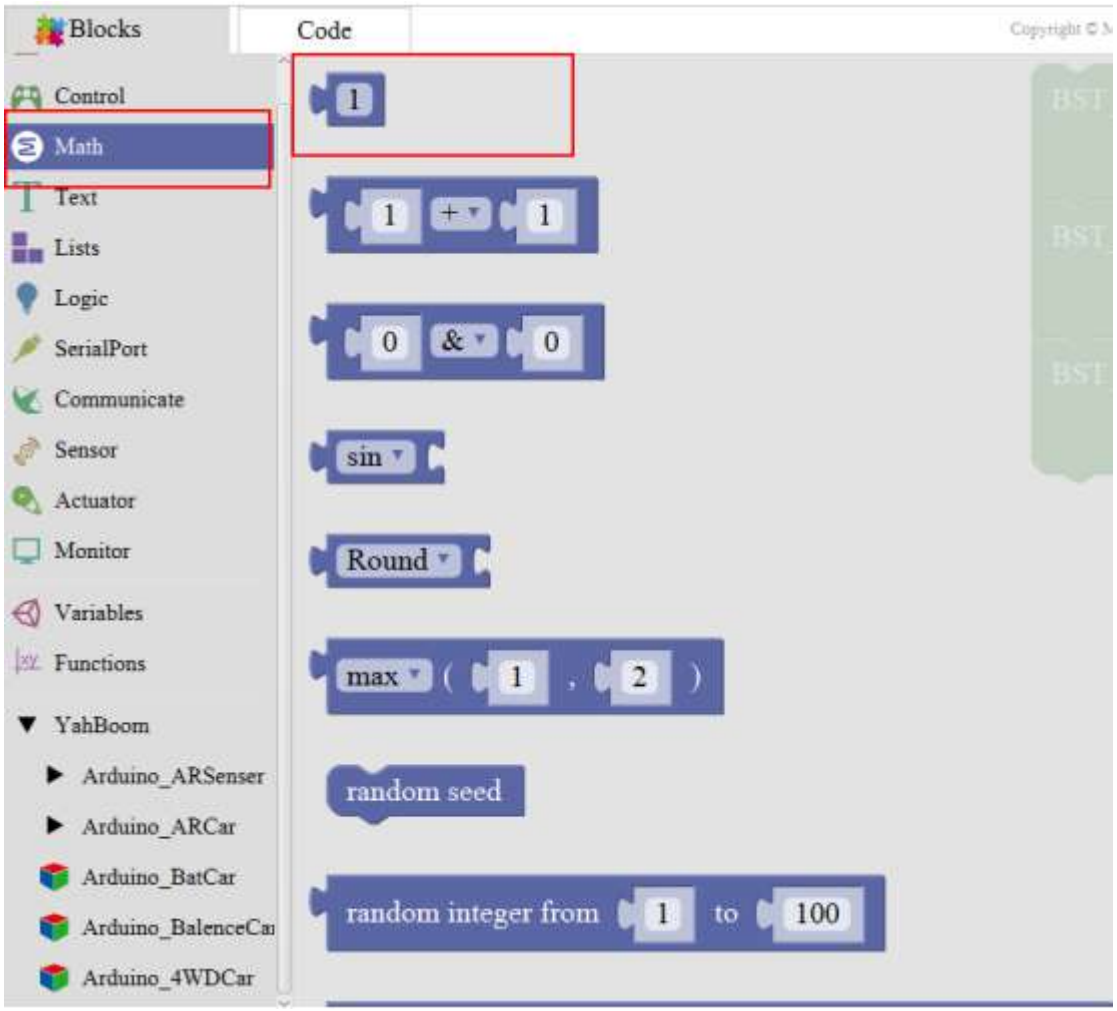
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Debugging of infrared probe， infrared obstacle avoidance can be regulated by rotating potentiometer sensitivity distance, and then adjust the distance according to the speed, thus preventing excessive speed hit the barrier, put the car into the obstacle avoidance area, turn on the power, try the effect.

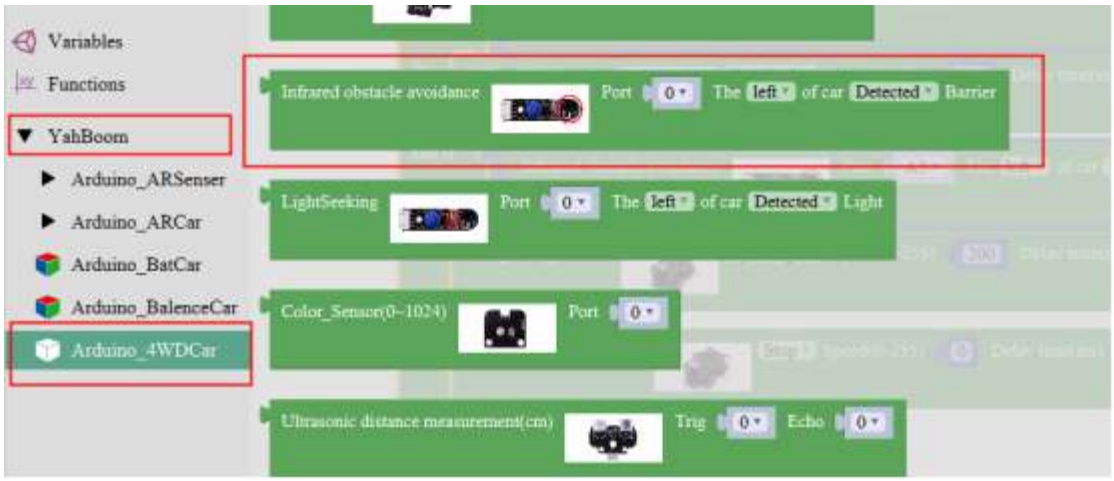
11- Infrared following

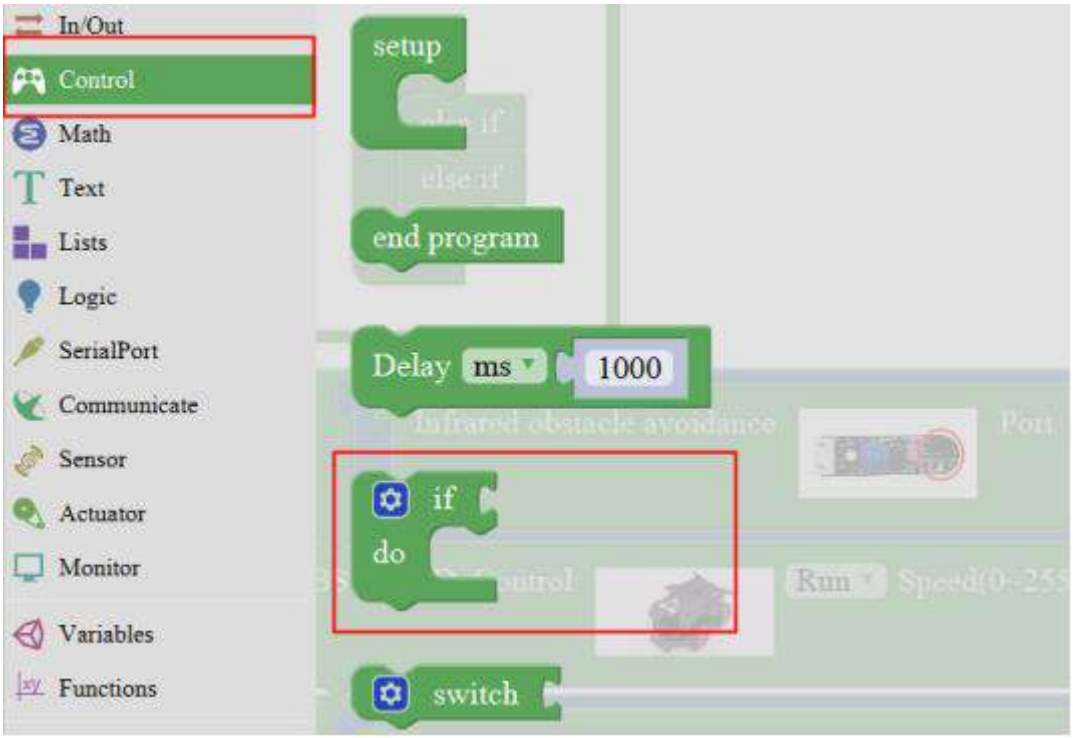
Follow the steps to splice the building blocks ：

