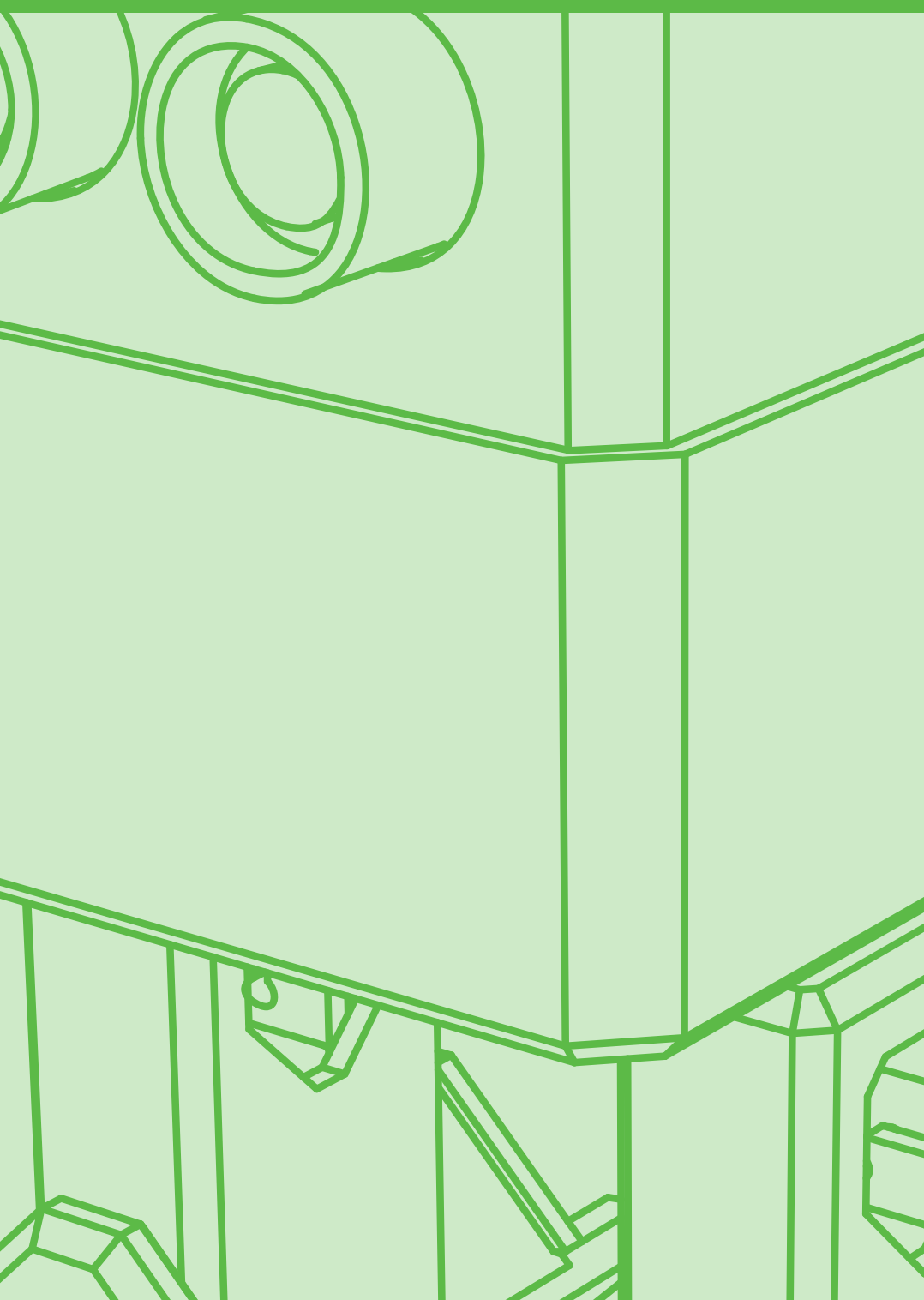
DIY

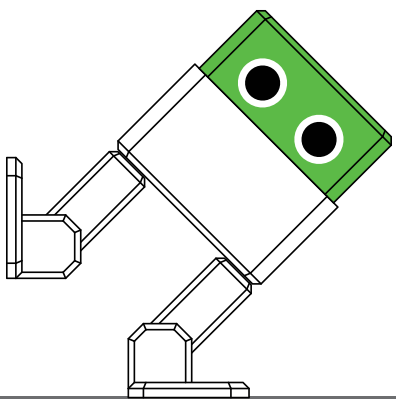
INSTRUCTIONS MANUAL
说明书



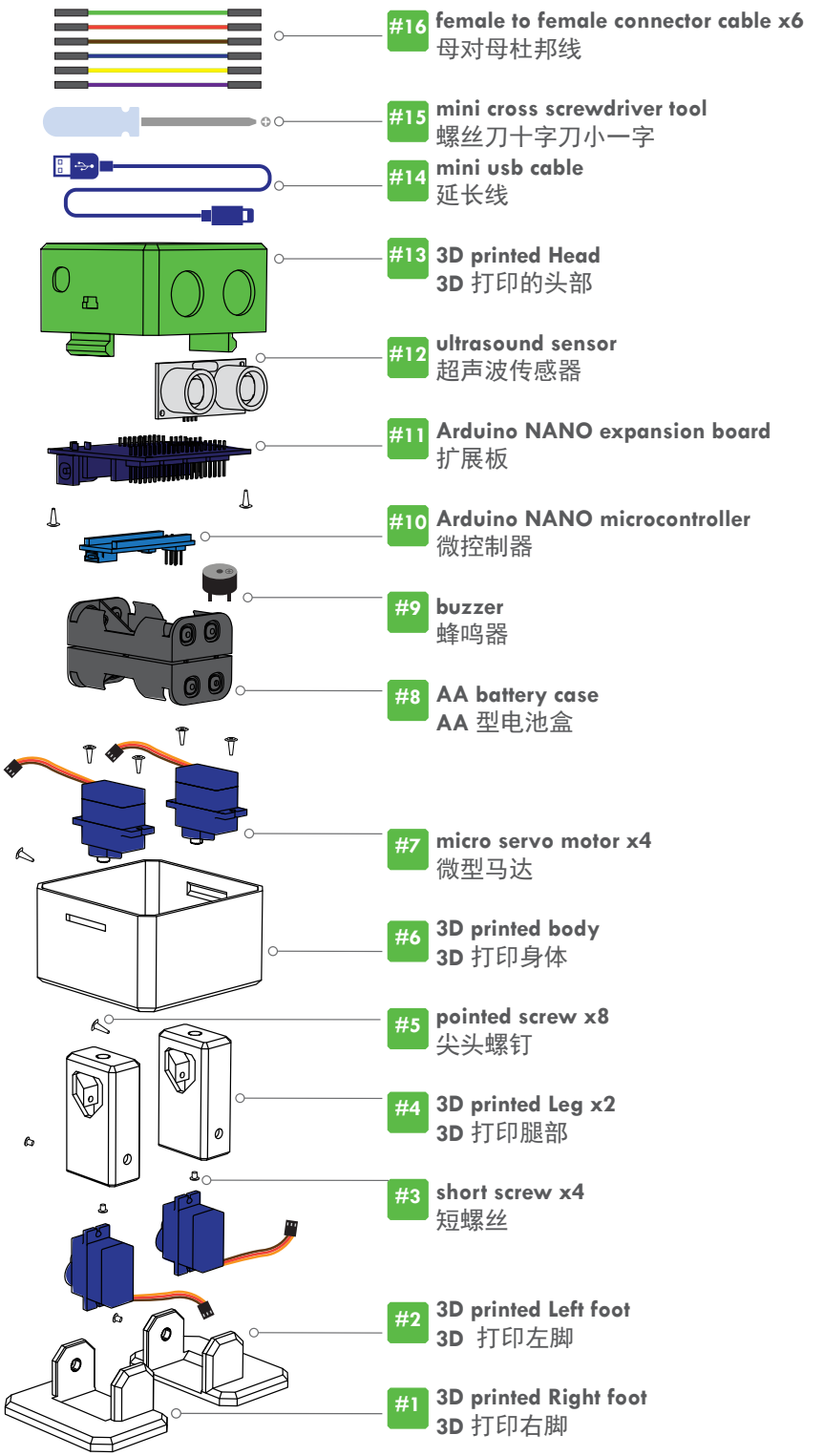
DIY

Come meet Otto - an interactive robot friend that anyone can make! Otto walks, dances, makes sounds and avoids obstacles; completely open source, Arduino compatible, 3D printable and with a social impact mission to create an inclusive environment for all kids.

快来见见Otto　一个任何人都可以制作的互动机器人！Otto不仅能走路、舞蹈、发出声音和躲避障碍物，还是完全开放的资源、对Arduino兼容、能够使用3D打印技术打印出来，并具有一个“创造能包容所有孩子的环境”的社会影响力使命。



PARTS
部分



#16 female to female connector cable x6
母对母杜邦线

#15 mini cross screwdriver tool
螺丝刀十字刀小一字

