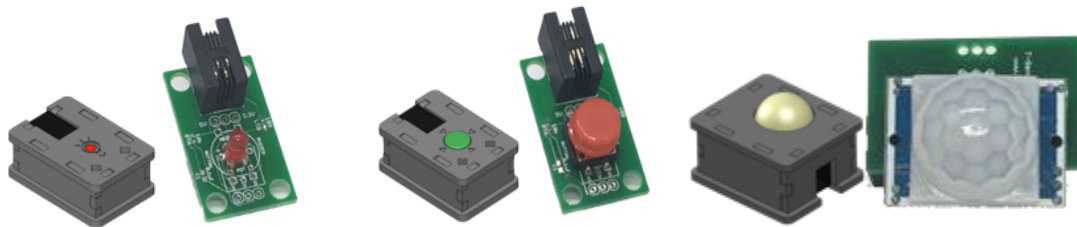


Learning Objectives

In this lesson, you will learn...

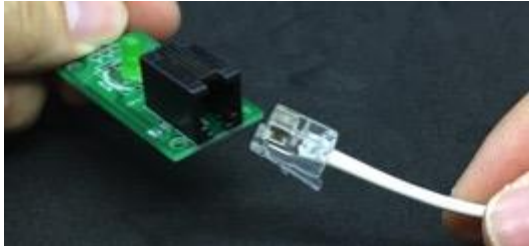

Sensor Combination

- How to use all sensors and combine their program
- T-Sense(LED) T-Sense(Button) & T-Sense(PIR)



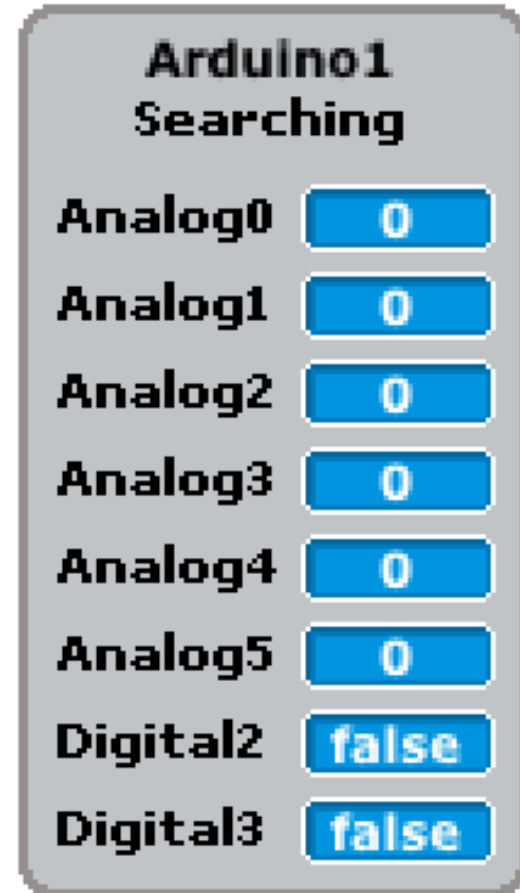
Connecting T-Sense

2 STEPS TO CONNECT T-Sense

Step 1	Plug the connecting cable to T-Sense	
Step 2	Plug the other end to T-Scratch's port and observe changes (if any)	

Recap: Scripting T-Sense(PIR)

- On the Sensor Board →
- Observe what happens when T-Sense(PIR) is activated.



Recap: Scripting T-Sense(PIR)

Go to the Motion Tab on the Scripting palette

- Look for “sensor [] pressed”
- Change [Digital 2] to [Digital 3]



sensor Digital2 pressed?


What can you tell from this script?



Activity 1


When the  is clicked,
the sprite will move on the stage

Instructions:

1. When the  is clicked, the script will run.
2. In a “forever” sensing script, move # steps.
3. If the sprite touches the edge, change direction.

Answer: Activity 1

Instructions:

1. When the  is clicked, the Sprite moves forever
2. If the Sprite touches the edge, change direction

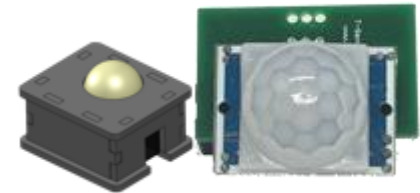


Activity 2

Whenever T-Sense(PIR) is activated Stop and Animate the Sprite

Instructions:

1. Connect the T-Sense(PIR)
2. Using some blu-tack or tape provided, secure it in position.
3. In a “forever” sensing script,
If the T-Sense(PIR) is activated, stop the sprite
animate it .
Else, repeat activity 1.