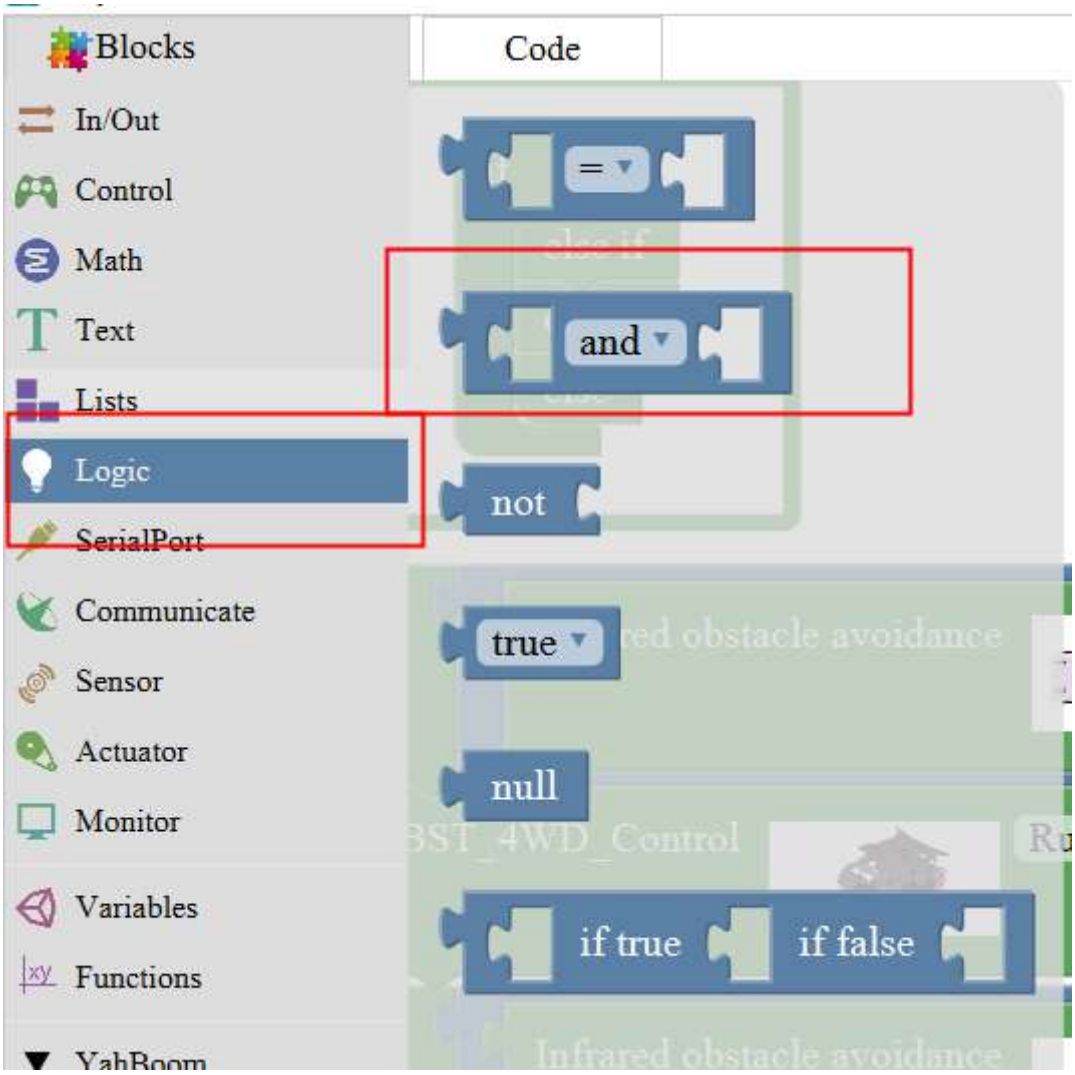


1、Experimental building blocks：

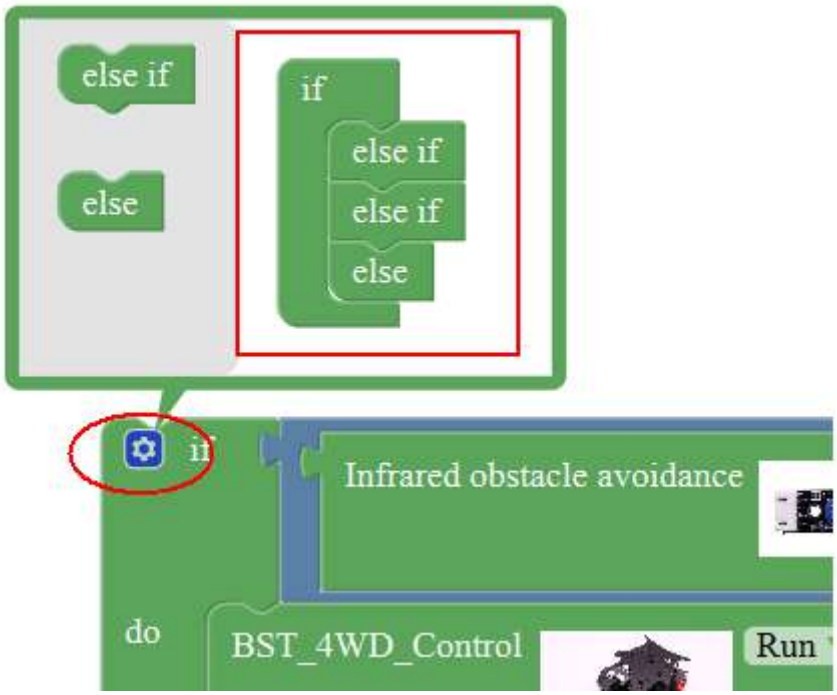

Blocks
Code
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
1
1 + 1
0 & 0
sin
Round
max (1 , 2)
random seed
random integer from 1 to 100


Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
Infrared obstacle avoidance
Port 0
The left of car Detected Barrier
LightSeeking
Port 0
The left of car Detected Light
Color_Sensor(0~1024)
Port 0
Ultrasonic distance measurement(cm)
Trig 0
Echo 0


In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
setup
end program
Delay ms 1000
if
do
switch


Blocks
Code
In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
=
and
not
true
null
if true
if false

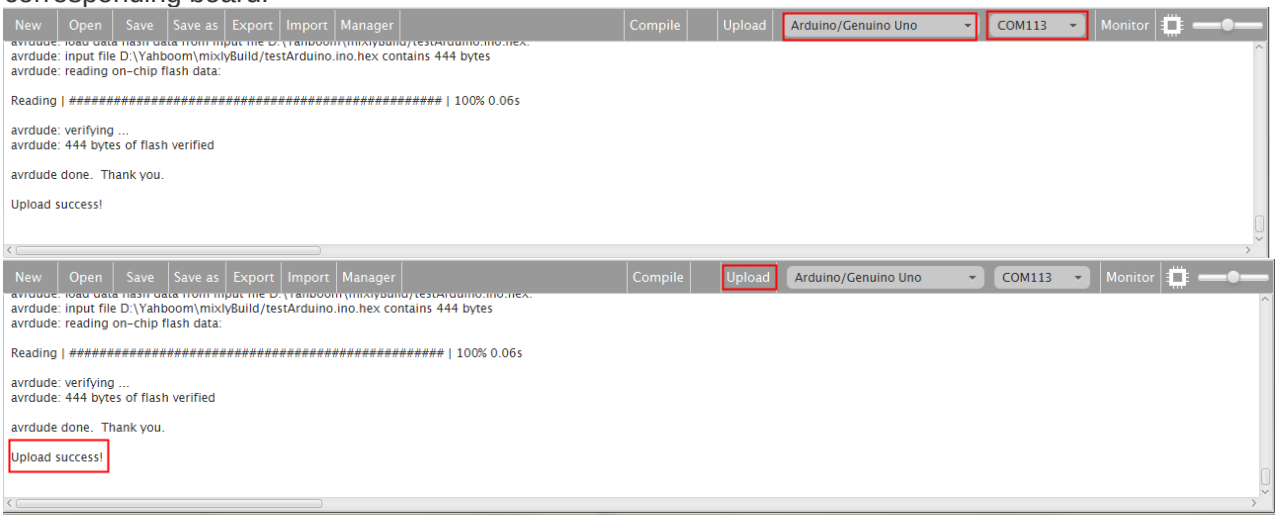
Note:



2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

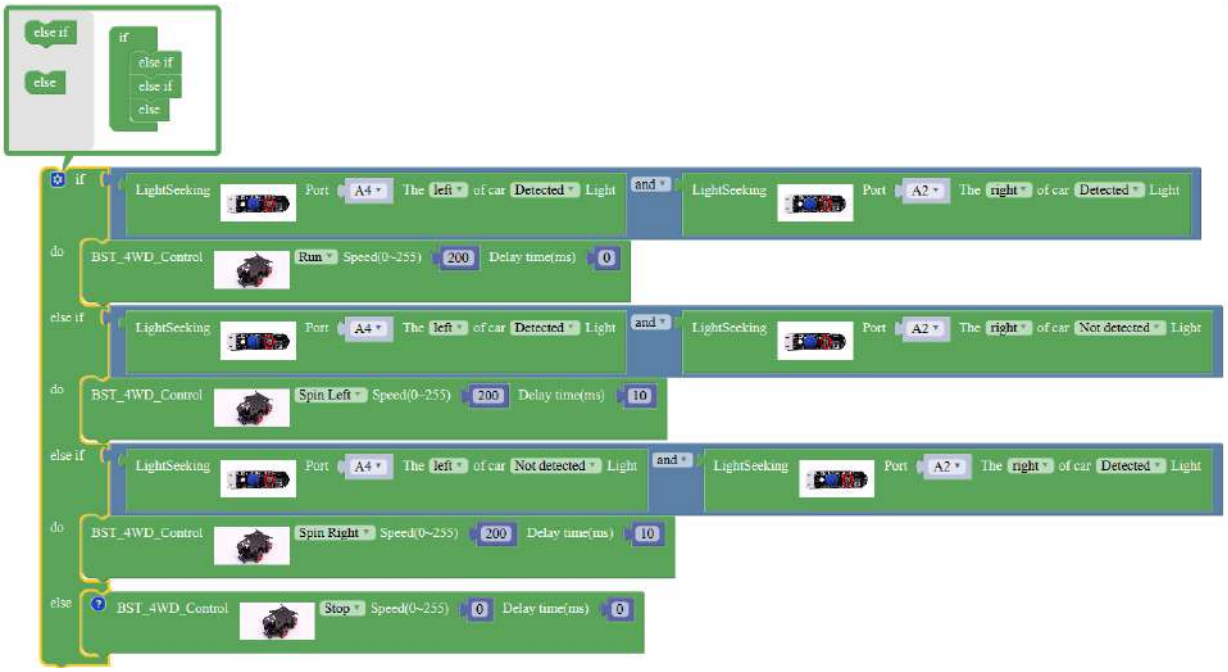
b、After compiled , select Arduino/Genuino Uno follow the picture, selects the serial number of the corresponding board.



c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Debugging infrared probe, infrared obstacle avoidance can be regulated by rotating potentiometer sensitivity distance, and then adjust the distance according to the speed, thus preventing too quickly hit the car following, in the following areas, turn on the power, placed in front of the car to follow, to see whether the car with the obstacles ahead.

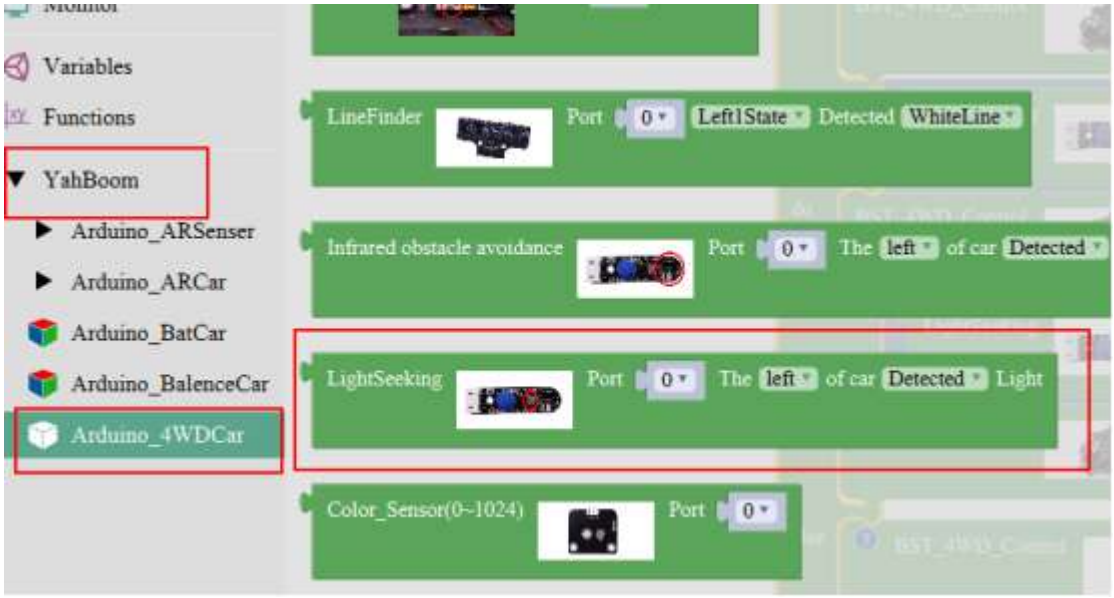
12- Seek light

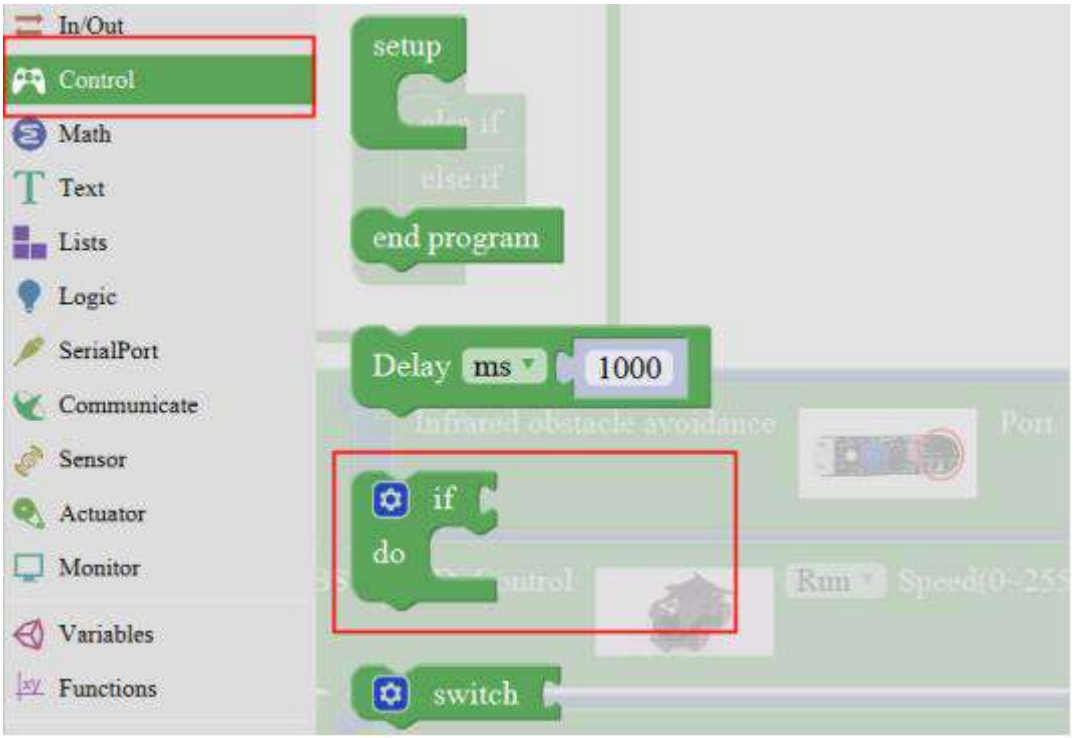
Follow the steps to splice the building blocks ：