#14 mini usb cable
延长线

#13 3D printed Head
3D 打印的头部

#12 ultrasound sensor
超声波传感器

#11 Arduino NANO expansion board
扩展板

#10 Arduino NANO microcontroller
微控制器

#9 buzzer
蜂鸣器

#8 AA battery case
AA 型电池盒

#7 micro servo motor x4
微型马达

#6 3D printed body
3D 打印身体

#5 pointed screw x8
尖头螺钉

#4 3D printed Leg x2
3D 打印腿部

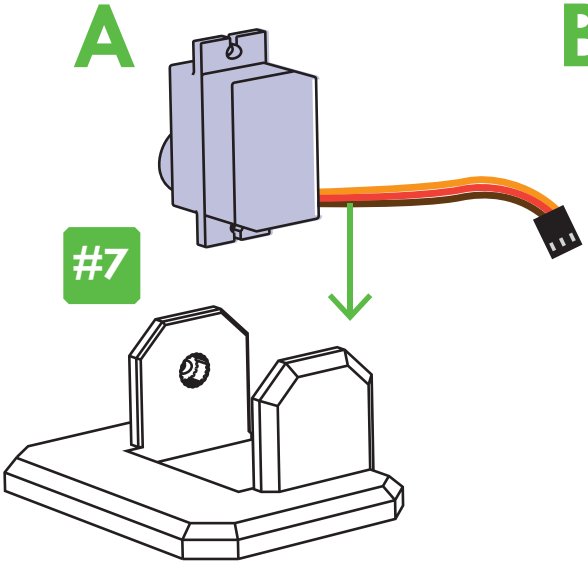
#3 short screw x4
短螺丝

#2 3D printed Left foot
3D 打印左脚

#1 3D printed Right foot
3D 打印右脚

1

A



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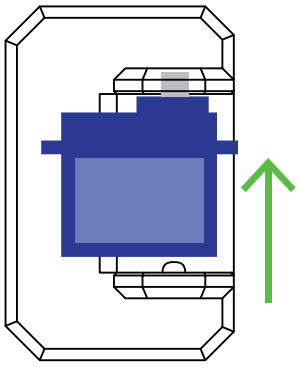

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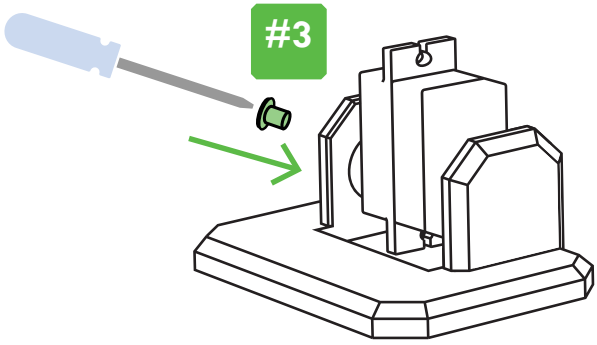

