Hamster Coding

Scratch 17

Written by ConceptOn

ROBOMATION
MAKE THINGS ALIVE

How to Use

This manual is designed for the educational utilization of the Hamster robot.

· Please use this manual as on-screen instructions when teaching the Hamster class.

· The contents are easy to understand. Just read them before the class.

· Worksheets can be downloaded from the Robomation website.

· This manual can be used to ensure the best lesson plan.

· For more information, contact us at 7concepton@daum.net.

Hamster Coding

Let's get started with Hamster coding with the Scratch program!

The use of the Scratch programs will make coding more interesting!

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Today's Activity

Division	Description	Time
Introduction	**Explore the problem.** We need a police Hamster that guards our home!	5min
Development	**Find a solution.** Let's code by controlling Hamster sensors. **Solve the problem.** Let's command your Hamster to move according to a given mission.	30min
Conclusion	**Review today's activities.** Let's talk about what you have learned and enjoyed.	5min

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Shall we try coding for your Hamster to guard your house?

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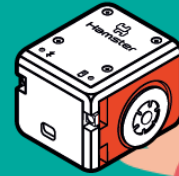
Get ready

First, let's find out what is needed for Hamster coding.

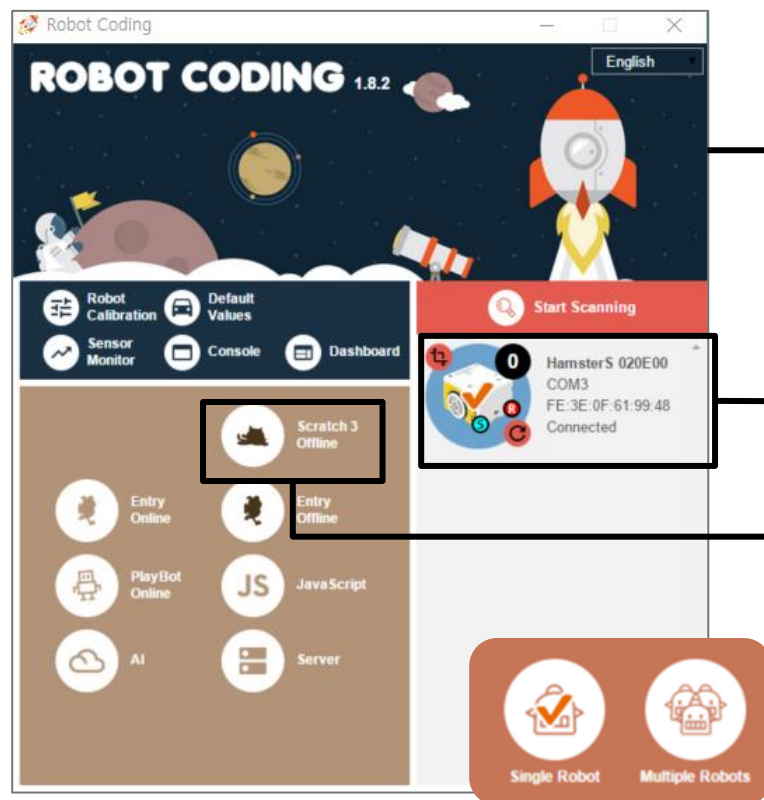| ① Hamster	② Bluetooth Dongle	③ PC
④ Worksheet	⑤ Writing supplies (pen and paper)	⑥ Charging cable
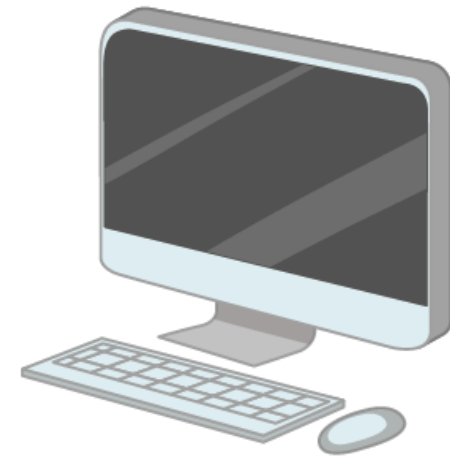
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Open the program

When opening the program, turn on Hamster and plug the Bluetooth Dongle into the USB port of your PC.