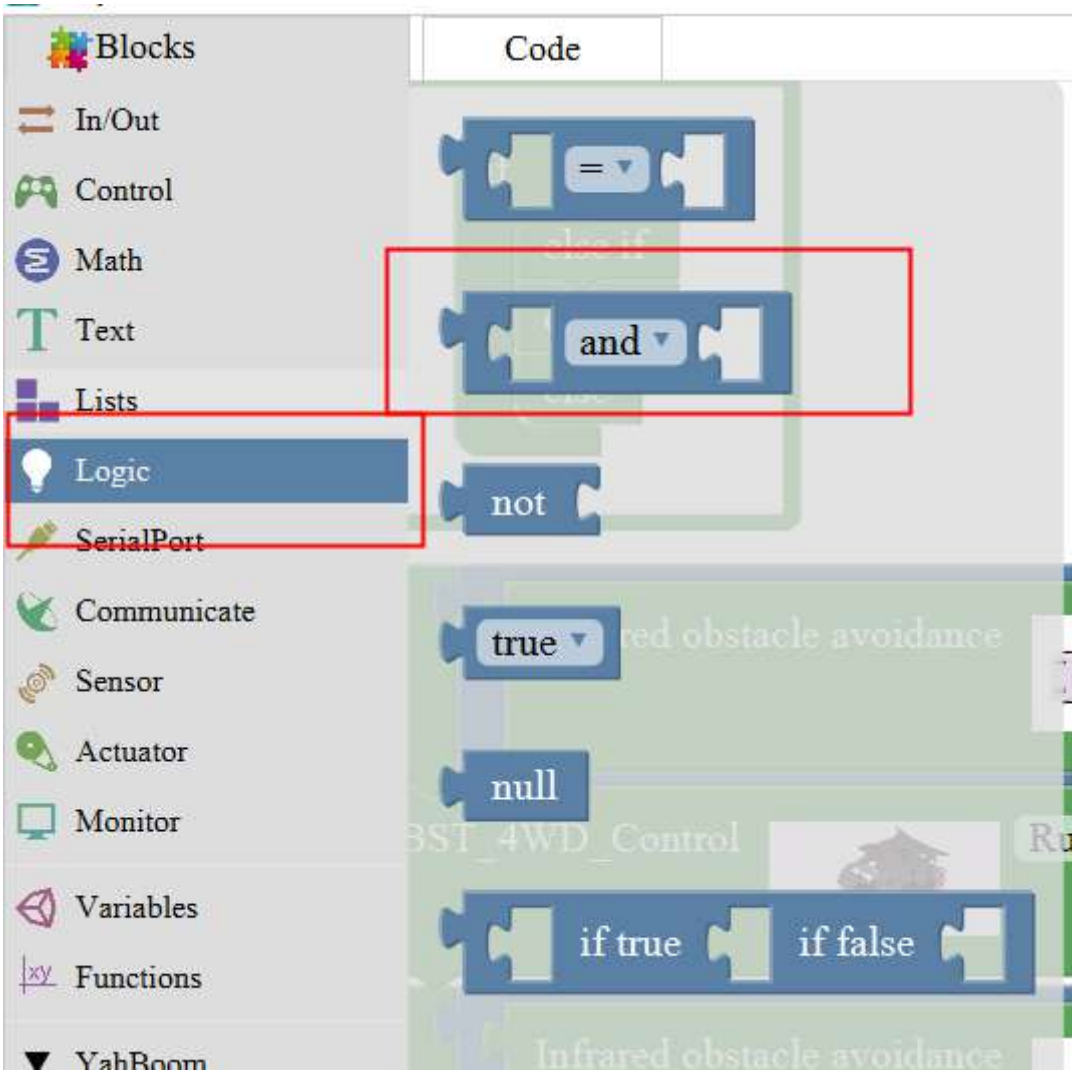


1、Experimental building blocks :

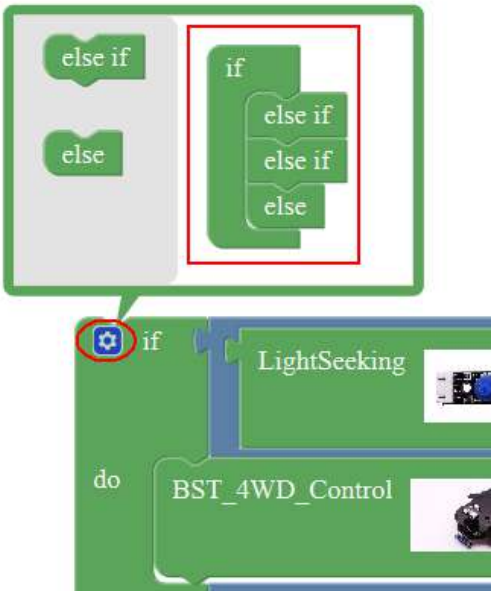
Blocks
Code
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
1
1 + 1
0 & 0
sin
Round
max (1 , 2)
random seed
random integer from 1 to 100


Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
LineFinder
Port 0 Left1State Detected WhiteLine
Infrared obstacle avoidance
Port 0 The left of car Detected
LightSeeking
Port 0 The left of car Detected Light
Color_Sensor(0~1024)
Port 0

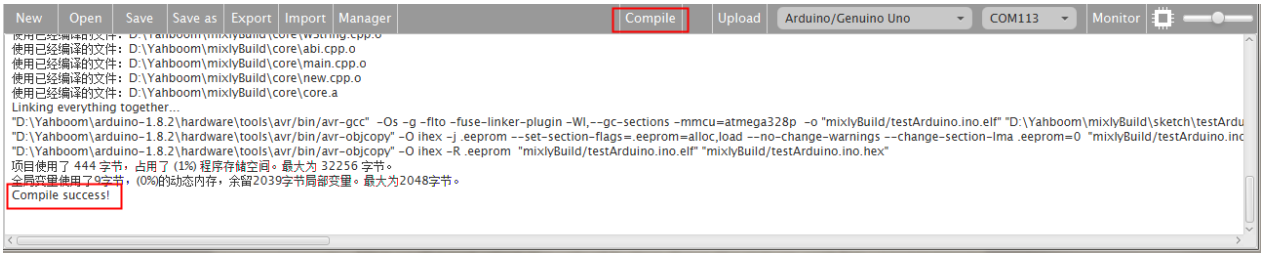

In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
setup
end program
Delay ms 1000
if
do
switch


Blocks
Code
In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
=
and
not
true
null
if true
if false

Note:

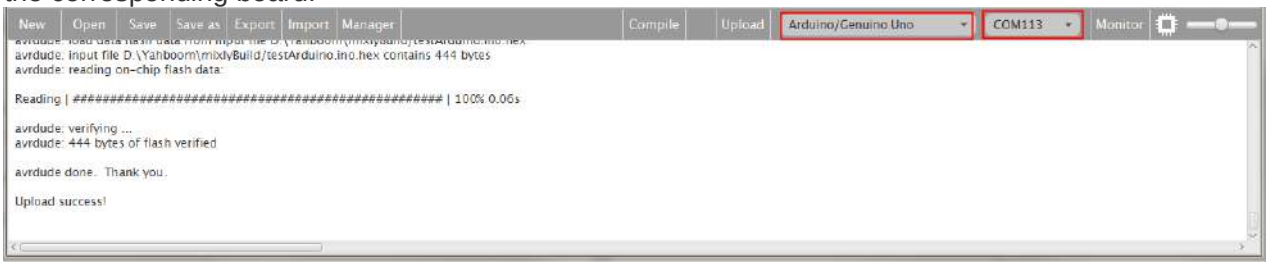


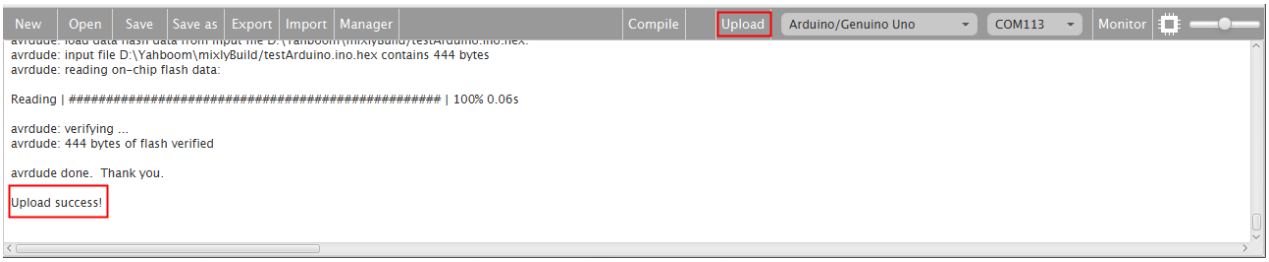
2、Experimental verification：



a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.



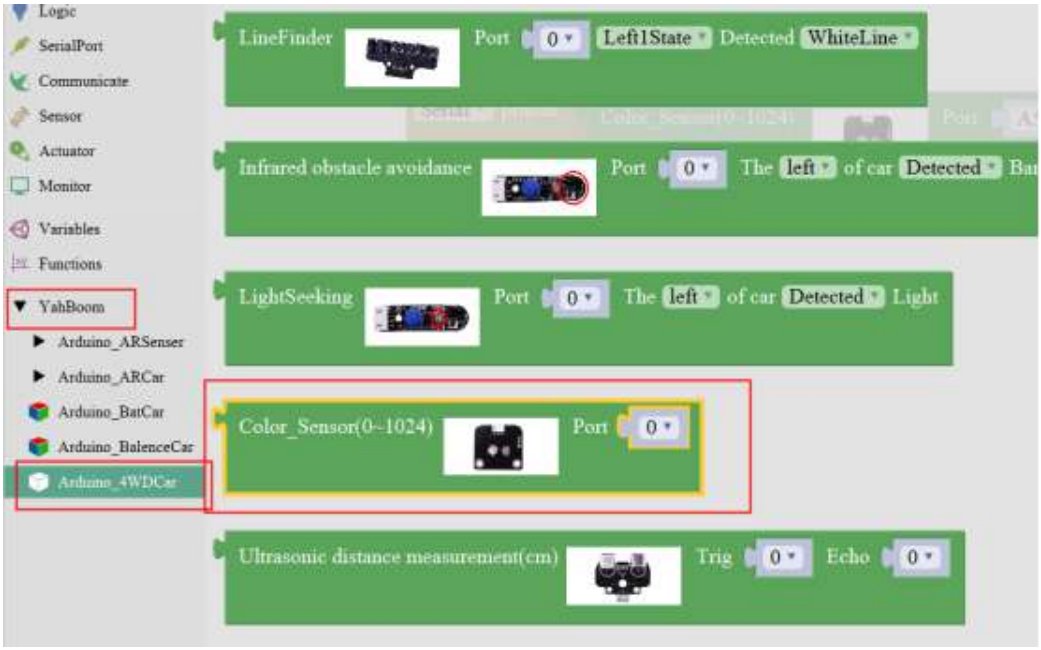


c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. Debugging search light sensor, when exposure to the light source, the light source light is off, no radiation lit, and then power on, the car on the open ground, with a flashlight to find the light module on the left and right sides, to see whether the car with light walking.

