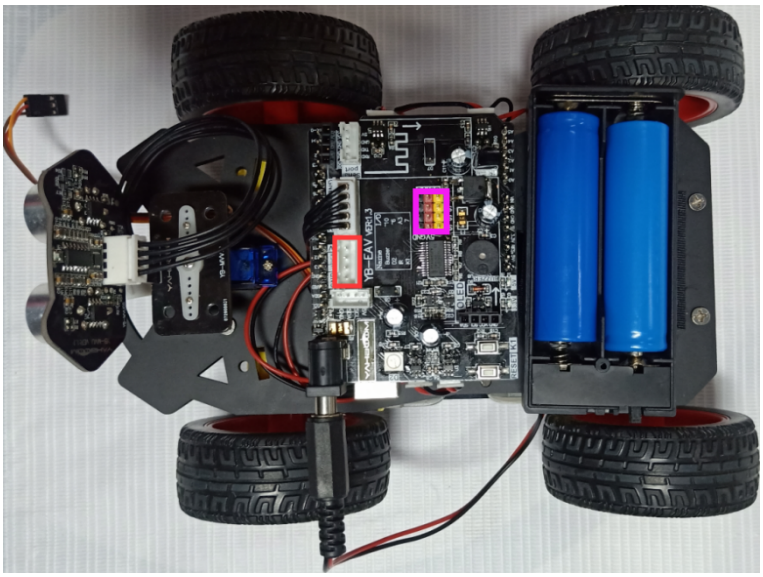
Scratch course ---13.Ultrasonic avoid with servo

1. Learning goal

In this lesson, we will learn how to use ultrasonic module and servo to realize obstacle avoidance function.

2. Preparation

2.1 The position of the ultrasonic port and servo port on the expansion board. As shown below.



2.2 Learn how to use ultrasonic distance graphically program building blocks.

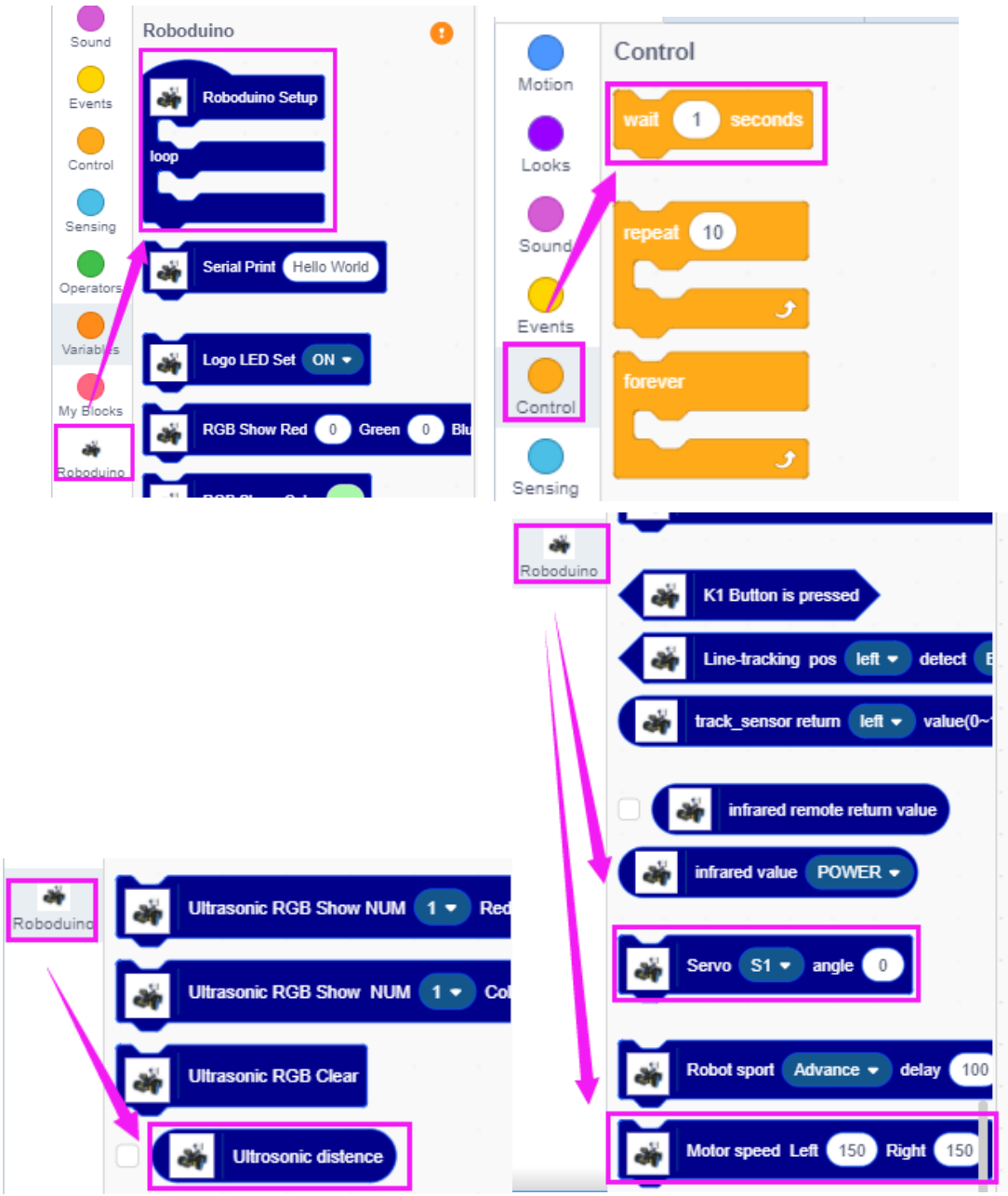
Brown line of servo connect to black pin of servo port(s1) on the expansion board.

