



**Show Me Some Colors**

## Target

- Learn the basic color detection methods of the color sensor.
- Learn to use the color sensor to detect objects.
- Master the programming pattern for decision-making logic.

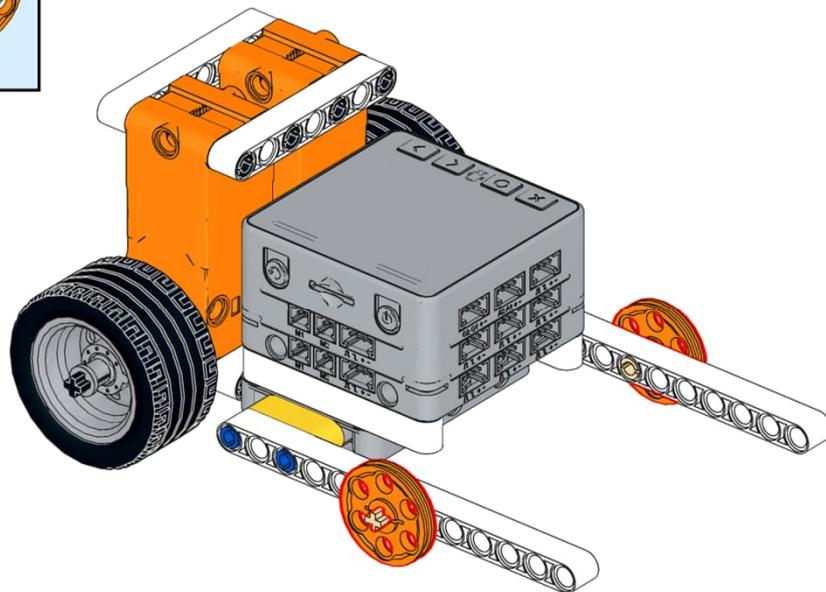
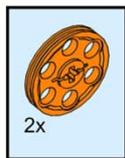


# 01 Assembly



# Assembly

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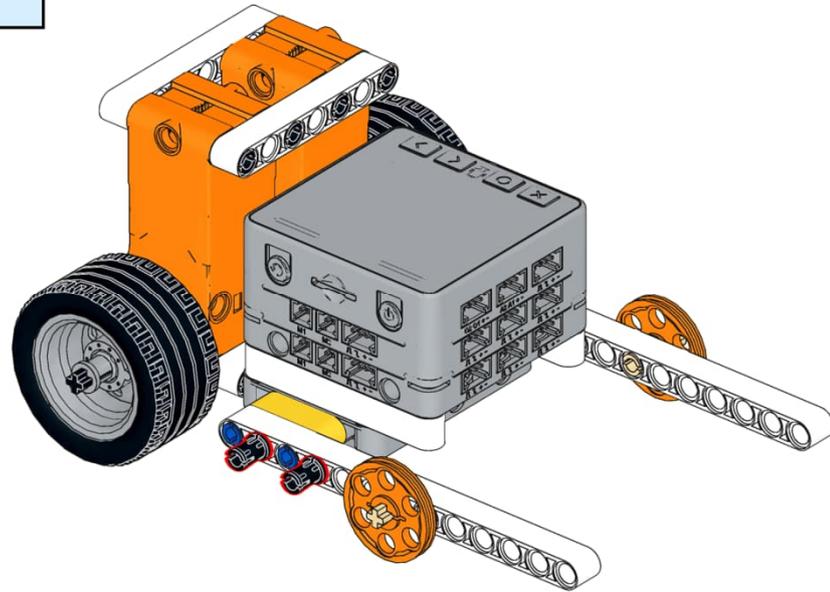


See Lesson 1  
for complete  
instructions



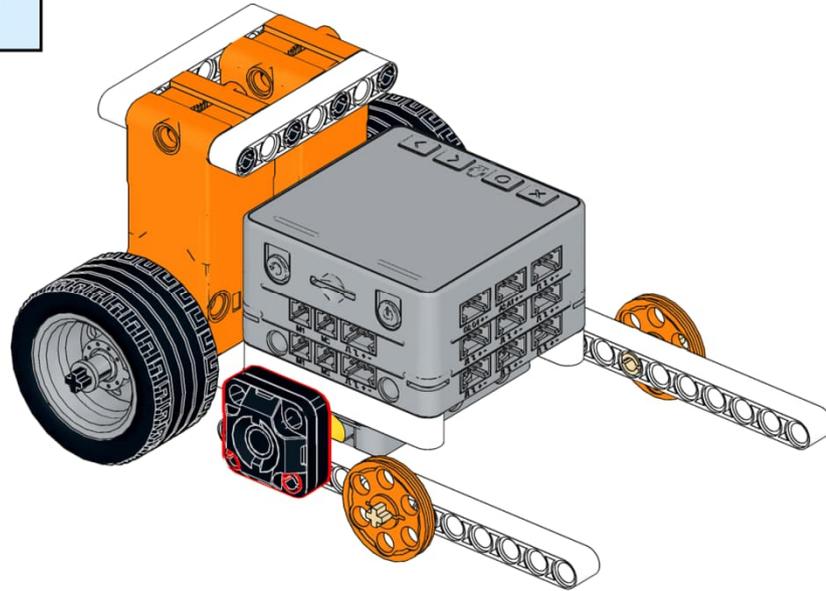
# Assembly

24



# Assembly

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# 02 Task





# Coding Technique 1

Using variables and checking sensor values

Do you remember how to create a variable?