13- Color sensor

Follow the steps to splice the building blocks ：

1、Experimental building blocks：

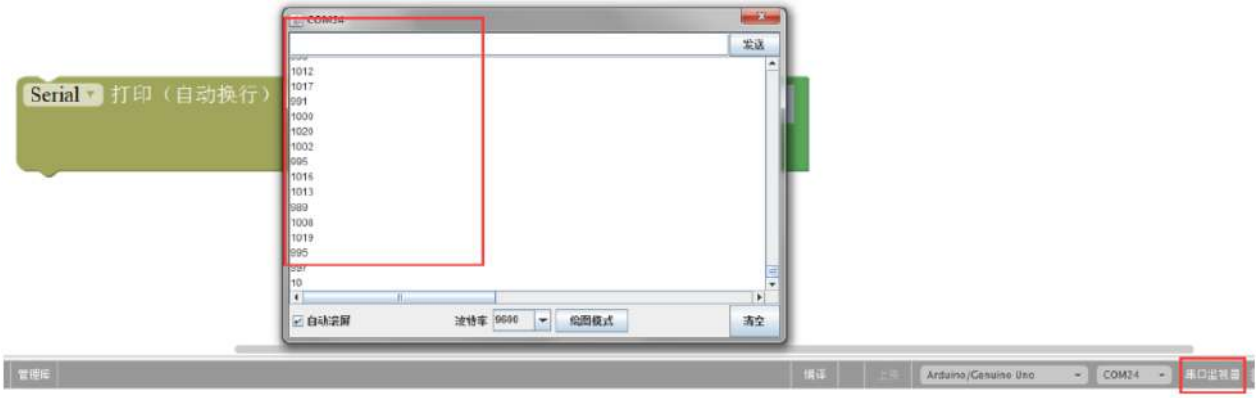


2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

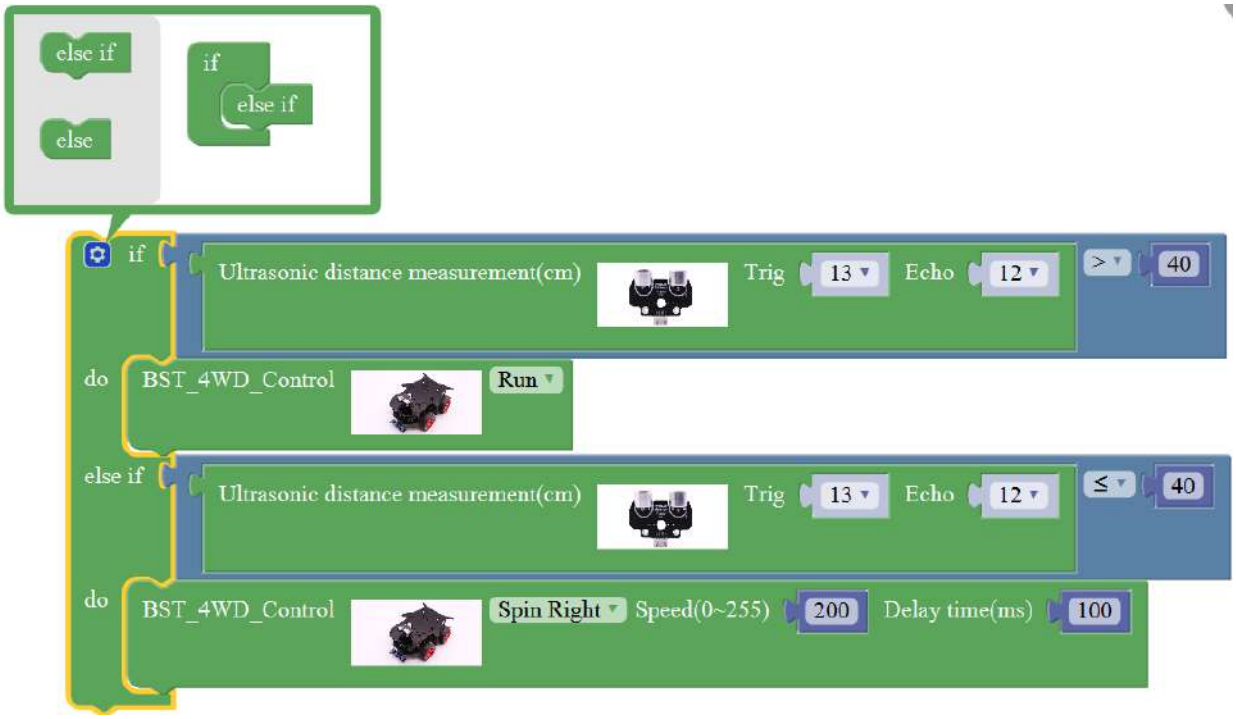
b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.

c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully.Open the serial monitor as follows , check whether to print the values, change the colors, and check if the values change.