Red line of servo connect to red pin of servo port(s1) on the expansion board.

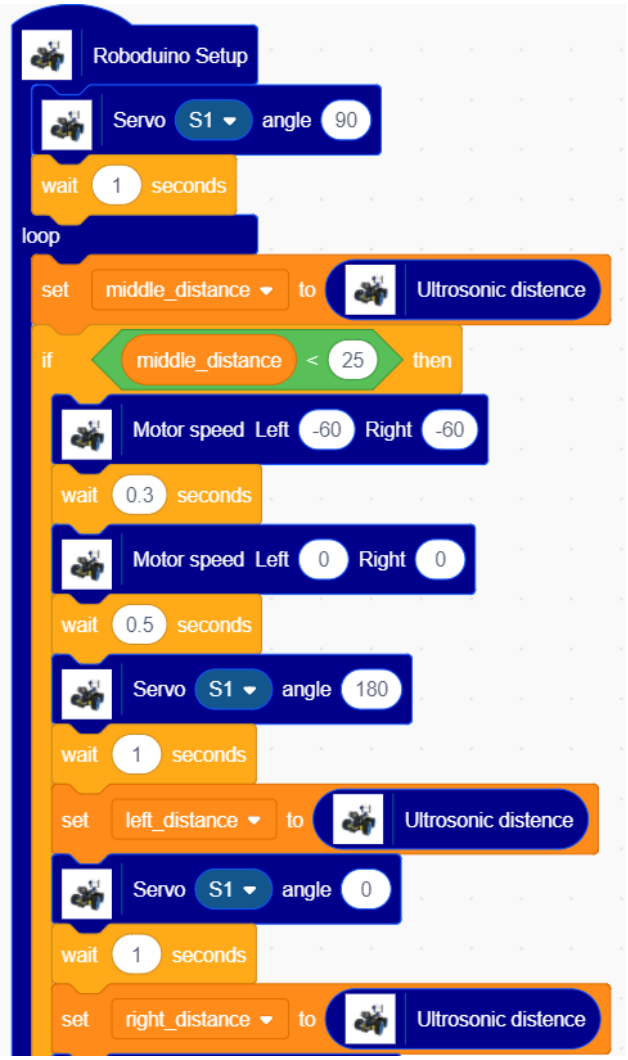
Orange line of servo connect to yellow pin of servo port(s2) on the expansion board.

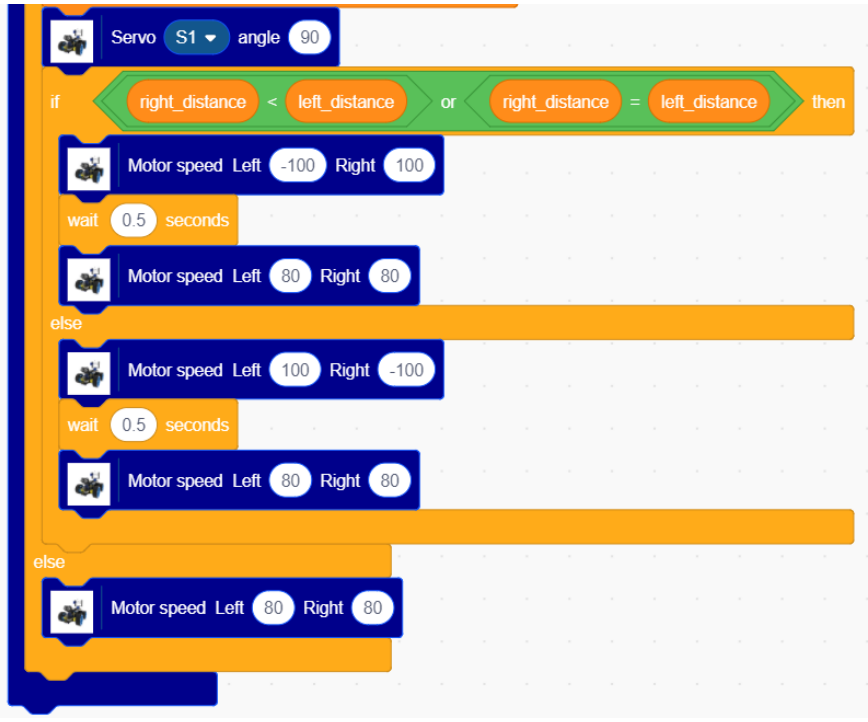
3. Search for blocks

The following is the location of the building blocks required for this programming.



4. Combine blocks


Roboduino Setup
Servo S1 angle 90
wait 1 seconds
loop
set middle_distance to Ultrosonic distence
if middle_distance < 25 then
Motor speed Left -60 Right -60
wait 0.3 seconds
Motor speed Left 0 Right 0
wait 0.5 seconds
Servo S1 angle 180
wait 1 seconds
set left_distance to Ultrosonic distence
Servo S1 angle 0
wait 1 seconds
set right_distance to Ultrosonic distence


Servo S1 angle 90
if right_distance < left_distance or right_distance = left_distance then
Motor speed Left -100 Right 100
wait 0.5 seconds
Motor speed Left 80 Right 80
else
Motor speed Left 100 Right -100
wait 0.5 seconds
Motor speed Left 80 Right 80
else
Motor speed Left 80 Right 80

5. Experimental phenomena

After the program is downloaded. When we open the power switch of robot car, the robot car will move forward.

When an obstacle is encountered in front of it, it will back, then stop.

Servo will rotate to 0°and 180°to detect distance, if left distance greater than or equal to right distance, robot car will spin left, if right distance greater than left distance, robot car will spin right.

!Note:

Our program is for reference only, the user needs to adjust the parameters in the program according to the actual situation.