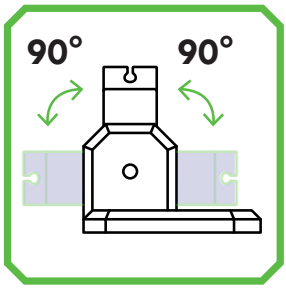

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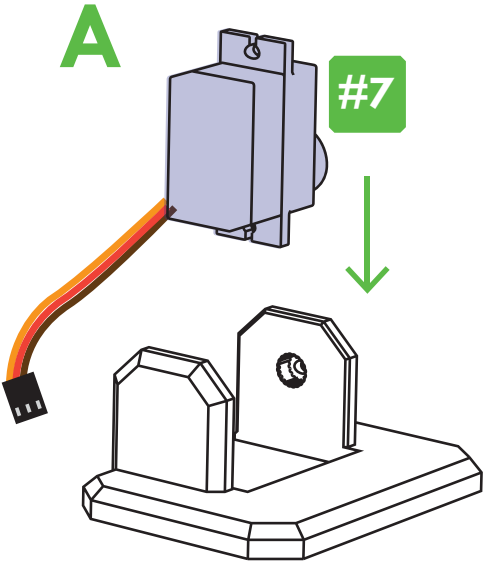

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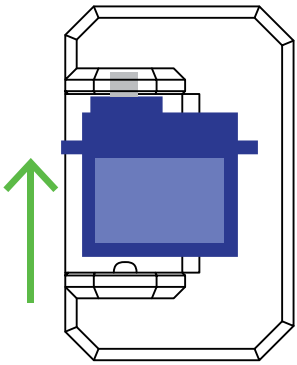

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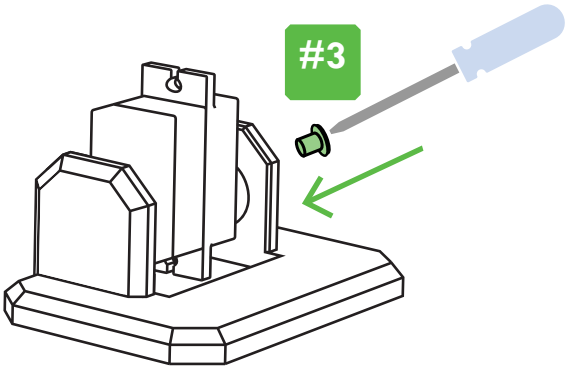

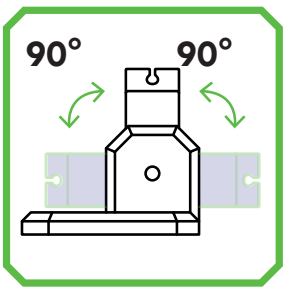

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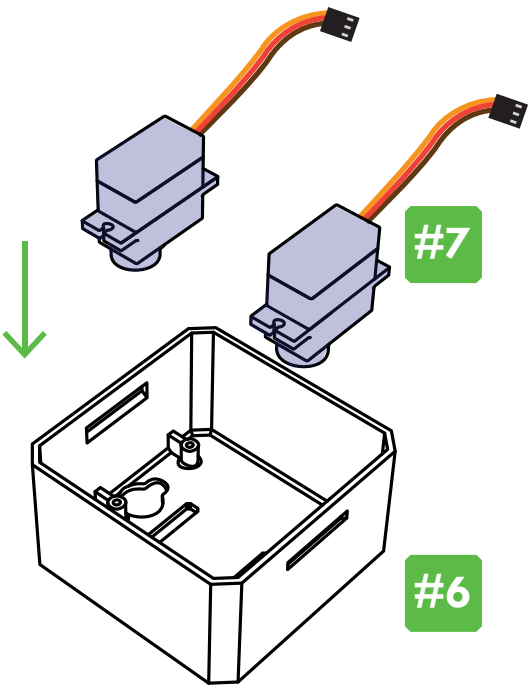

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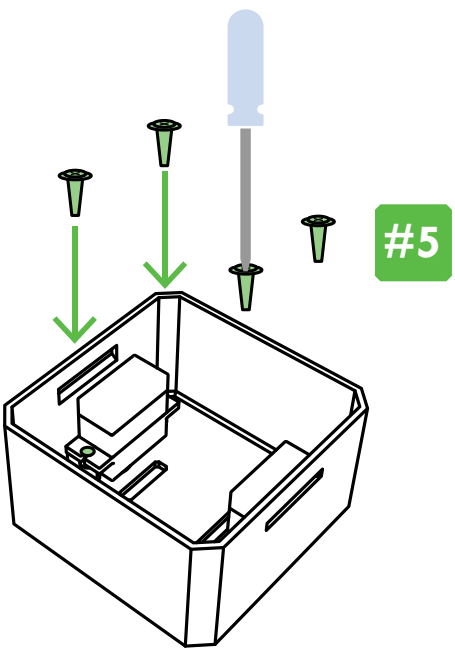

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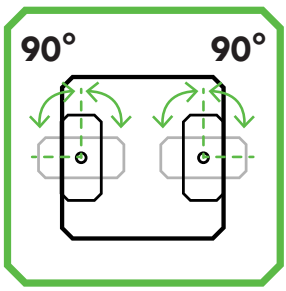

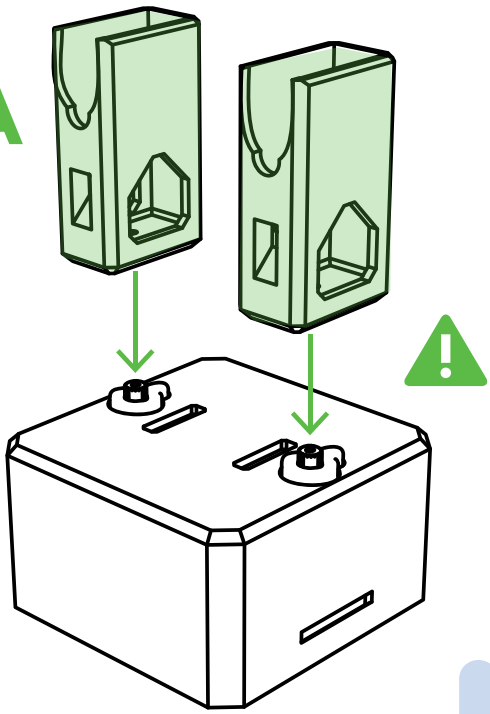

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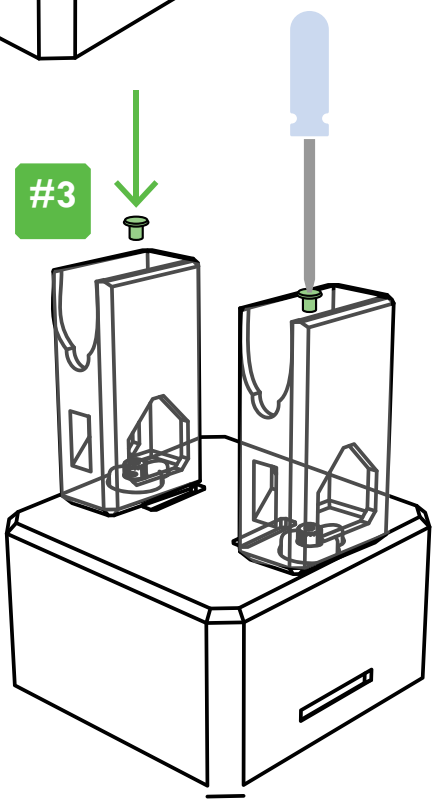