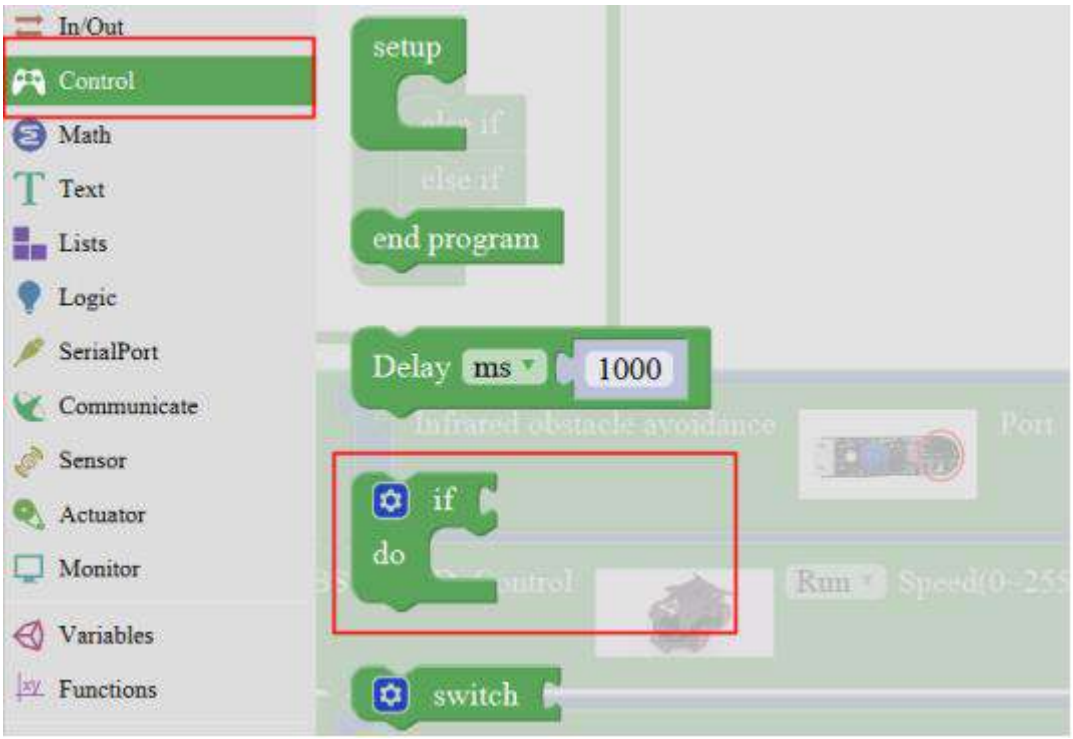


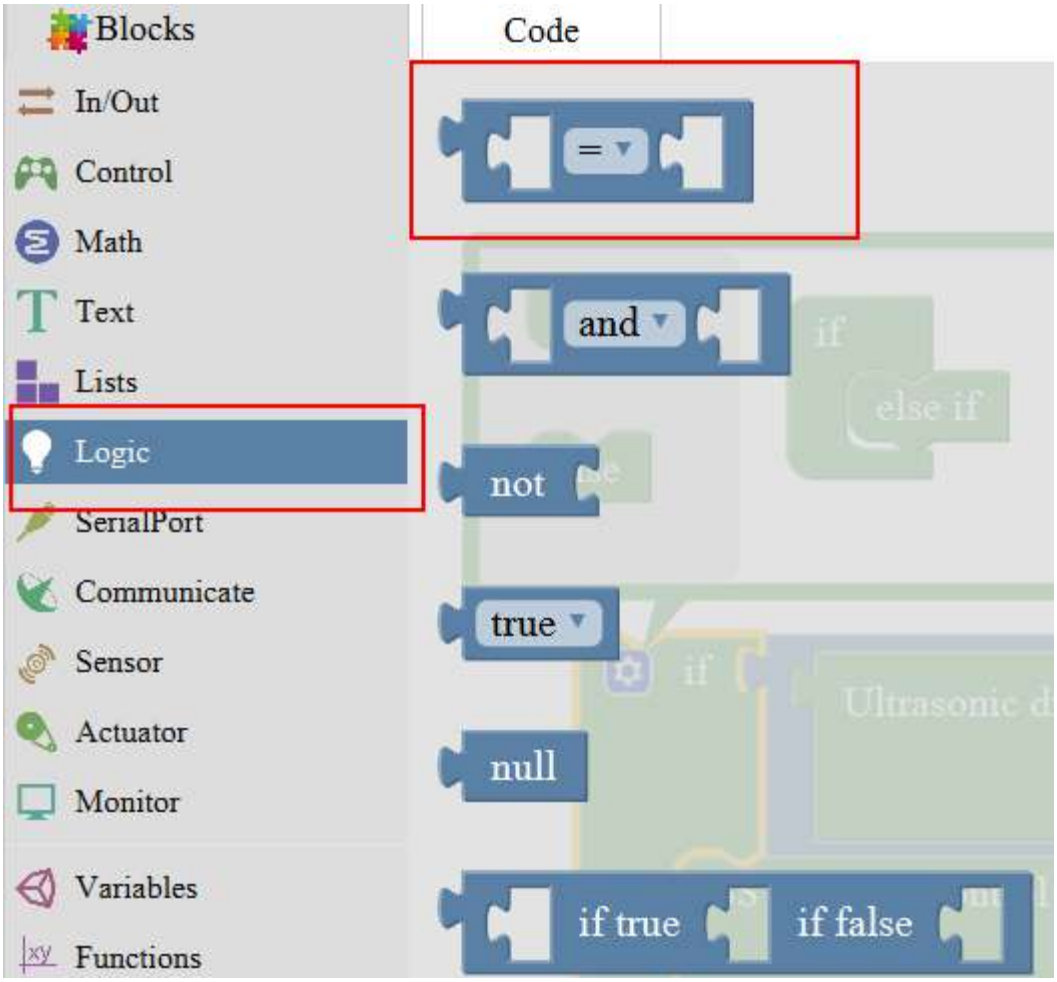
14- Ultrasonic obstacle avoidance

Follow the steps to splice the building blocks ：

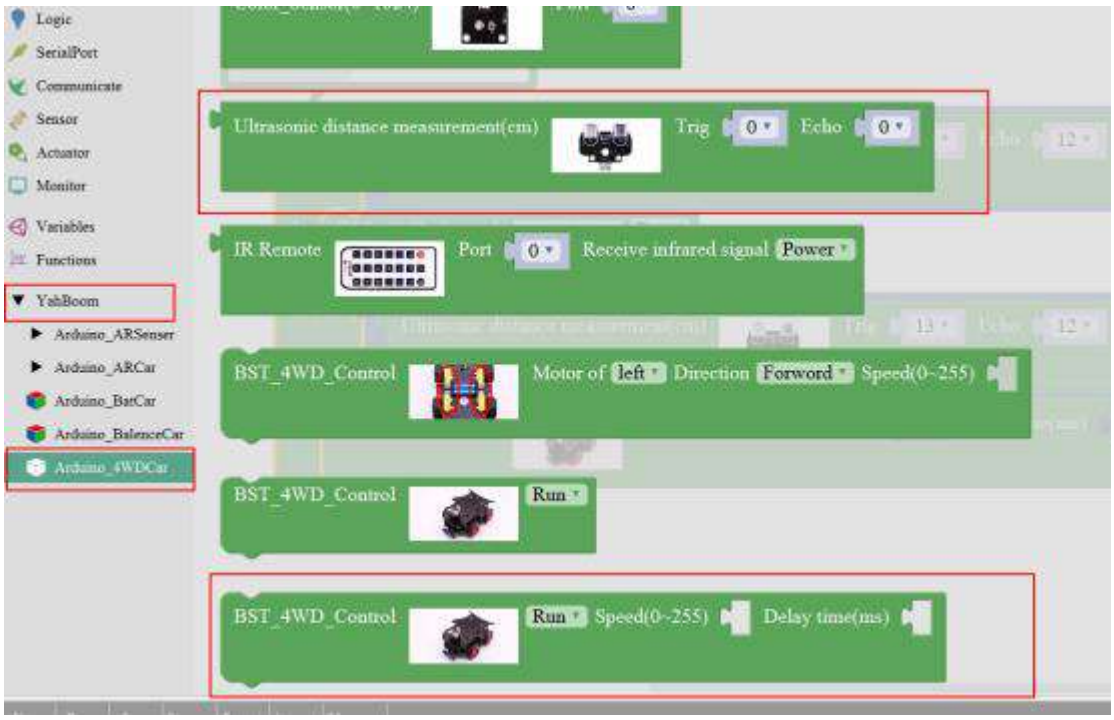


1、Experimental building blocks：

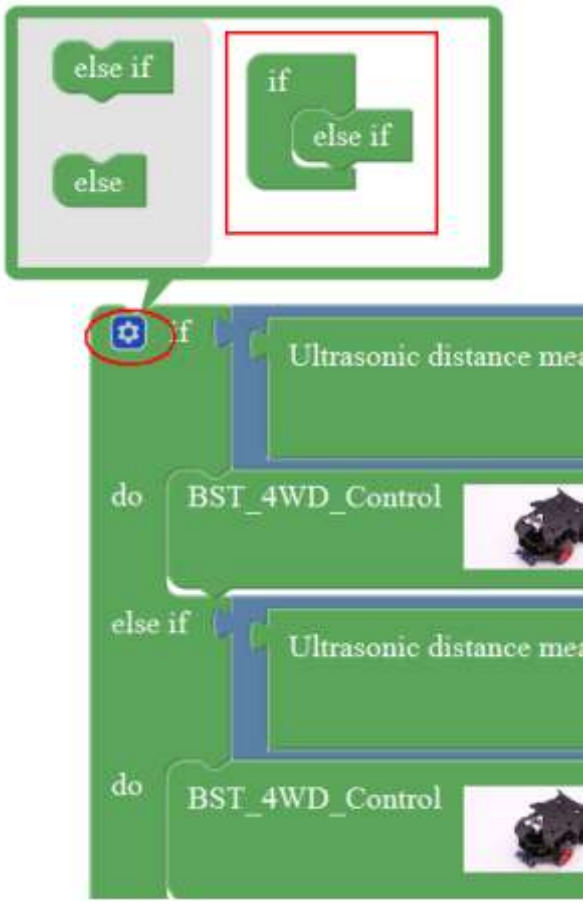



Blocks
Code
In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
=
and
not
true
null
if true
if false

Blocks
Code
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
1
1 + 1
0 & 0
sin
Round
max (1 , 2)
random seed
random integer from 1 to 100



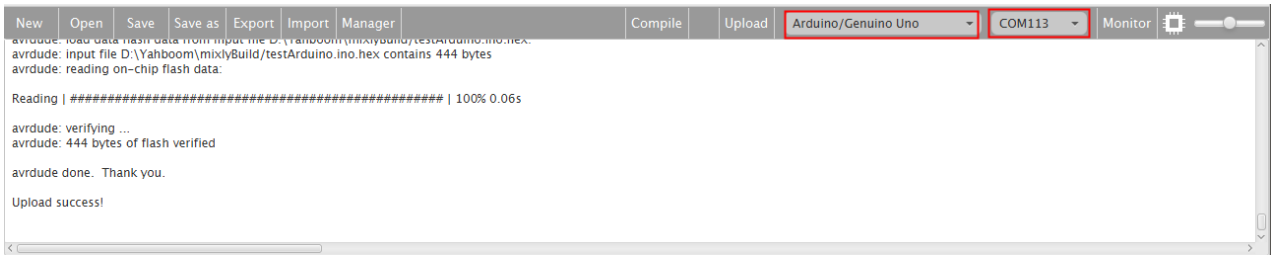
Note:

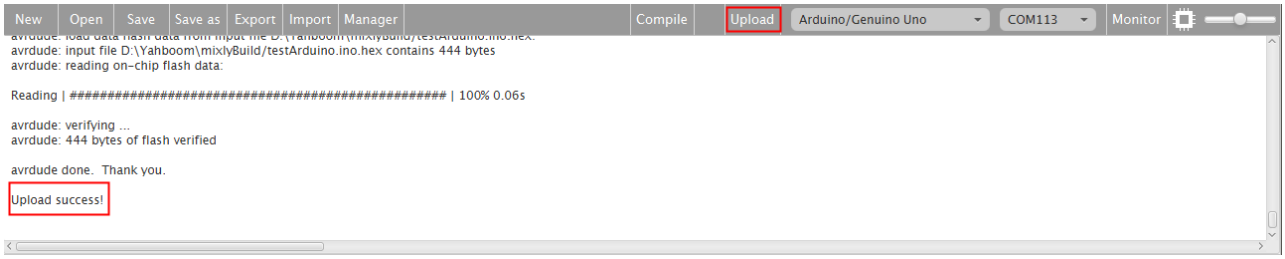


2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.

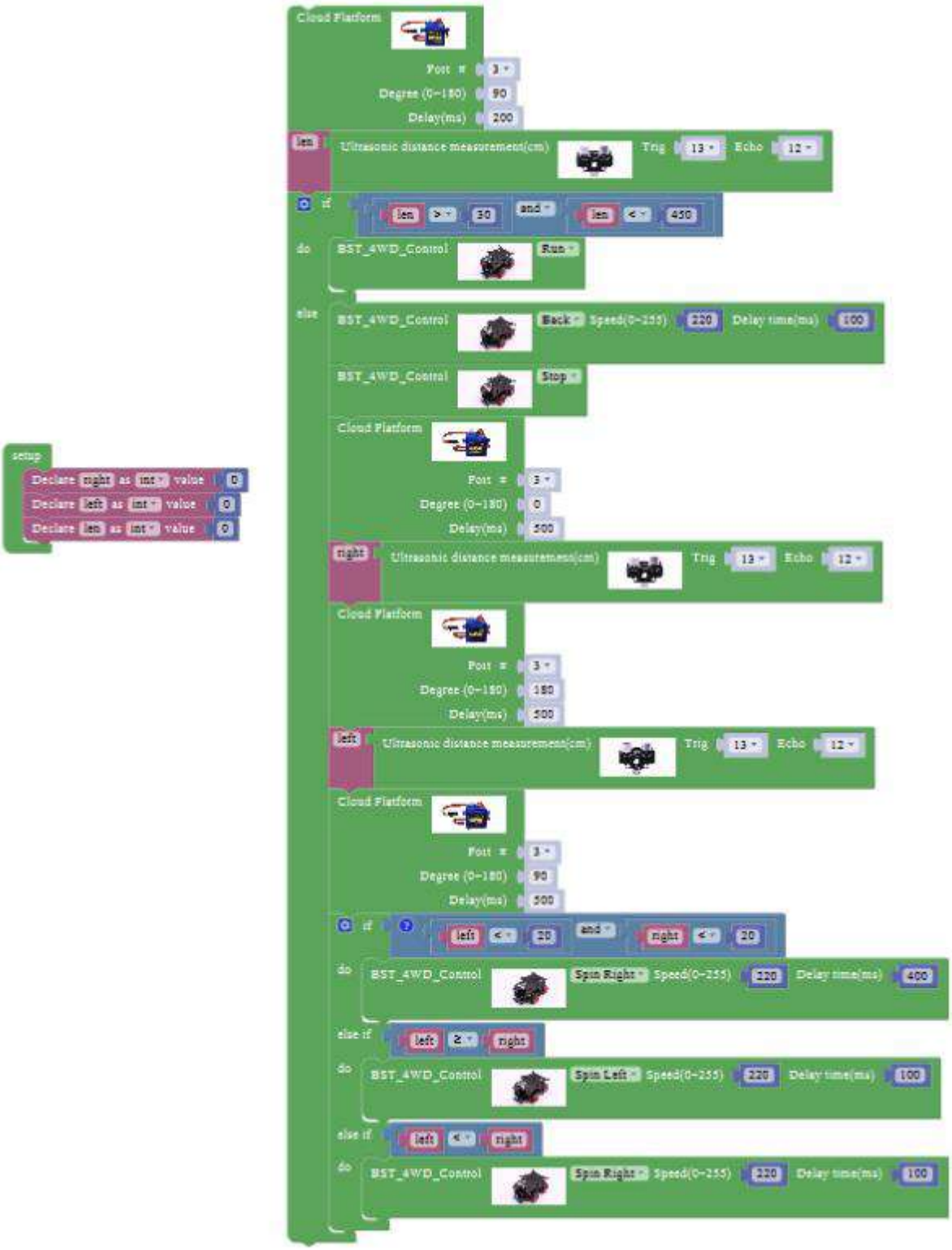




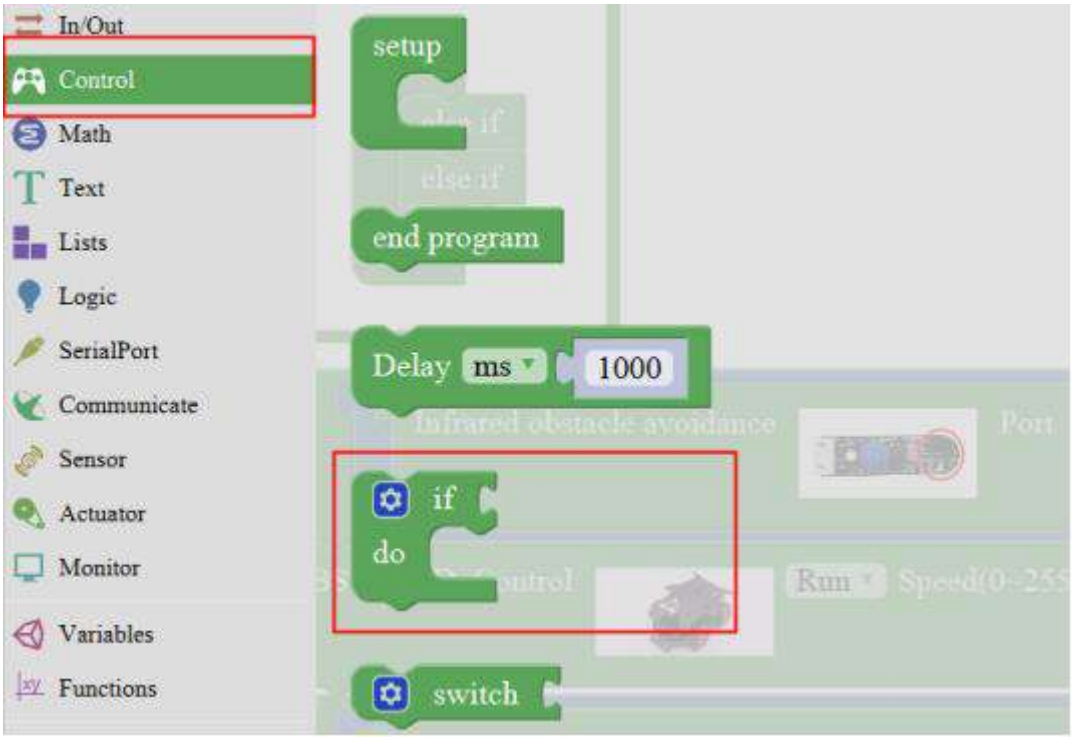
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully. The car is placed in the obstacle avoidance area, turn on the power, the car forward, obstacle distance is less than or equal to 40cm, the car still continue testing, right for a while, the distance is greater than 40cm, the car has always been ahead, waiting for a distance of less than 40cm, continue the previous steps.

