Learning Series



Security door

This robotics kit is a building block programming robot developed by Joinmax. The kit is equipped with various sensors such as sound sensitivity, color, touch, photoelectric, lantern, ultrasonic, camera and a wealth of building blocks.Students can use their imagination to build a variety of building block robots, and use graphical programming programming software to program the robot and experience the joy of hands-on creation.

Learning Target

01

Knowledge goal

Understand the sensor and its classification and touch sensors to understand the grammatical structure of conditional judgment.

02

Ability goal

Familiar with conditional judgment and master the use of touch sensors.

03

Emotional attitudes and values

Enhance process analysis capabilities through conditional learning.

Learning Target

01

Learning focus

Master the basic usage of touch sensors.

02

Learning difficulties

Familiar with the use of conditional judgments.

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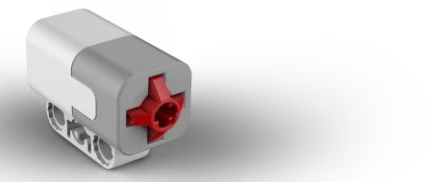
Course Introduction



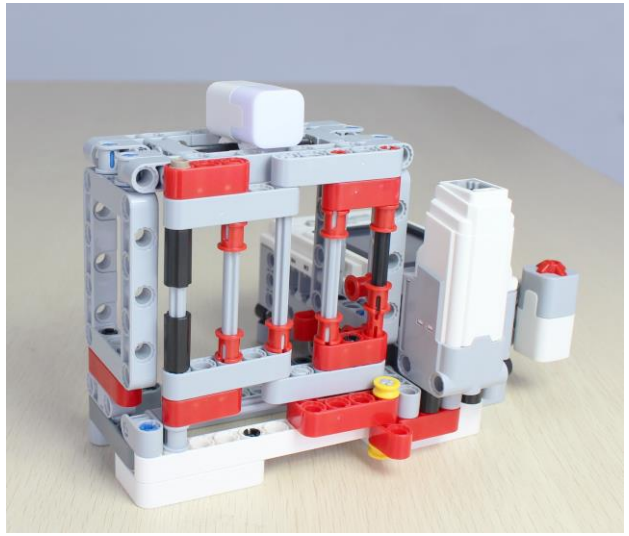
Course Introduction



Do you know the input type of electronic components?

We have been learning the electronic components of the output class, such as lanterns and motors. Since there are output-type electronic components, are there also input-type electronic components? What are the electronic components of the input class? What are their characteristics?

Course Introduction



Security door

Know about Security door

The robot name in this lesson is called "Security Door". The use of a touch sensor is mainly used to collect the pressing information to detect whether the door is opened, thereby completing the anti-theft function.

Let's learn together.

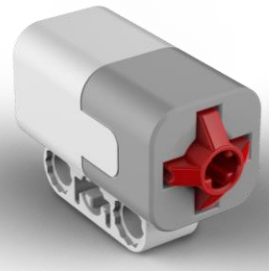
Teaching New Knowledge



Teaching New Knowledge

The touch sensor works much like a button on the doorbell. When it is pressed, the circuit is turned on, current is passed, RCX is able to detect current, and your program reads the current state of the touch sensor. The touch sensor has two states, on or off.

The module that touches the sensor cannot be executed in a single way, and it needs to be judged according to the conditions. When using the touch sensor, call up the module and select the corresponding connection position for the port (p1-p8 respectively)

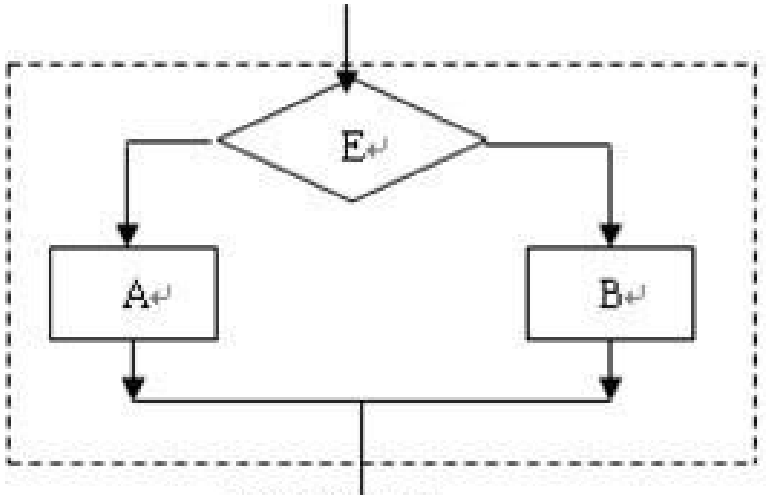


Teaching New Knowledge

Grammatical structure: condition/selection structure

The condition is a diamond part, and when the condition is satisfied, the action of the left rectangle of yes is executed, otherwise the action of the right rectangle is performed.