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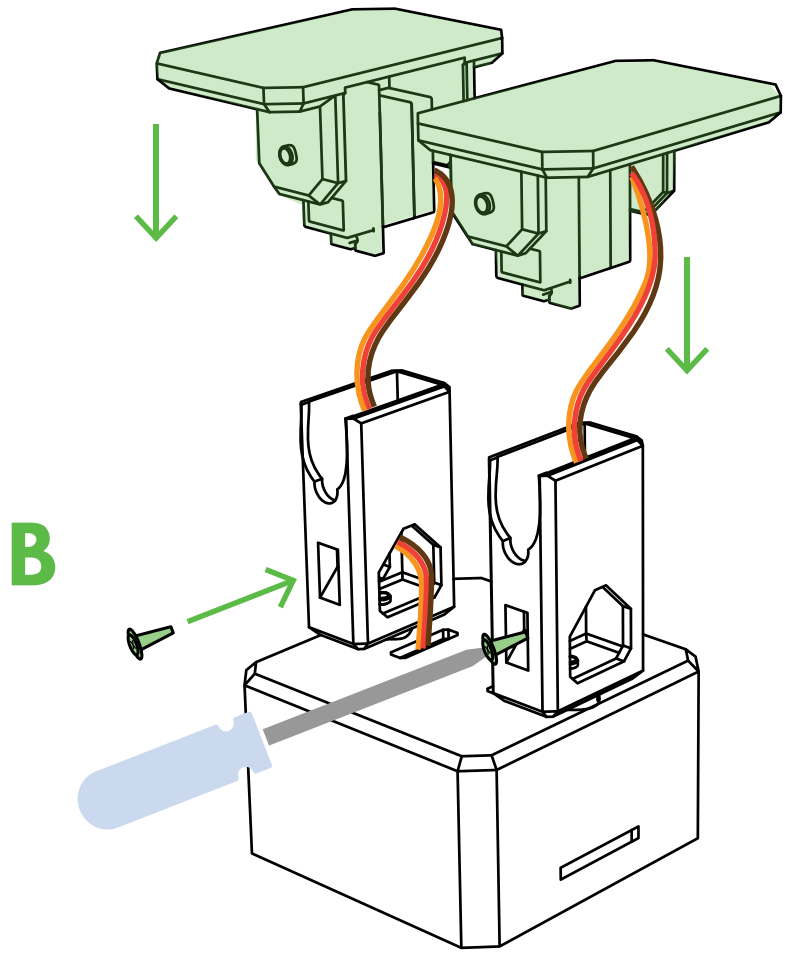

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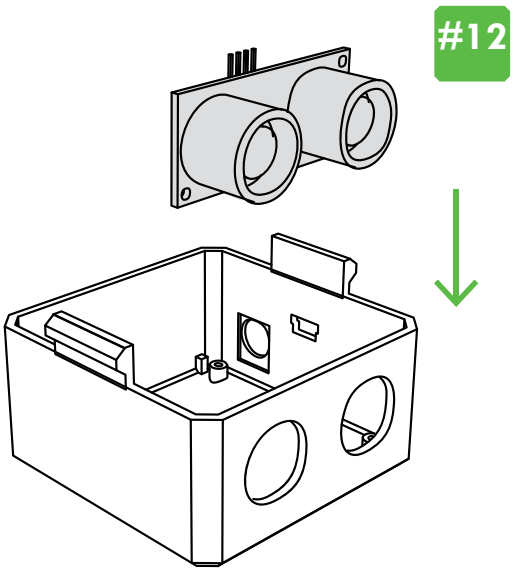

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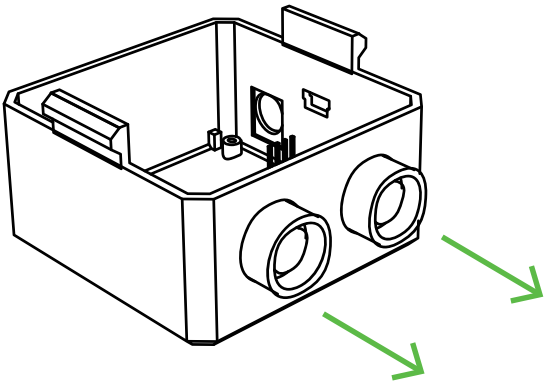

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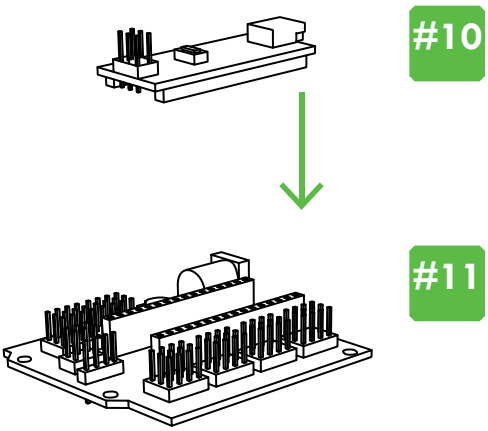