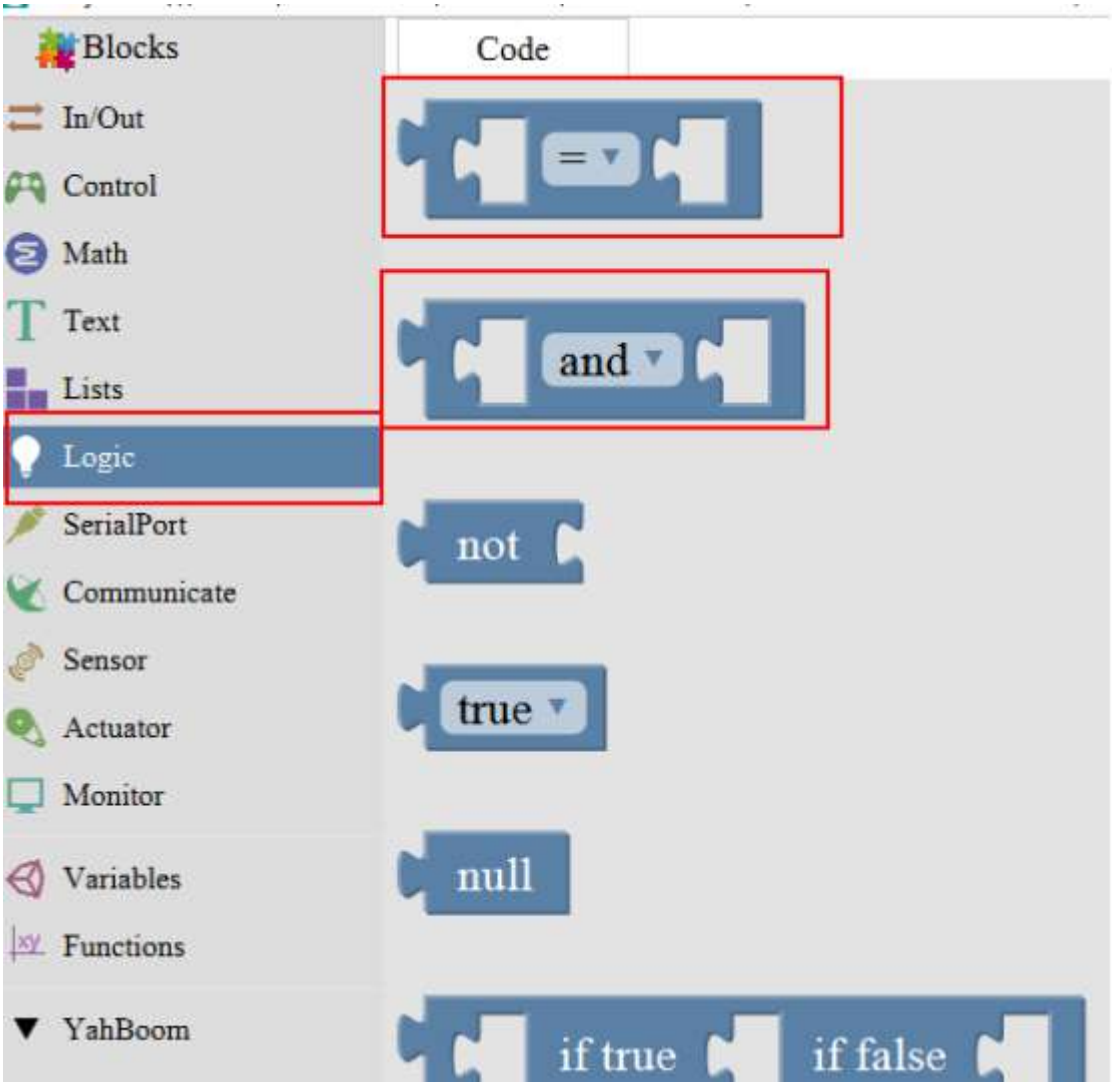
15- Ultrasonic obstacle avoidance with Servo pan

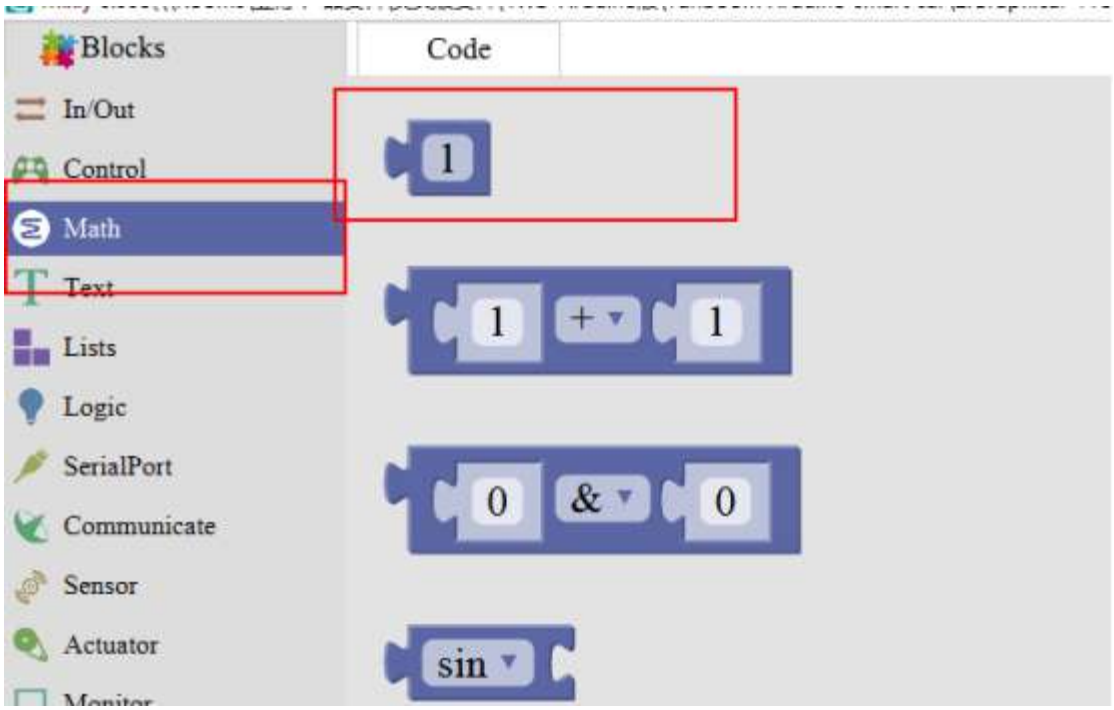
Follow the steps to splice the building blocks ：

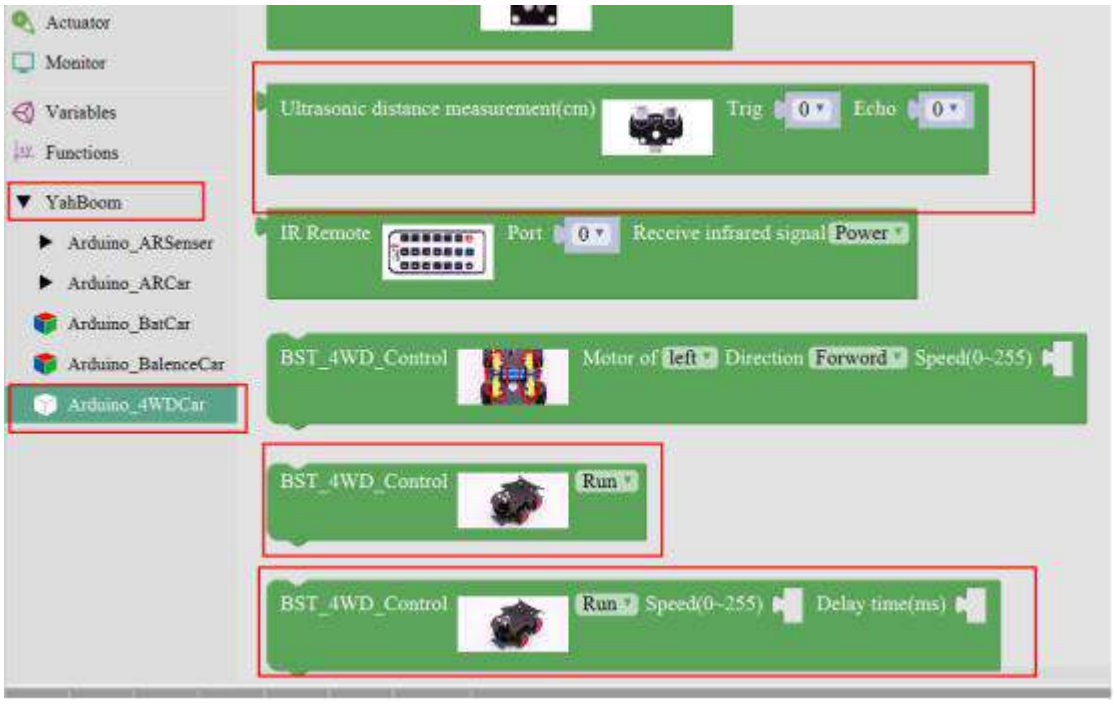


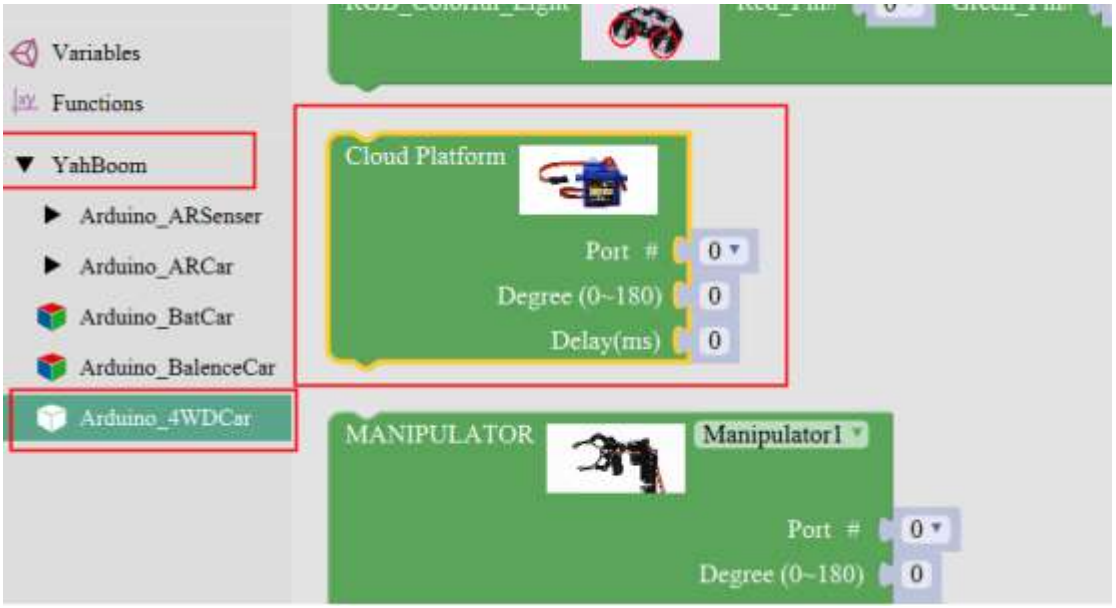
1、Experimental building blocks :