This is the basic grammatical structure and is also an important one. The single seems to be very simple, but the actual problem analysis is much more complicated, and students should take it seriously when they study.



Teaching New Knowledge

Module:

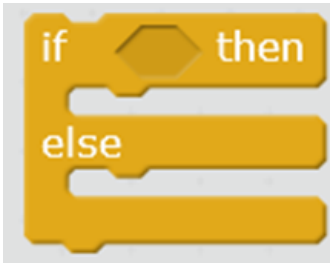
The conditional module is shown in the figure, and the "condition" is placed in the hexagonal position, as shown in the figure:

Indicates that if a signal that the touch sensor is pressed is sensed, a subsequent action is performed. It should be noted here that the program execution is a single time. If you want to monitor “whether pressed” and respond to the action at any time, you need to add a loop module, which means that the sensor is monitored at any time.

Teaching New Knowledge

Module:





The condition module is shown in Figure 1, and the "condition" is placed in the hexagonal position, as shown in the figure:

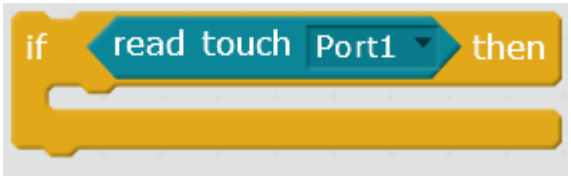
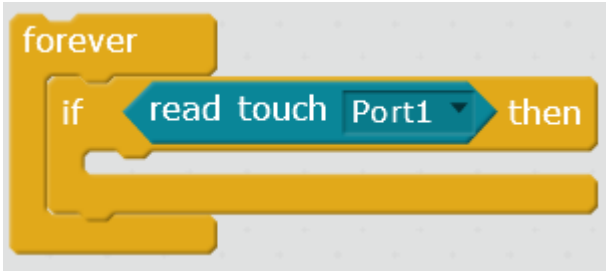


Figure 1

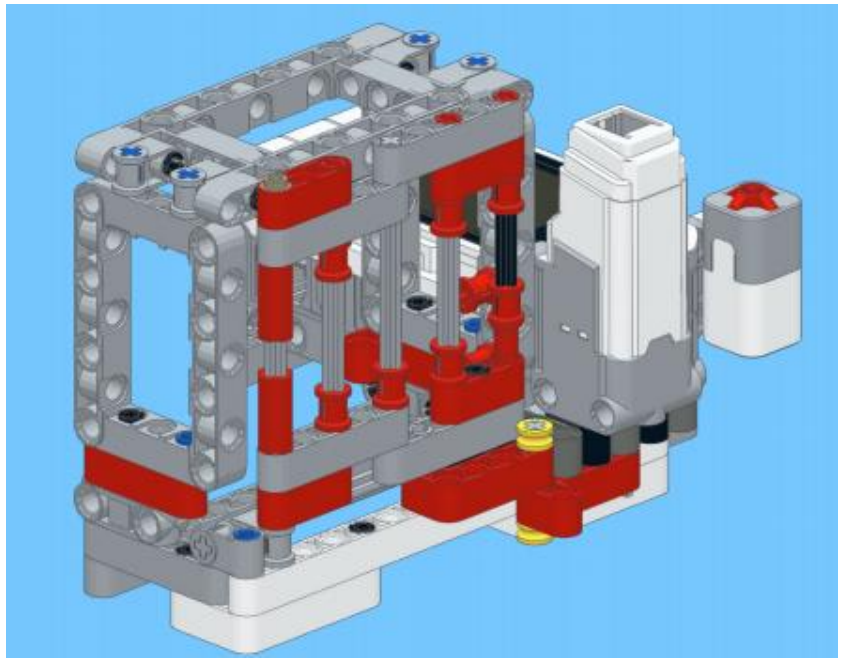
Indicates that if a touch sensor is pressed signal, the follow-up action will be performed. It should be noted here that the program execution is a single time. If you want to monitor "whether it is pressed" at any time and respond to the action in time, you need to add a loop module, which means to monitor whether the sensor is pressed at any time.



