



Precision Walking



Target

- Learn distance walking and angle walking.
- Understand the speed control.
- Complete precise walking control of the robot moving forward and backward.



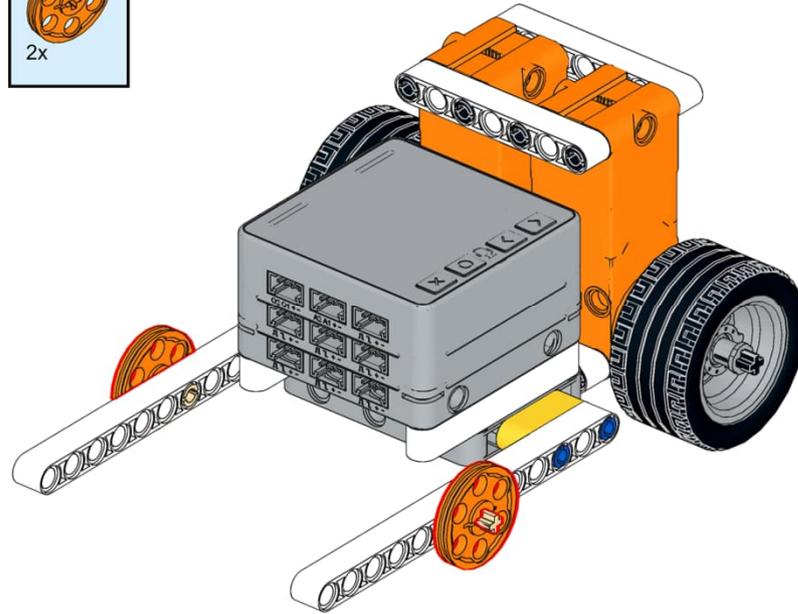
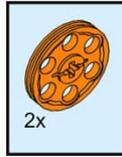


01 Assembly



Assembly

23



For the complete building steps, please refer to Lesson 1.





02 Task

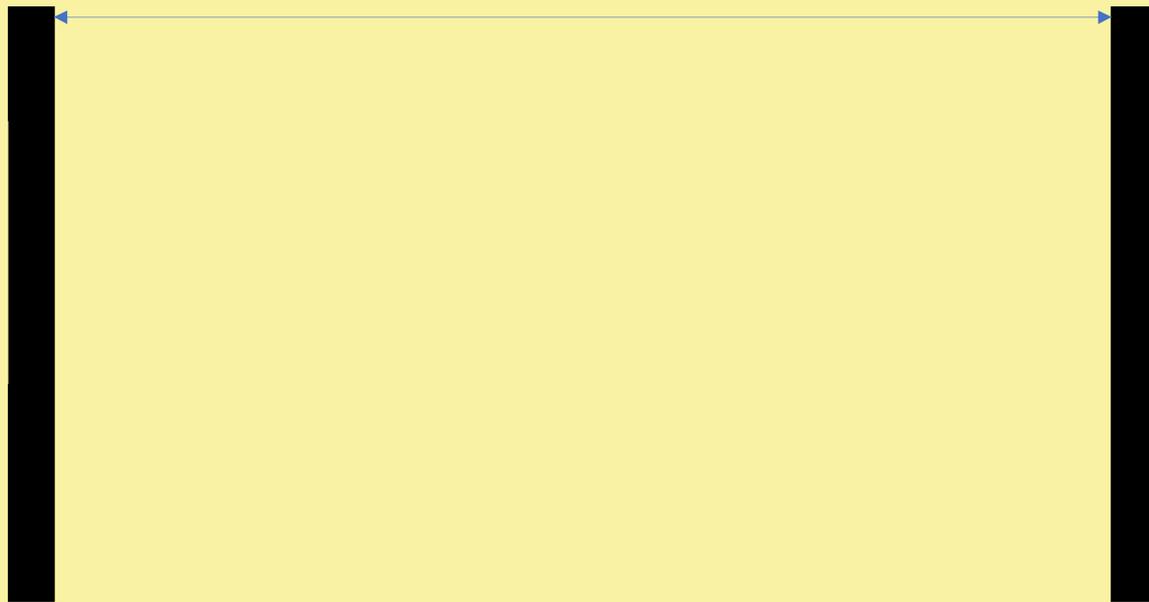




Task

Task 1: Make the car move forward and backward

0.5meter or 1meter





Task

Task 1: Make the car move forward

Relative angle control via a motor

```
when green flag clicked
  set 1# ext servo's origin
  set 2# ext servo's origin
  wait 0.2 seconds
  set 1# ext servo to keep running at 30 % speed on anticlockwise
  set 2# ext servo to keep running at 30 % speed on clockwise
  wait until abs of 1# ext servo's counted degrees is 50
  stop all ext servo(s)
```

In online mode, there may be some delay. Please wait a short time before the device responds.

