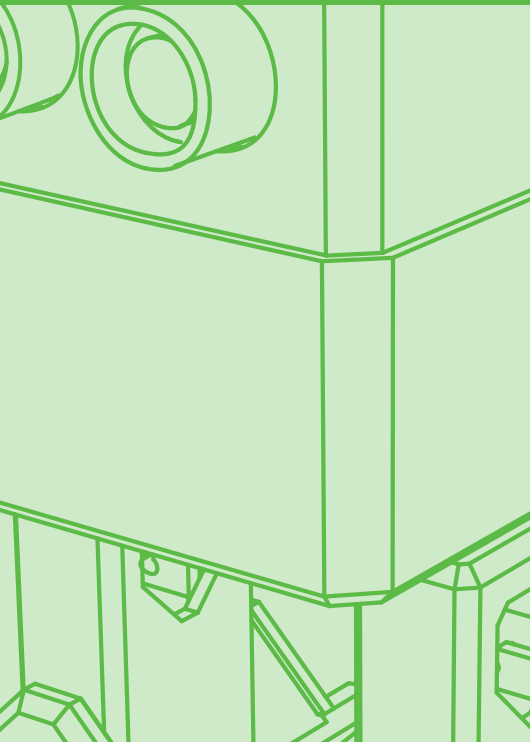


DIY

INSTRUCTIONS MANUAL

说明书

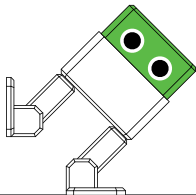


DIY



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。



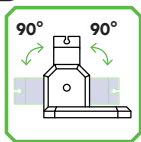
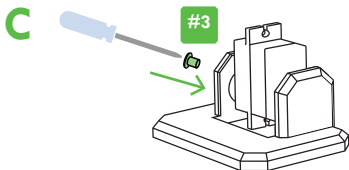
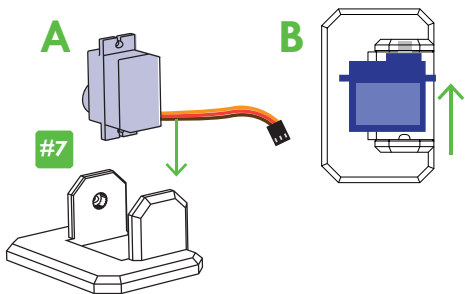
PARTS

部分

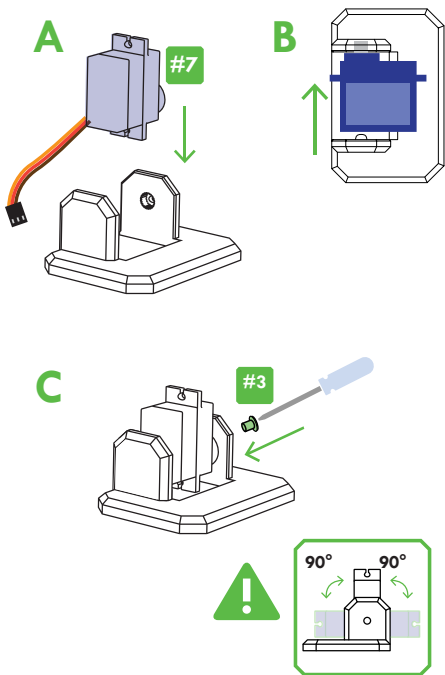


-
- #16 female to female connector cable x6
母对母杜邦线
 - #15 mini cross screwdriver tool
螺丝刀十字刀小一字
 - #14 mini usb cable
延长线
 - #13 3D printed Head
3D 打印的头部
 - #12 ultrasound sensor
超声波传感器
 - #11 Arduino NANO expansion board
扩展板
 - #10 Arduino NANO microcontroller
微控制器
 - #9 buzzer
蜂鸣器
 - #8 AA battery 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



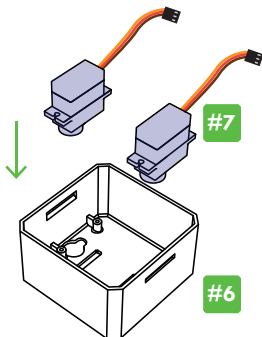
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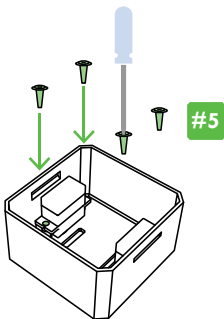
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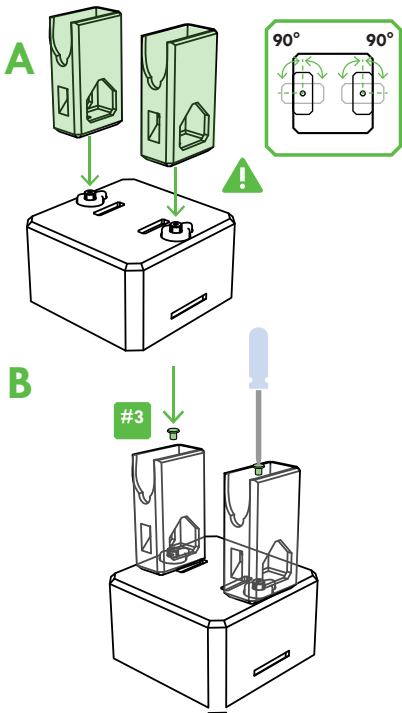
A