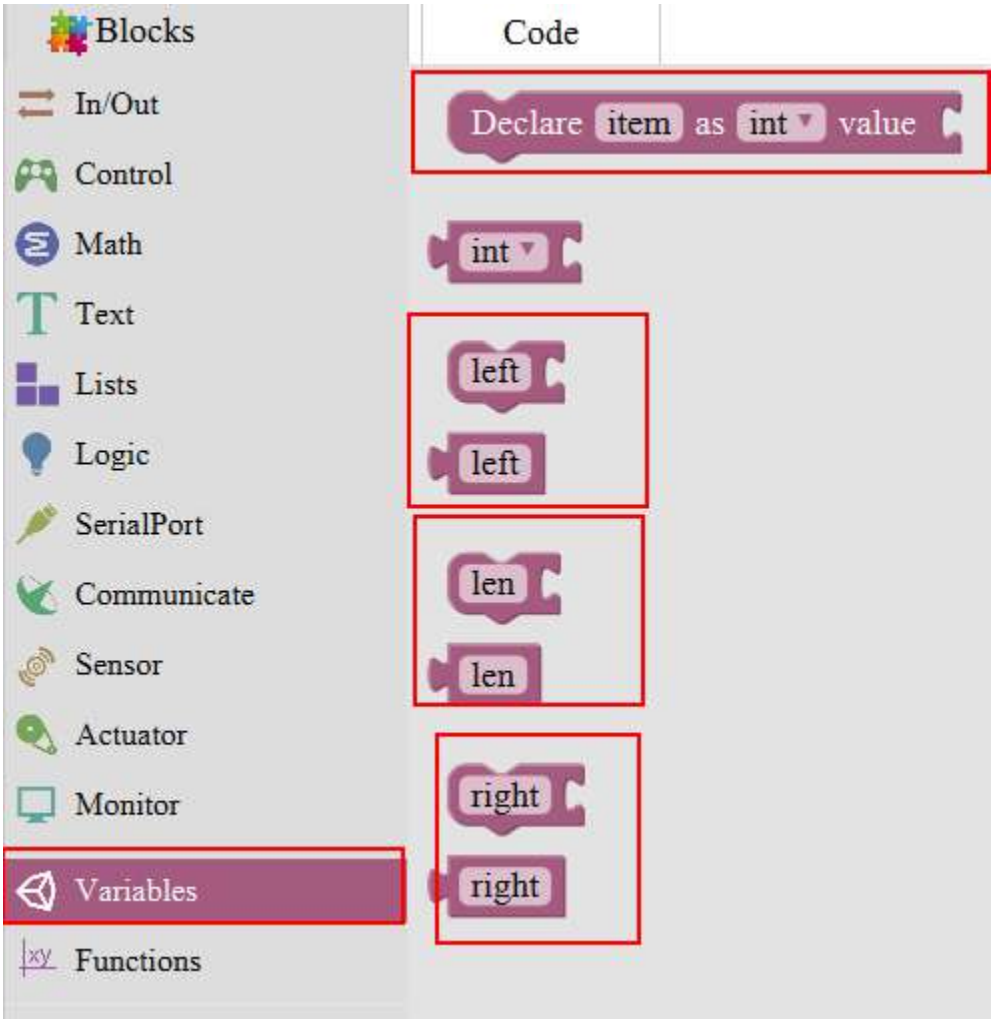

In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
setup
end program
Delay ms 1000
if
do
switch


Blocks
Code
In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
=
and
not
true
null
if true
if false


Blocks
Code
In/Out
Control
Math
Text
Lists
Logic
SerialPort
Communicate
Sensor
Actuator
Monitor
1
1 + 1
0 & 0
sin


Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
Ultrasonic distance measurement(cm)
Trig 0
Echo 0
IR Remote
Port 0
Receive infrared signal Power
BST_4WD_Control
Motor of left Direction Forword Speed(0~255)
BST_4WD_Control
Run
BST_4WD_Control
Run Speed(0~255)
Delay time(ms)

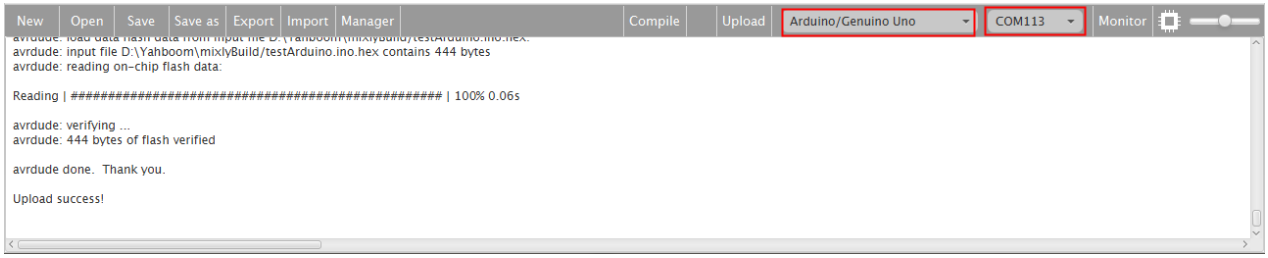


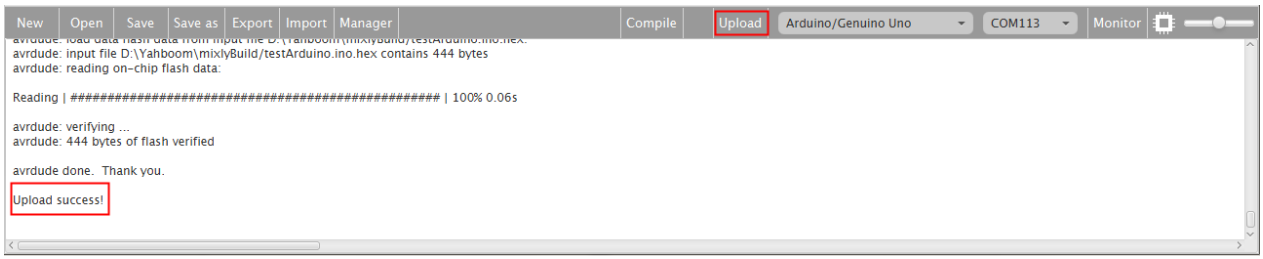


2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.

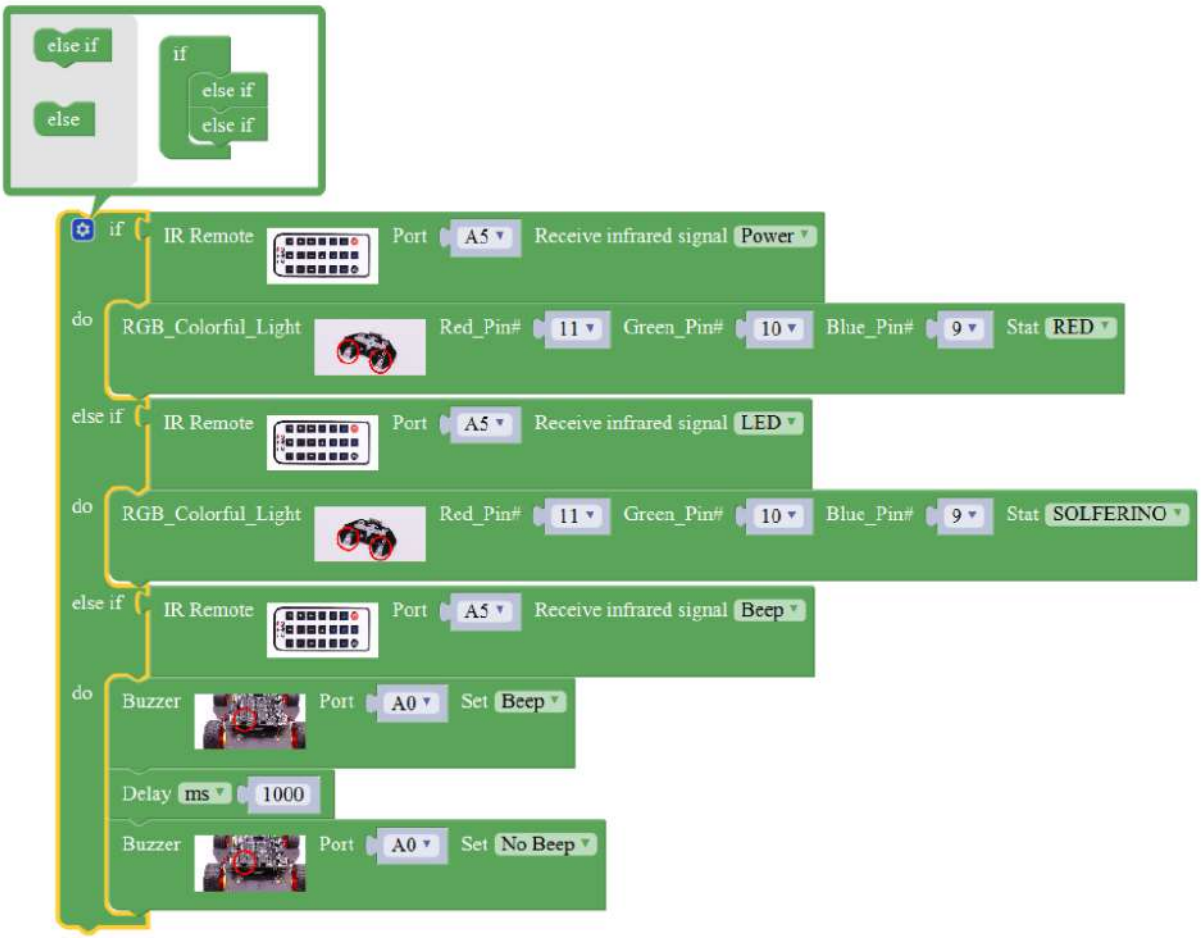




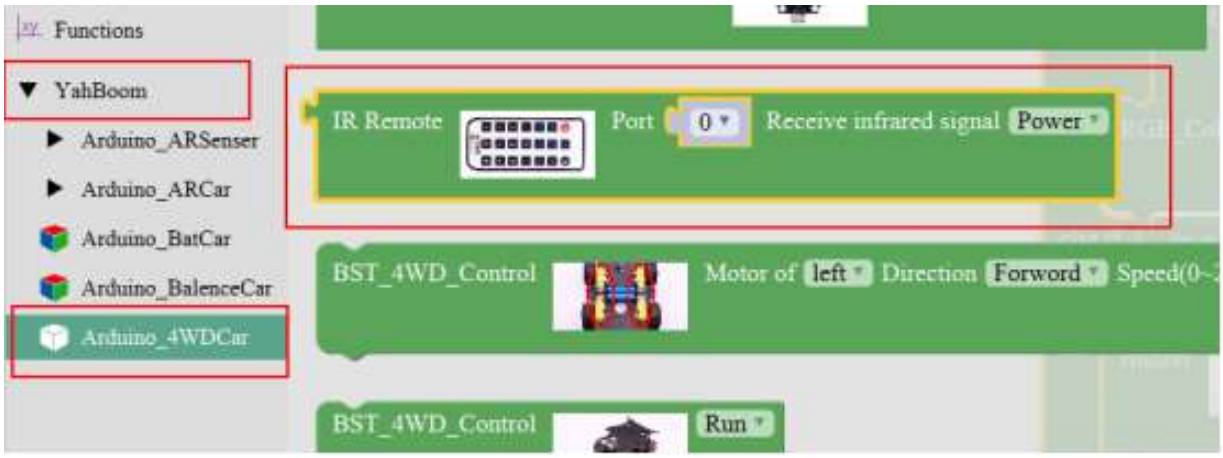
c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully.The car is placed in the obstacle avoidance area, turn on the power, the car forward, obstacle distance is greater than 30 and less than 450 straight, stop the car less than or equal to 30, and the left rudder left shaking measuring distance, measuring roll right right distance judgments about distance, about less than 20 turn, the left and right distance who is to either side, continue to repeat the obstacle avoidance.