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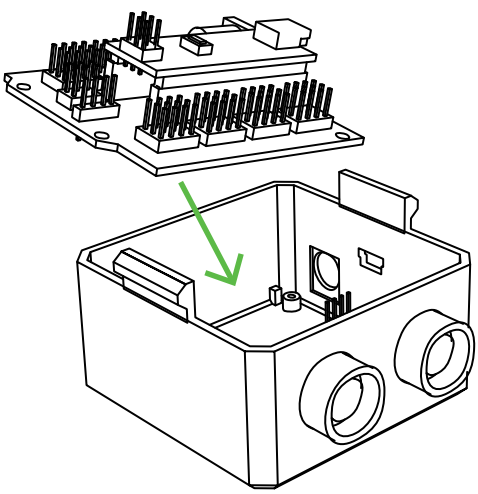

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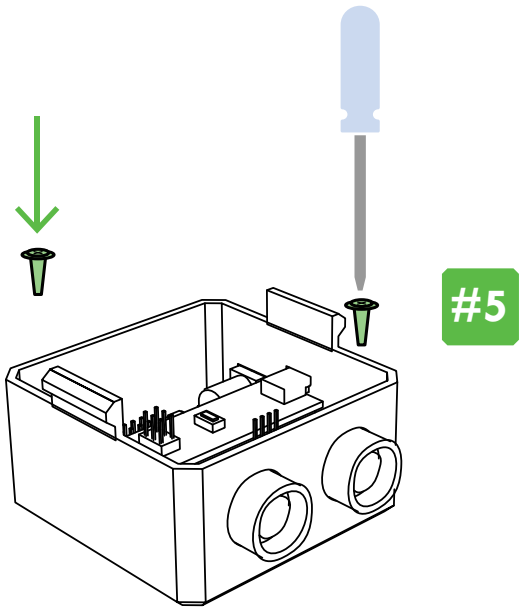

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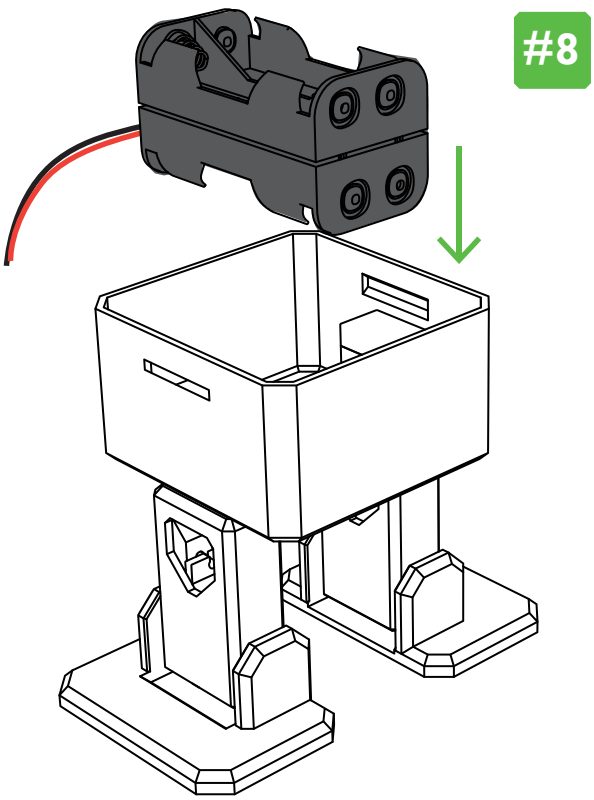
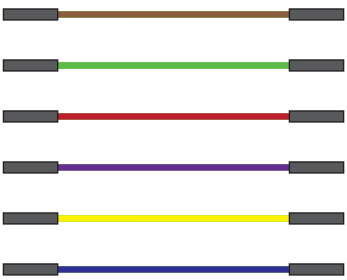


9

"cable colors may vary"



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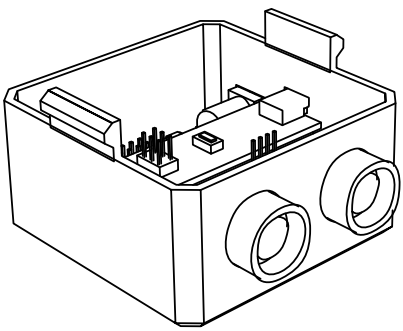
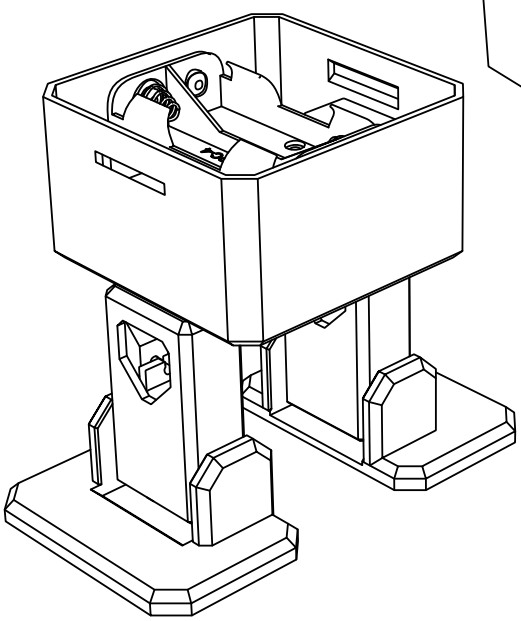
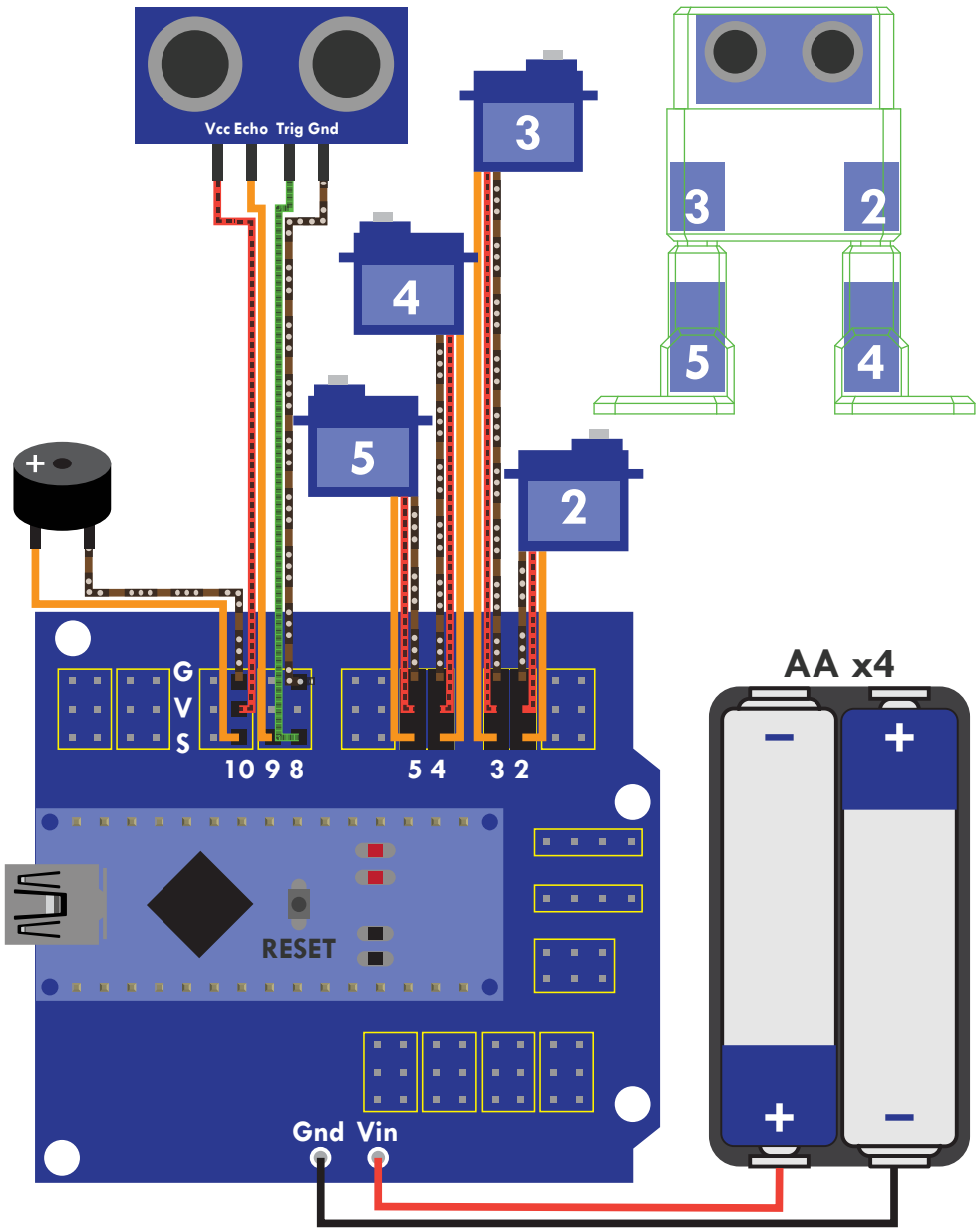