Open the program

1 Run the Robot Coding program.

2 Check if your Hamster robot is connected with the Bluetooth Dongle (through its LED light colors).
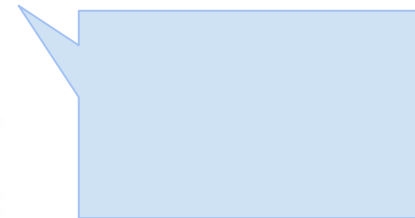
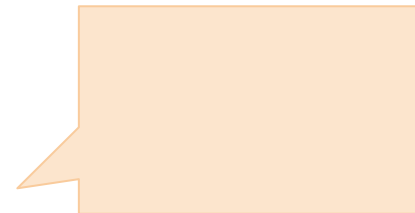**3** Click on Scratch 3 Offline.

4 Click on "Single Robot" and then "New File."
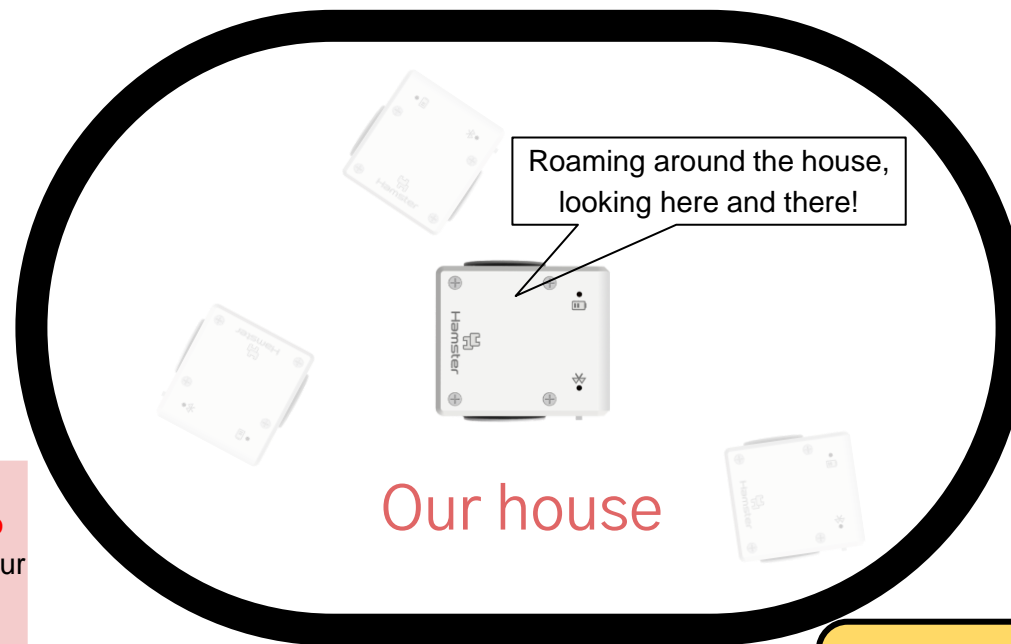
Let's talk

What should your Hamster do as a police officer?
Let's talk about it in the form of conditional statements.

If it encounters a thief, Hamster will blow a whistle!

Let's think

How can you allow your Hamster to patrol your house while roaming around?