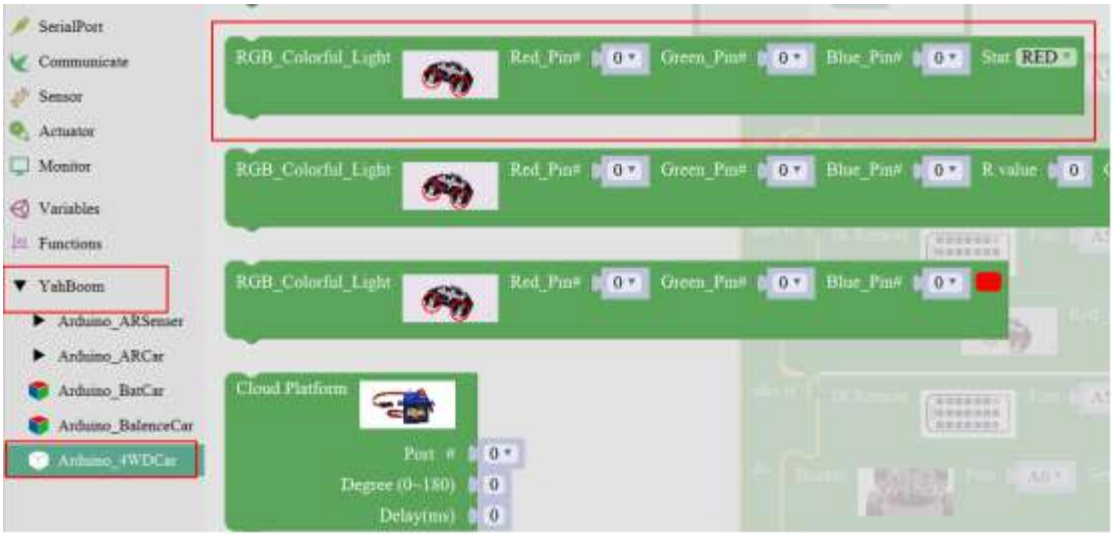
16- Infrared remote control

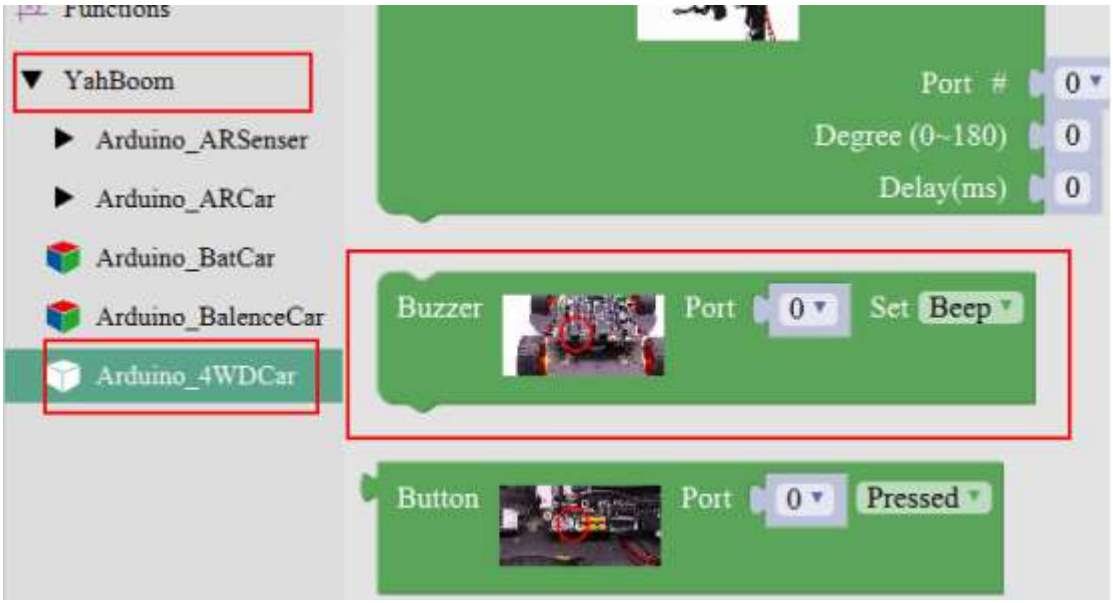
Follow the steps to splice the building blocks ：

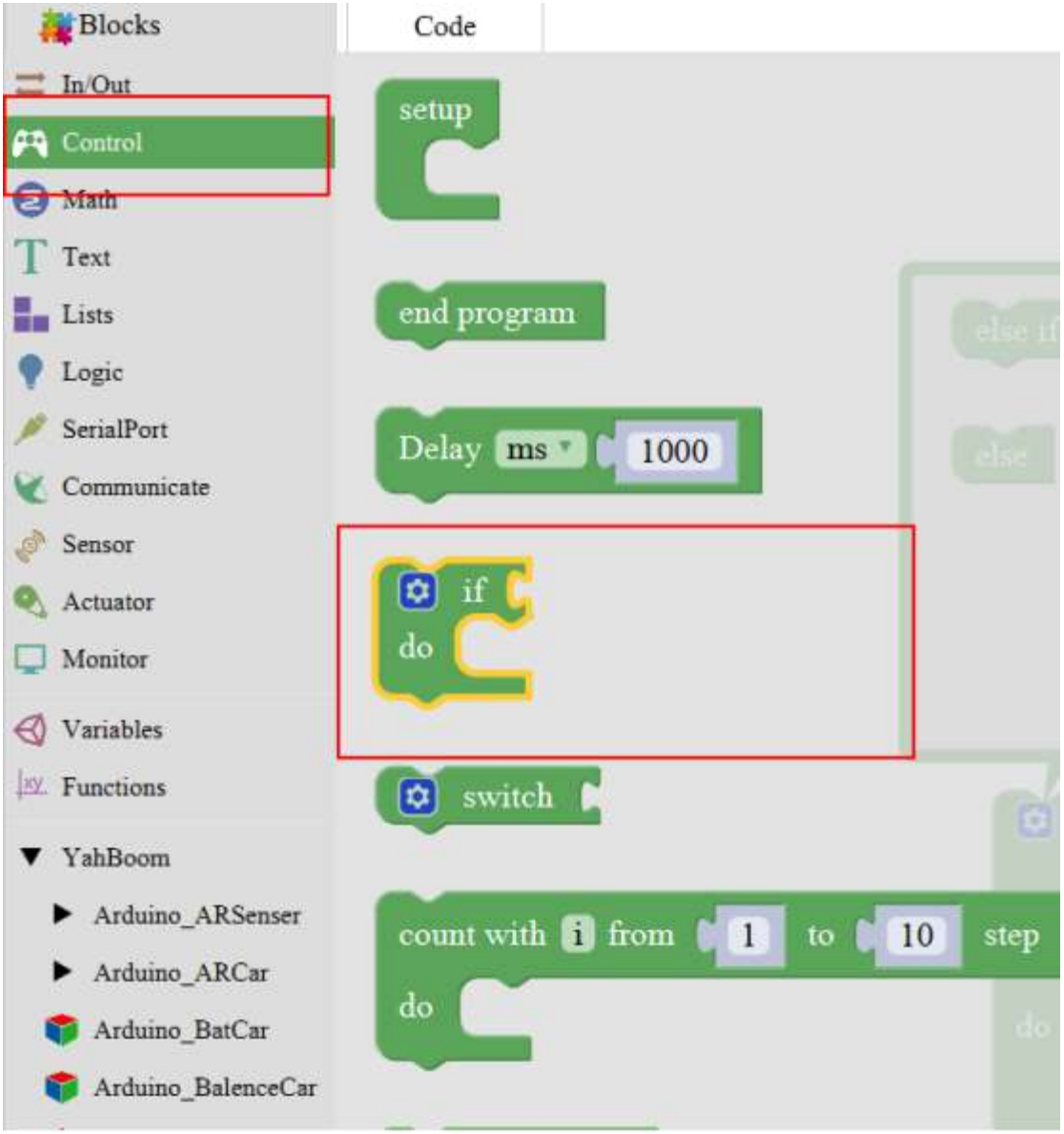


1、Experimental building blocks :




SerialPort
Communicate
Sensor
Actuator
Monitor
Variables
Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
RGB_Colorful_Light
Red_Pin#
Green_Pin#
Blue_Pin#
Stat
RED
R value
Cloud Platform
Port #
Degree (0~180)
Delay(ms)

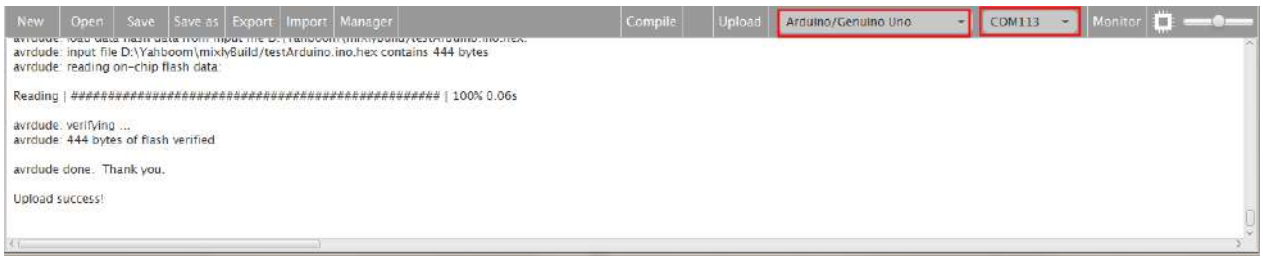

Functions
YahBoom
Arduino_ARSenser
Arduino_ARCar
Arduino_BatCar
Arduino_BalenceCar
Arduino_4WDCar
Port #
Degree (0~180)
Delay(ms)
Buzzer
Port
Set
Beep
Button
Port
Pressed

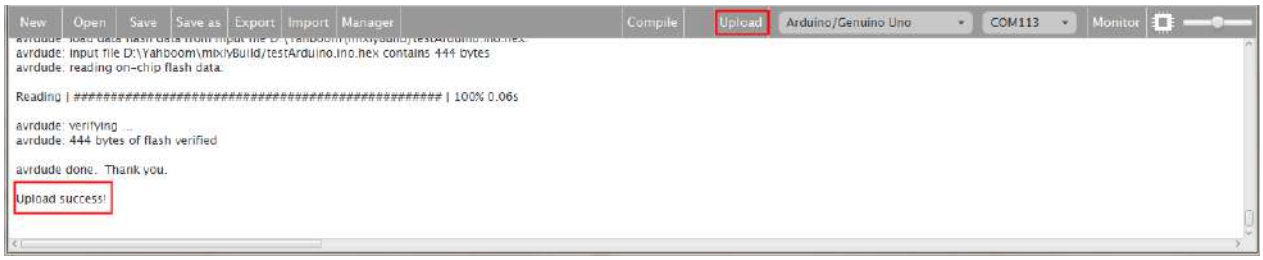


2、Experimental verification：

a、After splicing, select the compile button above the picture, wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

b、After compiled , select **Arduino/Genuino Uno** follow the picture, selects the serial number of the corresponding board.





c、After configured,select the upload button above the picture, wait for the following box prompt the upload successfully.If the red power button is pressed, the red light will start; press the white light button, the car is bright red; press the horn key, and the car will whistle for one second.

telecontroller