Motor rotation for forward movement: clockwise or counterclockwise?

What approximate angle should we use for the motor to move forward 1 meter? Try a few times to find the right value.





Coding Technique 1

There are two ways to stop the motor.

Method 1: Set the power to 0.

```
set 1# ext servo to keep running at 0 % power on anticlockwise  
set 2# ext servo to keep running at 0 % power on clockwise
```

Method 1: Stop the motor.

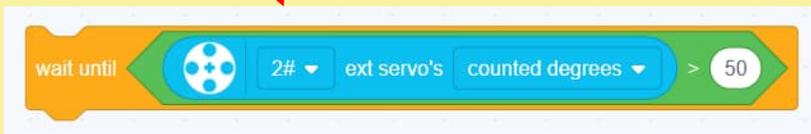
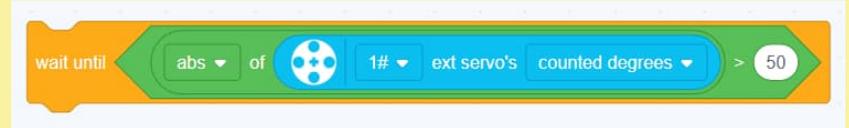
```
stop all ext servo(s)
```



Coding Technique 2

The selections of waiting for the motor

When using  " greater-than " comparison, please choose the motor rotating clockwise for the evaluation.





Task

Task 1: Move the car forward

Method 2: Use the built-in packaged module (offline use only)





Task

Task 2: Move the car backward the same distance

```
when green flag clicked
  set 1# ext servo's origin
  set 2# ext servo's origin
  wait 0.2 seconds
  set 1# ext servo to keep running at 30 % speed on anticlockwise
  set 2# ext servo to keep running at 30 % speed on clockwise
  wait until abs of 1# ext servo's counted degrees 50
  stop all ext servo(s)
```

Motor rotation for backward movement: clockwise or counterclockwise?

What approximate angle should we use for the motor to move backward 1 meter? Try a few times to find the correct value.





Task

Task 3: Move the car forward and backward using 2 Methods

```
when clicked
  sync 1# & 2# to go straight on at 30 power(0~100) for -600 degrees(offline only)
```

Angle control: use a **negative** sign for counterclockwise.

```
when clicked
  sync 1# & 2# to rotate at 30 speed(0~100) go backward for 1000 degrees(offline only)
```

Use **direction** control to set the movement direction.



Coding Technique 3

Program download and reconnection operation

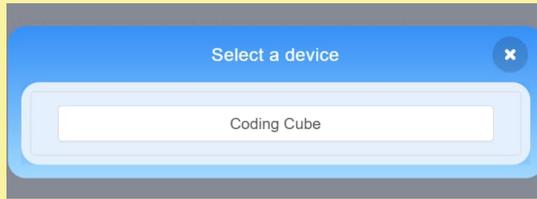
- 1、 Green flag: Run the program online
- 2、 Red stop: Stop the online operation
- 3、 Upload the program to the robot and run it

Next, after selecting a movement program, we will begin uploading and running it. Downloading and running can eliminate the delay in motor startup that occurs during online operation.



Coding Technique 3

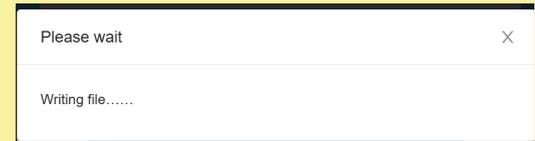
Program download and reconnection operation



Select a device



Select a file



Automatically runs after download completes.

Coding Technique 3

Program download and reconnection operation

After the program finishes running, press the **exit** button at the **top-left** of the Coding Cube. The programming interface will automatically reconnect.