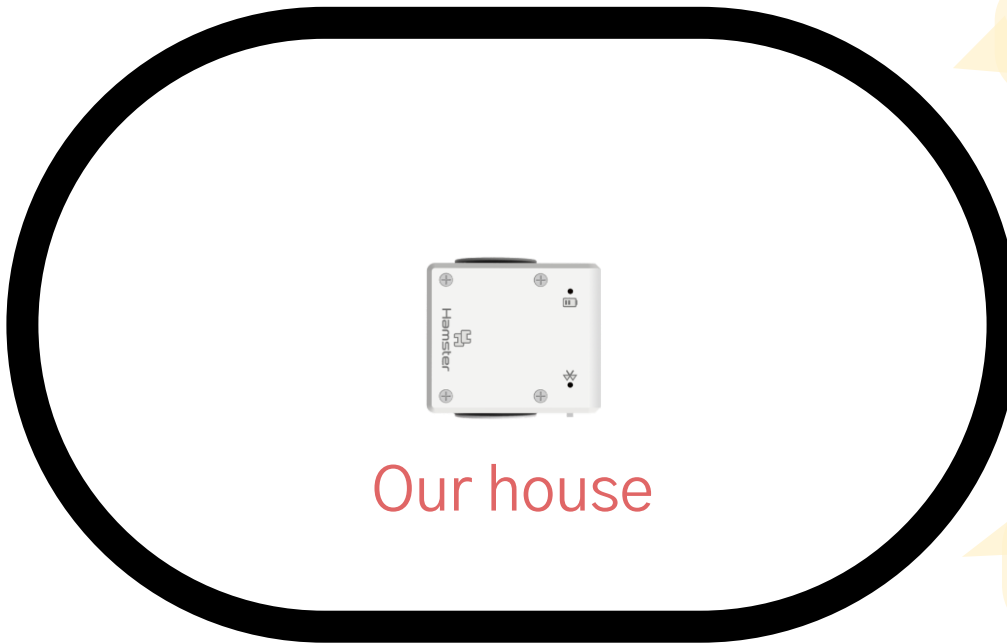Roaming around the house, looking here and there!

Our house

What Hamster should do
Continue to patrol inside our house!

What sensor can be used to make Hamster move around only within the black line?

Guess how?

Let's think of the code that makes Hamster patrol our house.

Preparations: Hamster, Worksheet

Our house

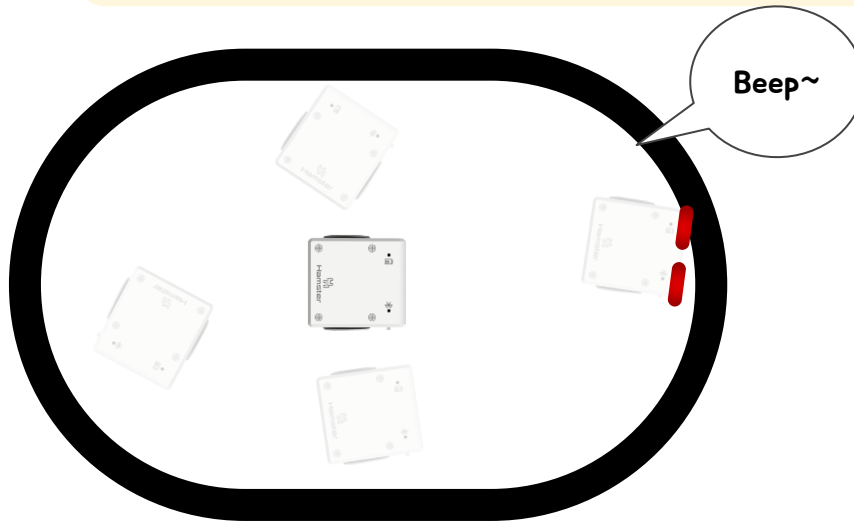Measure the left and right floor sensor values

Set Hamster's movement speed

Allow the floor sensors to make a beep sound, turning on the red LED lights, when detecting the black color

Allow the floor sensors to back off when sensing the black color

Exercise 1

Let's write the code for Hamster to patrol our house.

Preparations: Hamster, Worksheet

Beep~

```
when [flag] clicked
forever
    if ( [hamster] left floor < 20 ) or ( [hamster] right floor < 20 ) then
        play sound beep ▼ 1 times
        set both ▼ led to red ▼
        move backward 0.5 seconds ▼
        turn left ▼ 0.5 seconds ▼ in place
    else
        set wheels to left: 30 right: 30
        clear both ▼ led
```

Let's think

How can you allow your Hamster to whistle when it encounters a thief?
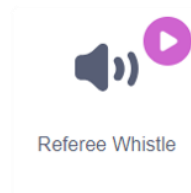
Referee Whistle
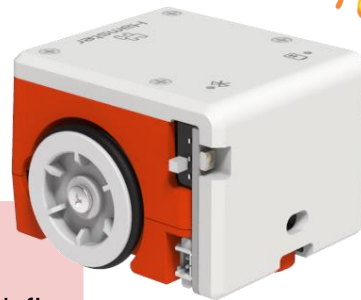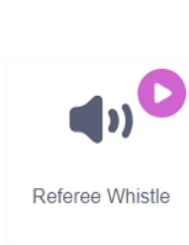
Thief!

