

Roboblog



Q-scout Series Course

Section 11
《Clingy Pet》

Curriculum objectives

Knowledge and skills (Technical)

1. Hands-on with an ultrasonic sensor to understand its working and real-life applications.
2. Understand the working and uses of the on-board custom button of the Q-scout.
3. Learning to complete the programming task of clingy "pet".

Knowledge and skills (Cognitive)

1. Improving students' comprehensive ability through the interaction task of "pet".

Knowledge and skills (Emotional attitude and values)

1. Nurturing awareness in students about pets care.

Curriculum introduction



As our Q-scout successfully brought home the neighbour's lost dog, now the dog has befriended with us. Whenever we pass by neighbour's house, the clingy dog walks towards us happily and we too can't stop ourselves to play with him. In fact, we have already developed a very good bond with him.

Curriculum introduction



As we know, a dog uses his whole body to express happiness, such as eyes becomes bright, wagging of the tail, randomly taking turns or jumping as he reaches to his master.



Curriculum introduction



As we have often observed the behaviour of our pet dog after living in his company for many days but at the same time, we also live in the company of our Q-scout. So, now if we consider our Q-scout as a good friend as our pet then how can we make our Q-scout to follow those behaviours when it reaches to its master in a happy mood.

If Q-scout can express their mood like a dog, that would be very good.

Let make our Q-scout a clingy "pet"!



Task analysis

The clingy dog walks towards his master happily, when the master reaches near to the dog and his eyes become bright when the master touches him, he stops his movement and produces some sound in his excitement.

Now, let's think about how to program the Q-scout to make it a clingy dog.

1. Upon the detection of the nearness of an object by the ultrasonic sensor, the Q-scout will move forward, ultrasonic sensor's lights will be turned ON with shining color.
2. Now, upon the pressing of a custom button on the main control board, Q-scout goes to the immovable mode and produces a sound tone.

Practice with hands

Set up the "ultrasonic light to color" after the button press command then add some sound blocks to add music to produce a joyful expression.



Practice with hands


Set a range for the ultrasonic sensor and when the master reaches to that specified range of the ultrasonic sensor, the Q-scout will walk forward towards Q-scout to ask "please press the touch button".