10

"cable colors for  &  can vary"



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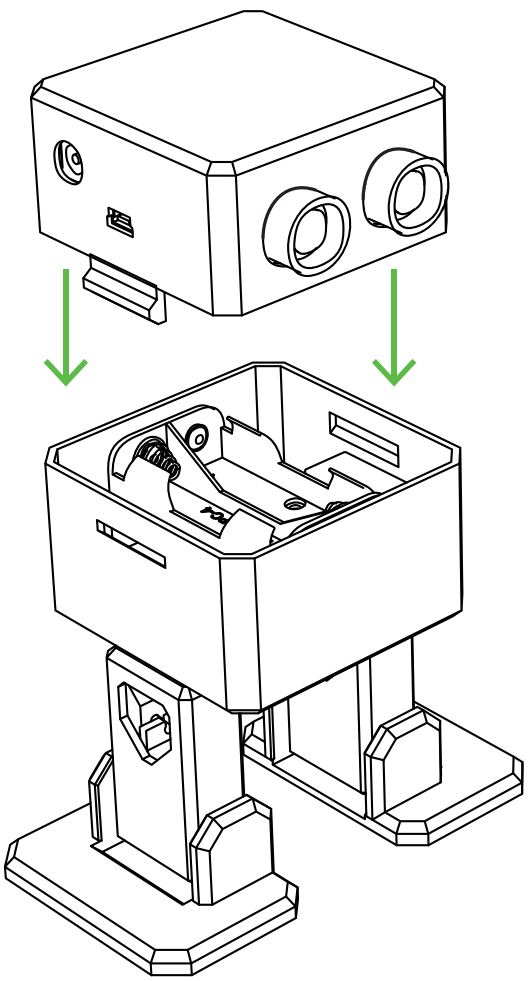

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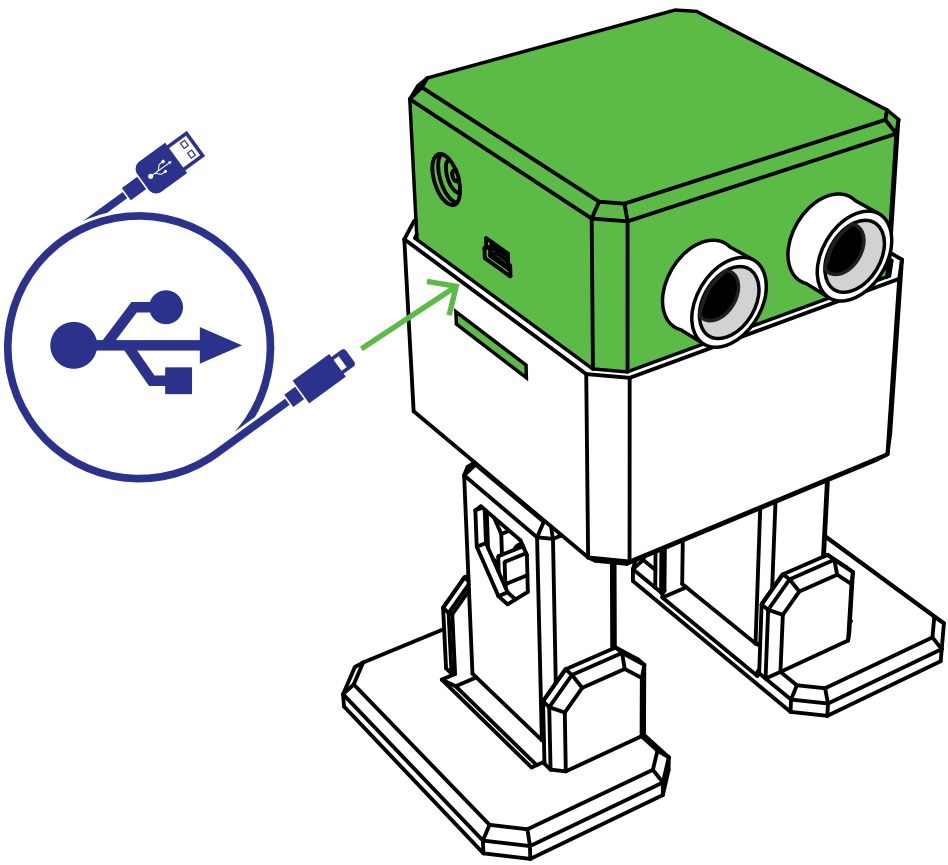