What Hamster should do
Whistle when it encounters a thief!

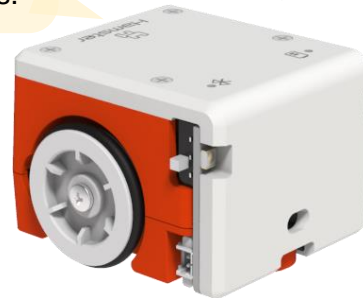What sensor can be used to detect an object in front of Hamster?

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Guess how?

How can you allow your Hamster to whistle when it encounters a thief?

Referee Whistle

Thief!

Measure the left and right proximity sensor values.

Allow the proximity sensors to whistle when detecting an object.
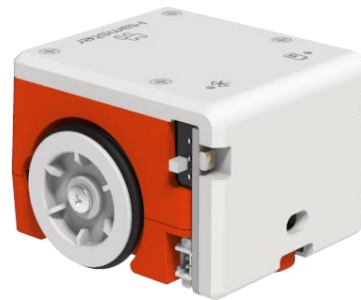
Exercise 2

Let's write the code for your Hamster to whistle when it encounters a thief.

Thief!

when 🏳 clicked

if (🤖 left proximity > 50) or (🤖 right proximity > 50) then

    start sound Referee Whistle ▾

    wait 1 seconds

else

    stop all sounds

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Exercise 3

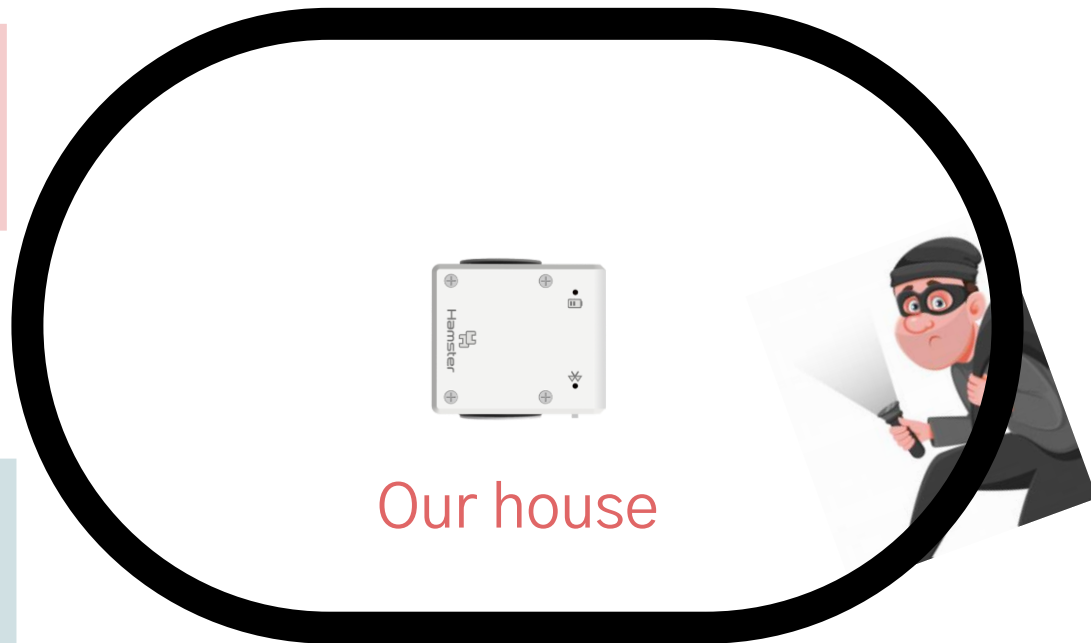Let's write the code for Hamster to safely guard our house as a police officer.

1 **What Hamster should do**
Continue to patrol inside our house!

2 **What Hamster should do**
Whistle when it encounters a thief!

Our house

Let's Review

😛 What did you learn today?

😅 Did you encounter any difficulties?

😍 What interested you the most about Hamster robot?

See　you again!