Answer: Activity 2

Whenever T-Sense(PIR) is activated, Stop and Animate the Sprite
Else repeat activity 1



```
when clicked
  forever loop
    if sensor Digital2 pressed?
      move 0 steps
      next costume
      wait 0.2 secs
    else
      move 22 steps
    if touching edge ?
      turn 180 degrees
```

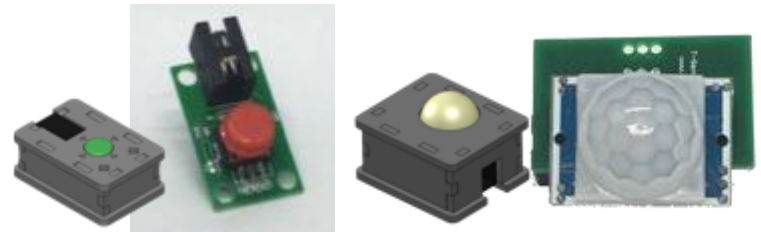
The image shows a Scratch script starting with a 'when clicked' event block. This is followed by a 'forever' loop. Inside the loop, there is an 'if' block that checks 'sensor Digital2 pressed?'. If true, it executes 'move 0 steps', 'next costume', and 'wait 0.2 secs'. If false, it executes 'move 22 steps'. After the 'if' block, there is another 'if' block that checks 'touching edge ?'. If true, it executes 'turn 180 degrees'. The script ends with a return arrow at the bottom of the 'forever' loop.

Activity 3

Make Activity 1 & 2 to be activated by T-Sense(Button) also.

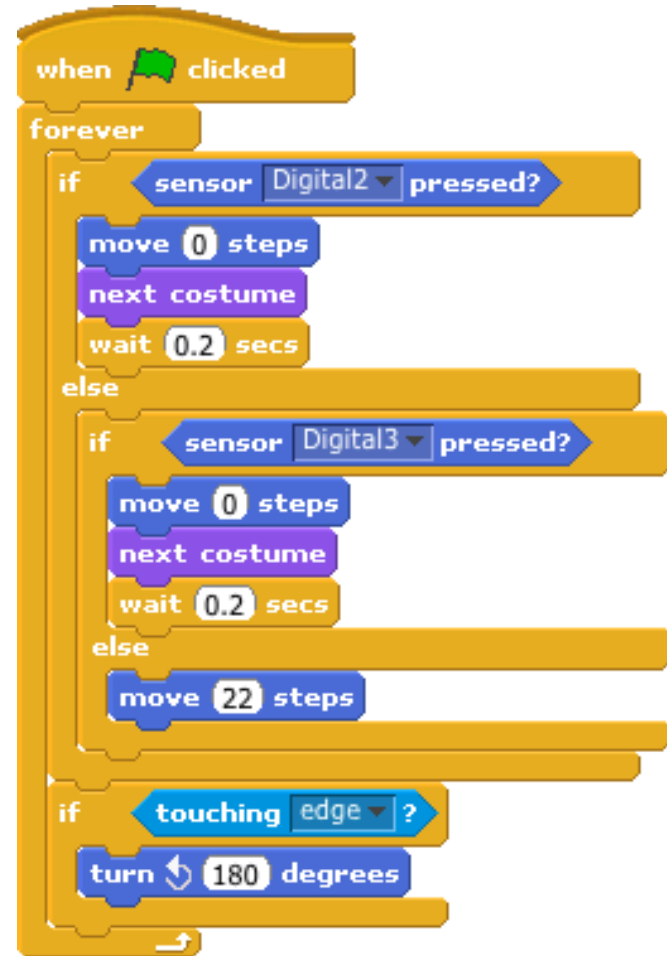
Instructions:

1. Connect the T-Sense(Button)
2. In a “forever” sensing script,
If the T-Sense(PIR) is activated, stop the sprite
animate it .
Else, repeat activity 1.