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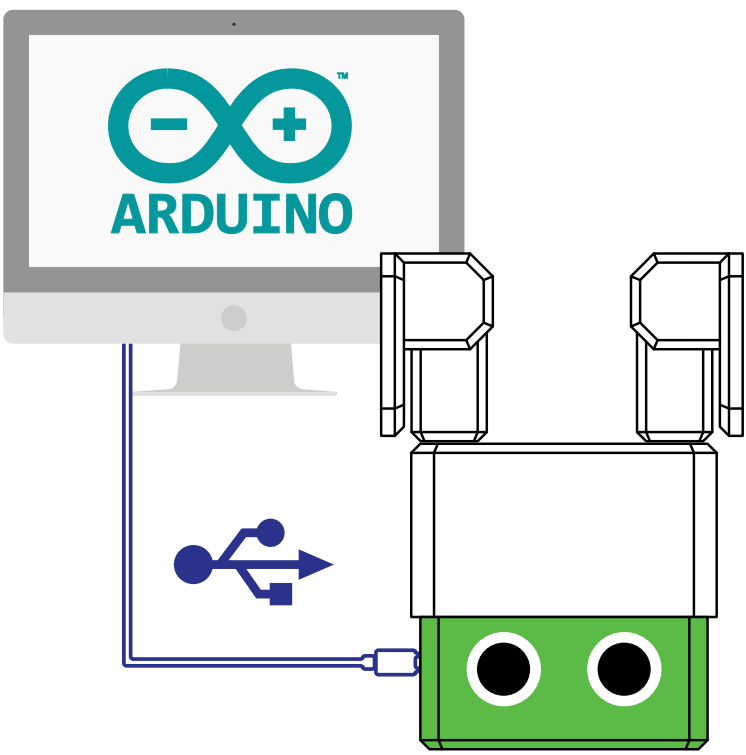
DIY

ARDUINO PROGRAMMING
编程



connect to his brain and learn how to program your own robot with new movements, interactions, games, gestures and sounds
following with these simple steps ...

现在你建立你的 Otto，进入他的大脑，学习如何编程自己的机器人运动，互动，游戏，手势和声音与这些简单的步骤. . .

13

A download Arduino for FREE to your computer from www.arduino.cc/

choose the appropriate Operating System installation package for your computer.

B install Arduino...

14

A download OTTO_DIY_all.zip

B unzip the file OTTO_DIY_all.zip

C from the “driver” folder install CH341SER

⚠ choose the appropriate Operating System installation package for your computer.

D copy or move all “libraries” folders to:

C:\Documents\Arduino\libraries\
(or wherever your library folder is)

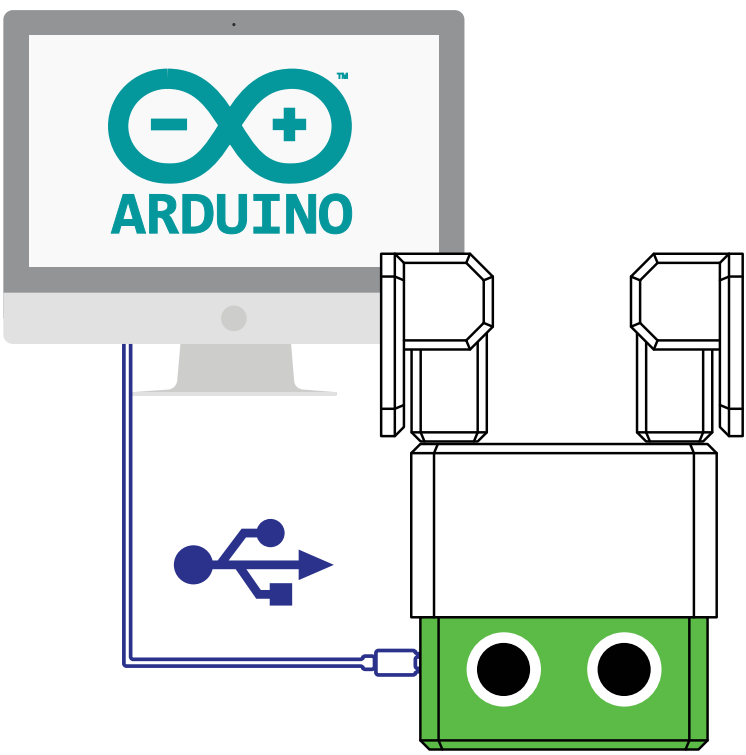
E copy or move all “OTTO_” folders to:

C:\Documents\Arduino\
(or wherever your sketch folder is)