Task Practice



Task Practice



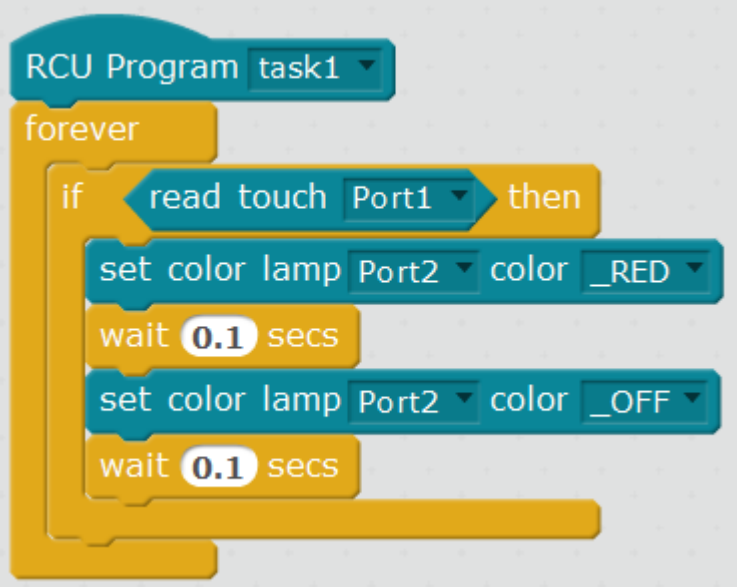
Assembly requirements

1. stable structure
2. focus is right
3. shape match

Programming and Debugging

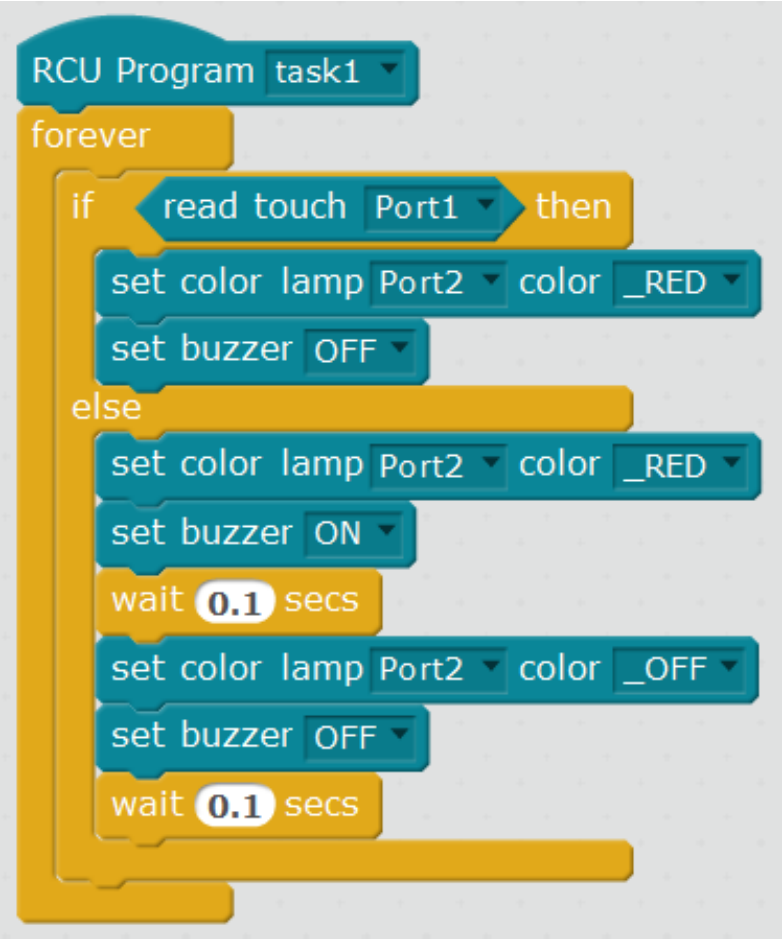


Programming and Debugging



1. If the sensor is pressed, the red light will be on.

Programming and Debugging



2. Turn on the anti-theft function. When the door is closed (the sensor is pressed), there is no alarm. When the door is opened (the sensor is released), an alarm is issued and a red light is on.

Checking Effect



Test Effect



Review the learning content and deepen your impression.

Question 1

What is the name of the robot made today?

Question 2

What forces will be affected by today's robots?

Question 3

When the anti-theft function is turned on, is the touch sensor pressed or released?

Thank you for watching