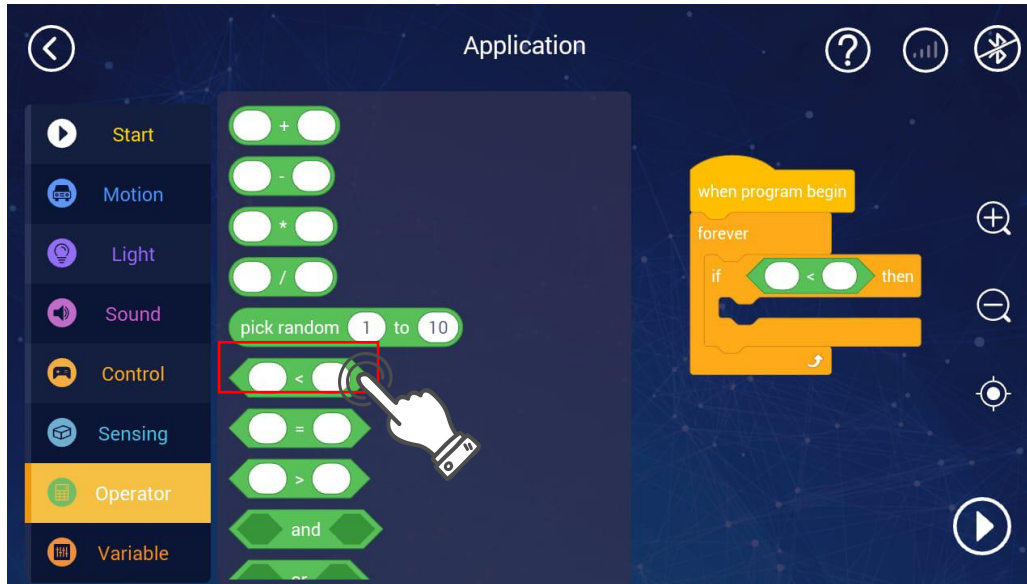


**The owner
come back!**

Practice with hands

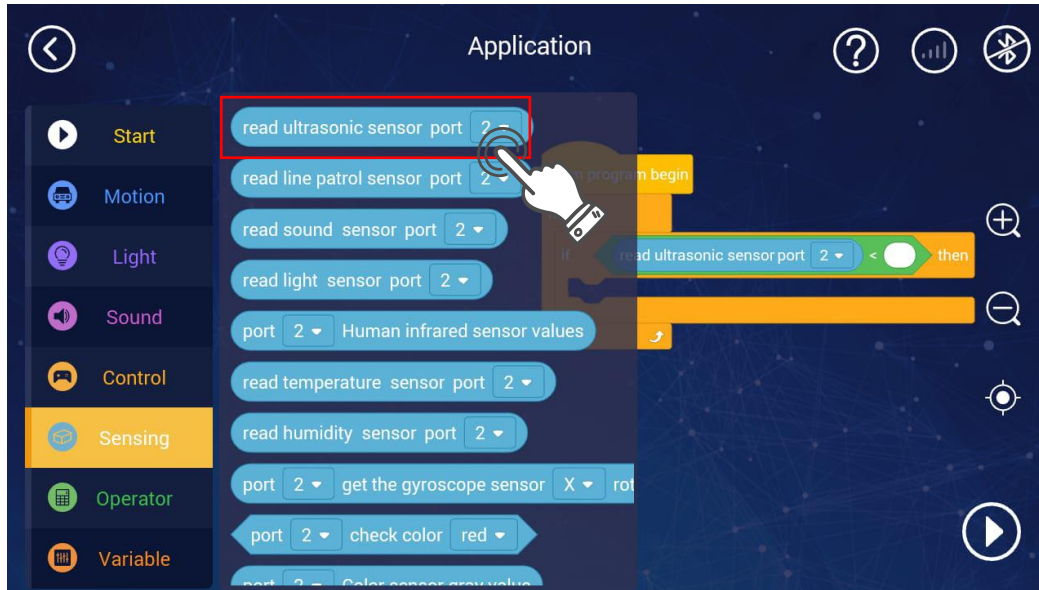
In the programming application

1. Drag  icon on operation model, put into 'IF' statement icon.

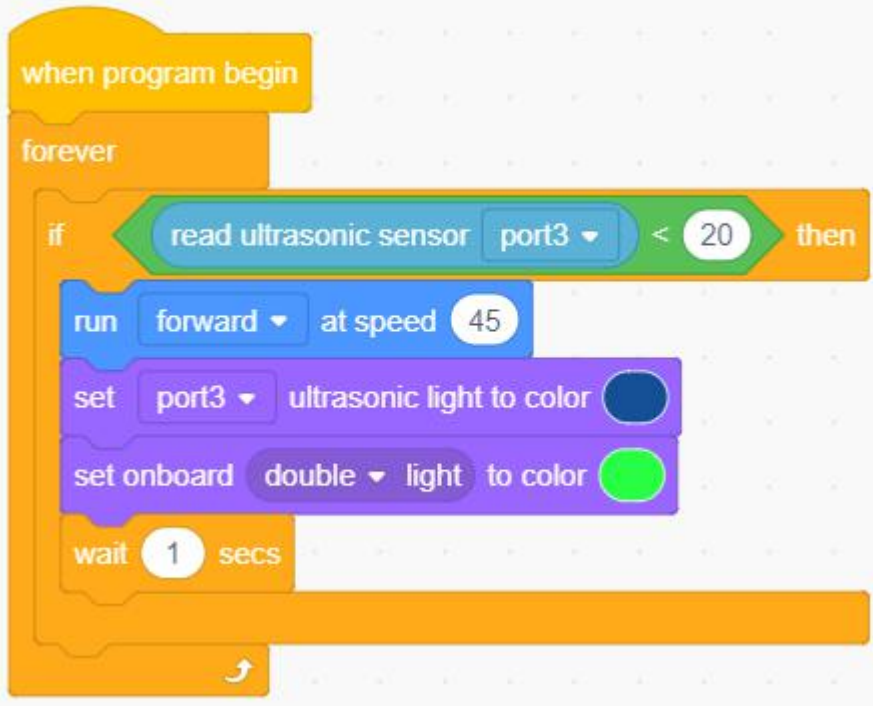


Practice with hands

2. Drag the ultrasonic sensor from the sensor module and put into operator icon.



Practice with hands



Once the master/object will reach to the specified range of the ultrasonic sensor, Q-scout will start the forward movement, play the sound module and turns the lights On.

Practice with hands

```
when program begin
  forever
    if read ultrasonic sensor port3 < 20 then
      run forward at speed 45
      set port3 ultrasonic light to color dark blue
      set onboard double light to color green
      wait 3 secs
      if when onboard button pressed then
        set port3 ultrasonic light to color yellow
        repeat 3
          play note C4 for Half beats
          play note F2 for Half beats
          play note D3 for Half beats
        wait 5 secs
```

Combine the "button press" and "ultrasonic sensor" programming and observe the behaviour of our Q-scout which has now become our clingy pet.

Extends

1. Try to make our Q-scout more interactive, such dance, music and lights and make others feel delighted.

Summary and rethink

```
when program begin
  forever
    run forward at speed 0
    if read ultrasonic sensor port3 < 20 then
      run forward at speed 45
      set port3 ultrasonic light to color [dark blue]
      set onboard double light to color [green]
      wait 3 secs
      if when onboard button pressed then
        set port3 ultrasonic light to color [yellow]
        repeat 3
          play note C4 for Half beats
          play note F2 for Half beats
          play note D3 for Half beats
        wait 5 secs
```

Look at the program and observe:
Why the speed of the Q-scout movement has been set to 0 when the program starts. What will happen if we do not set the movement to 0 in this block?



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