15

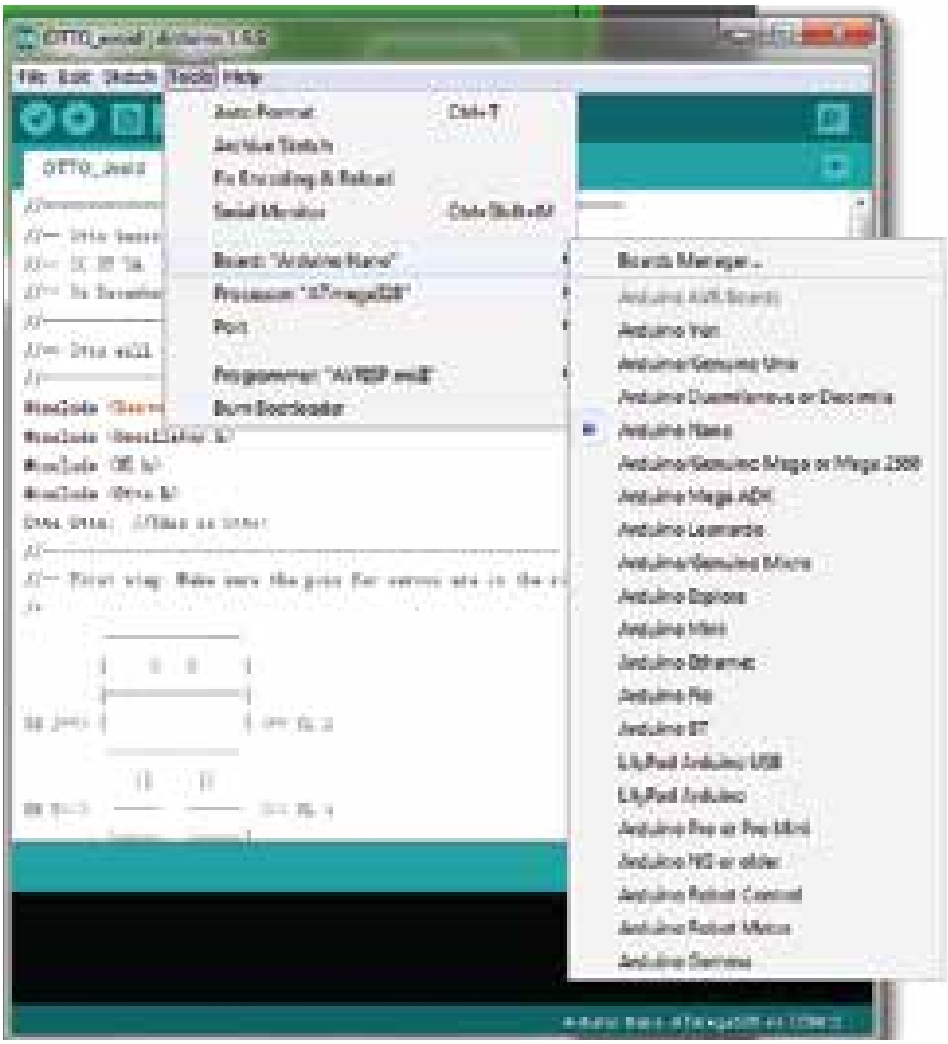
A open Arduino and
open OTTO_avoid.ino

B Connect Otto to your computer USB



16

A select in Arduino tools/
"Board: Arduino Nano"
"Processor ATmega328" and your Otto
is connected to the corresponding port

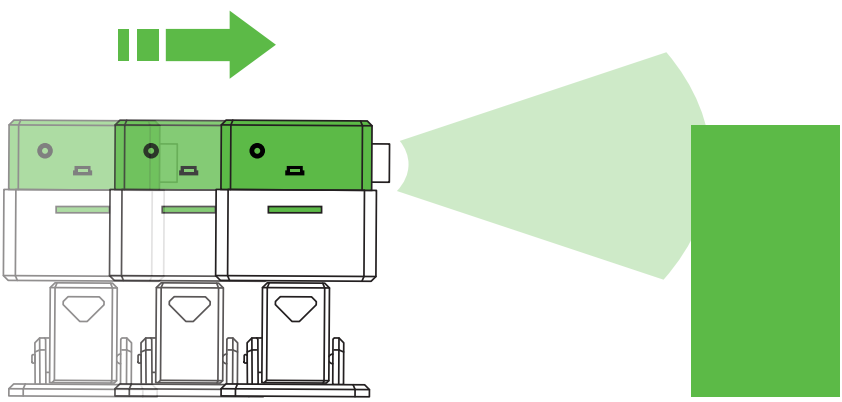


17

A verify the code

B upload the code

C Otto will walk endless until detect obstacles to avoid



18

inside Otto brain main loop looks like this

```
void loop() {
  if(obstacleDetected){
              Otto.sing(S_surprise);
              Otto.playGesture(OttoFretful);
              Otto.sing(S_fart3);
              Otto.walk(2,1300,-1);
              Otto.turn(2,1000,-1);
             delay(50);
             obstacleDetector();
             }
         else{
            Otto.walk(1,1000,1);
            obstacleDetector();
        }
  }
```

19

and you can play with all of this:

```
Otto.walk(1,T,1);          Otto.walk(1,T,-1);
Otto.turn(1,T,1);          Otto.turn(1,T,-1);
Otto.bend(1,T,1);          Otto.bend(1,T,-1);
Otto.shakeLeg(1,T,1);      Otto.shakeLeg(1,T,-1);

Otto.moonwalker(1,T,moveSize,1);
Otto.crusaito(1,T,moveSize,1);
Otto.flapping(1,T,moveSize,1);

Otto.swing(1,T,moveSize);
Otto.updown(1,T,moveSize);
Otto.tiptoeSwing(1,T,moveSize);
Otto.jitter(1,T,moveSize);
Otto.ascendingTurn(1,T,moveSize);
Otto.jump(1,T);

Otto.playGesture(OttoHappy);
```

try changing to:

```
(OttoSuperHappy);     (OttoSad);
(OttoSleeping);       (OttoFart);
(OttoConfused);       (OttoAngry);
(OttoLove);           (OttoFretful);
(OttoMagic);          (OttoWave);
(OttoVictory);        (OttoFail);
```

20

and Otto can make these sounds:

```
Otto.sing(S_connection);
Otto.sing(S_disconnection);

Otto.sing(S_surprise);
Otto.sing(S_OhOoh);
Otto.sing(S_OhOoh2);

Otto.sing(S_cuddly);
Otto.sing(S_sleeping);

Otto.sing(S_happy);
Otto.sing(S_superHappy);
Otto.sing(S_happy_short);

Otto.sing(S_sad);
Otto.sing(S_confused);
Otto.sing(S_fart1);
Otto.sing(S_fart2);
Otto.sing(S_fart3);

Otto.sing(S_mode1);
Otto.sing(S_mode2);
Otto.sing(S_mode3);
Otto.sing(S_buttonPushed);
```

打造你自己的机器人

build your own robot

ottobot.org