Answer: Activity 3

Make Activity 1 & 2 to be activated by T-Sense(Button) also.



```
when clicked
  forever
    if sensor Digital2 pressed?
      move 0 steps
      next costume
      wait 0.2 secs
    else
      if sensor Digital3 pressed?
        move 0 steps
        next costume
        wait 0.2 secs
      else
        move 22 steps
    if touching edge ?
      turn 180 degrees
```

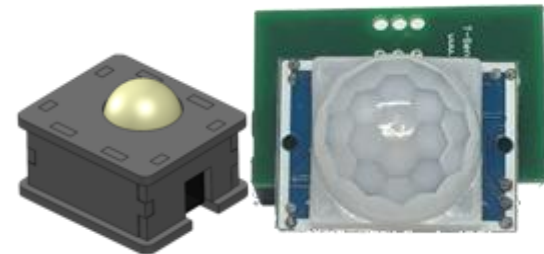
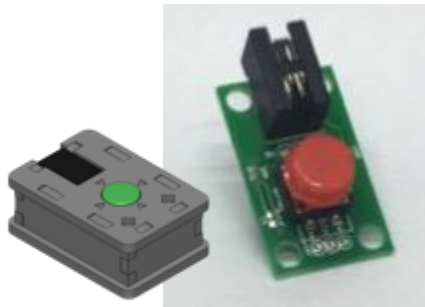
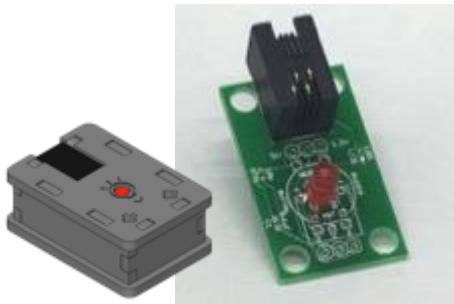
The code block is a Scratch script starting with a 'when clicked' event. It enters a 'forever' loop. Inside the loop, there are three conditional blocks. The first is an 'if' block for 'sensor Digital2 pressed?'. If true, it executes 'move 0 steps', 'next costume', and 'wait 0.2 secs'. The second is an 'else' block containing an 'if' block for 'sensor Digital3 pressed?'. If true, it executes 'move 0 steps', 'next costume', and 'wait 0.2 secs'. The third is an 'else' block containing a 'move 22 steps' block. After these three blocks, there is another 'if' block for 'touching edge ?'. If true, it executes 'turn 180 degrees'. The loop then repeats.

Activity 4

Add in T-Sense(LED) to the activated script

Instructions:

1. Include the digital “on” and “off” in the script
2. So that when the sprite moves the LED is lights up also



Answer: Activity 4

Add in T-Sense(LED) to the activated script

```
when green flag clicked
  forever loop
    if Digital2 pressed?
      move 0 steps
      next costume
      wait 0.2 secs
      digital 12 on
    else
      if Digital3 pressed?
        move 0 steps
        next costume
        wait 0.2 secs
        digital 12 on
      else
        move 22 steps
        digital 12 off
    if touching edge?
      turn 180 degrees
```

The image shows a Scratch script starting with a 'when green flag clicked' event. It enters a 'forever' loop. Inside the loop, there are three conditional blocks. The first is an 'if' block for 'sensor Digital2 pressed?'. If true, it performs: 'move 0 steps', 'next costume', 'wait 0.2 secs', and 'digital 12 on'. If false, it goes to an 'else' block containing another 'if' block for 'sensor Digital3 pressed?'. If true, it performs: 'move 0 steps', 'next costume', 'wait 0.2 secs', and 'digital 12 on'. If false, it goes to another 'else' block containing 'move 22 steps' and 'digital 12 off'. After these three conditional blocks, there is a final 'if' block for 'touching edge?'. If true, it performs 'turn 180 degrees'. The script ends with a right-pointing arrow.

Activity 5

Modify the script such that only when both T-Sense(Button) and T-Sense(PIR) are “on” activity 2 will activate.

Instructions:

- Use the “” function as the condition

How to script “when both is on” then activate?



Answer: Activity 4

Add in T-Sense(LED) to the activated script

```
when clicked
  forever loop
    if (sensor Digital2 pressed? and sensor Digital3 pressed?)
      move 0 steps
      next costume
      wait 0.2 secs
      digital 12 on
    else
      move 22 steps
      digital 12 off
    if (touching edge?)
      turn 180 degrees
```

The image shows a Scratch script starting with a 'when clicked' event. It enters a 'forever' loop. Inside the loop, there is an 'if' statement with two conditions: 'sensor Digital2 pressed?' and 'sensor Digital3 pressed?'. If both are true, the script moves the character 0 steps, changes to the next costume, waits for 0.2 seconds, and turns digital pin 12 on. If either condition is false, it moves the character 22 steps and turns digital pin 12 off. After the 'if' statement, there is another 'if' statement: 'touching edge?'. If true, the character turns 180 degrees.