color 99

**Pay close attention to the difference between when an object is detected and when no object is detected.**



color 7

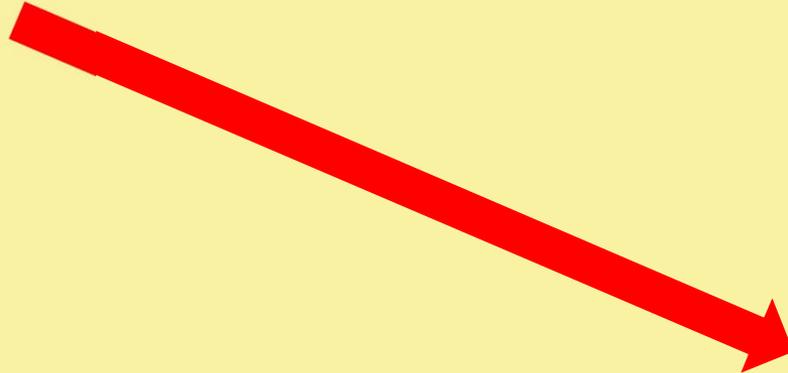
```
forever loop
  set color to 1# color sensor's color code
```





# Task

Task 1: When outdoors, detect colors from the side. Stop and display **the corresponding** color light when detected.





# Task

## Referrable Program

The use of the "repeat until" control block is to ensure the synchronized display of sensor values.

A simpler way is to use the "wait until" control block

```
when clicked
  set 1# ext servo's origin
  set 2# ext servo's origin
  wait 0.1 seconds
  repeat until [1# color sensor's color code] = 7
    set 1# ext servo to keep running at 25% speed on anticlockwise
    set 2# ext servo to keep running at 25% speed on clockwise
  set color to [1# color sensor's color code]
  stop all ext servo(s)
  set all lights color to yellow
```





# Coding Technique 2

Let's try using the decision-making (or "if-else") block for programming.



Combining decision-making blocks with loops allows for clear state determination.

```
when clicked
  set 1# ext servo's origin
  set 2# ext servo's origin
  wait 0.1 seconds
  forever
    set color to [1# color sensor's color code]
    if [1# color sensor's color code] = 7 then
      stop all ext servo(s)
      set all lights color to yellow
    else
      set 1# ext servo to keep running at 25% speed on anticlockwise
      set 2# ext servo to keep running at 25% speed on clockwise
```

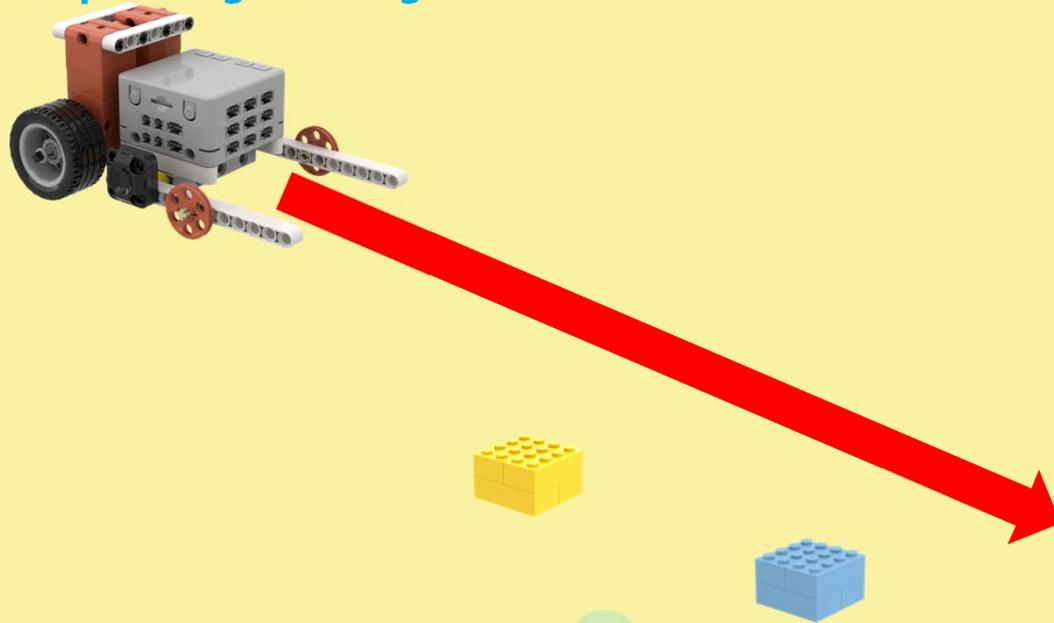




# Task

## Task 2: Random Color Blocks

Prepare yellow and blue color blocks. Randomly select one and place it on the side of the robot's path. The robot should light up the **corresponding color light** based on the color detected.



# Task

## Referrable Program

In the loop, make three checks: blue, yellow, and no color.

Perform actions based on the corresponding checks

```
when green flag clicked
  set 1# ext servo's origin
  set 2# ext servo's origin
  wait 0.1 seconds
  set all lights color to closed
  forever loop
    set color to 1# color sensor's color code
    if 1# color sensor's color code = 7 then
      stop all ext servo(s)
      set all lights color to yellow
    if 1# color sensor's color code = 4 then
      stop all ext servo(s)
      set all lights color to blue
    if 1# color sensor's color code = 99 then
      set 1# ext servo to keep running at 25% speed on anticlockwise
      set 2# ext servo to keep running at 25% speed on clockwise
```





Task

Additional Task: Can you use the "if" decision-making block to handle checks for other colors?