B



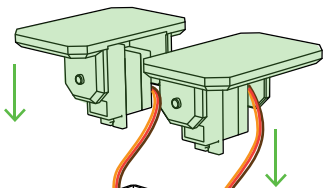
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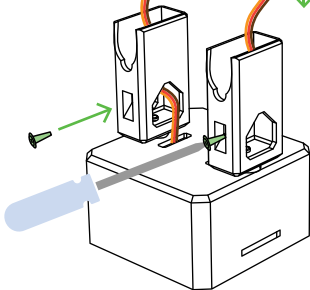
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A



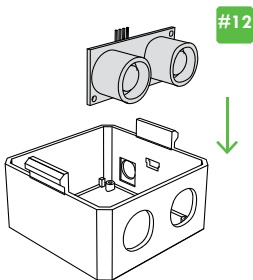
B



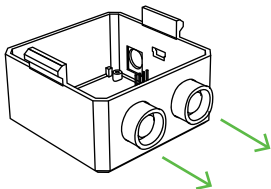
6



A



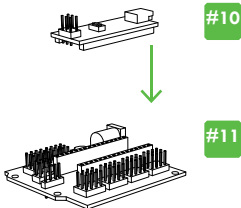
B



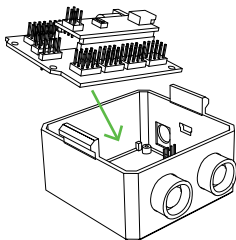
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A



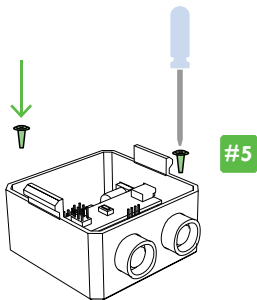
B



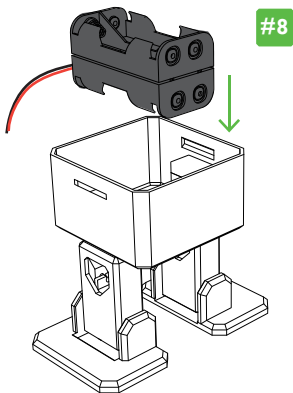
8



A



B



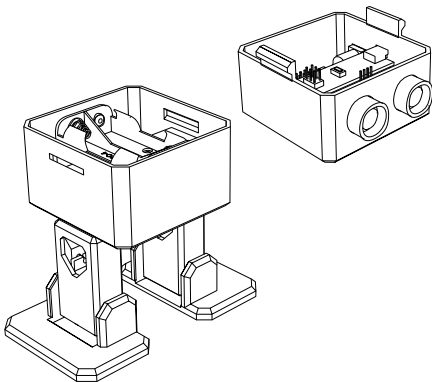
9

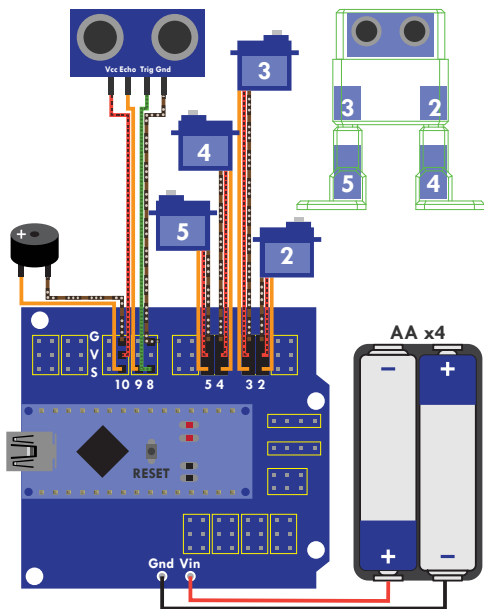


“cable colors may vary”

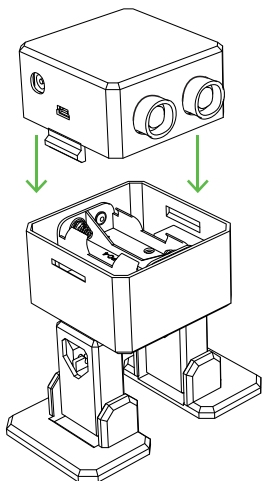


#9

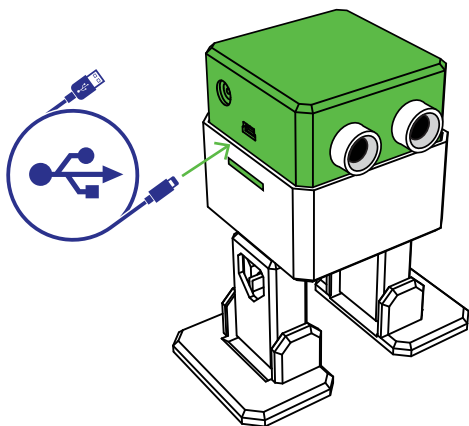




11

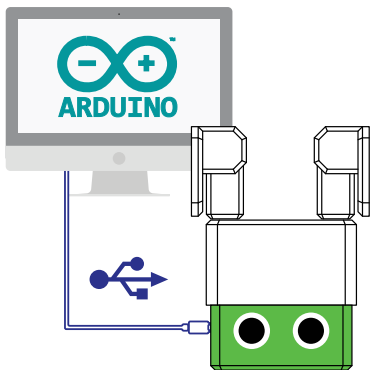


12



DIY

ARDUINO PROGRAMMING
编程



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 [OttoDIY_coding.zip](#)
pack from [ottobot.org](#)

B unzip the file [OttoDIY_coding.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



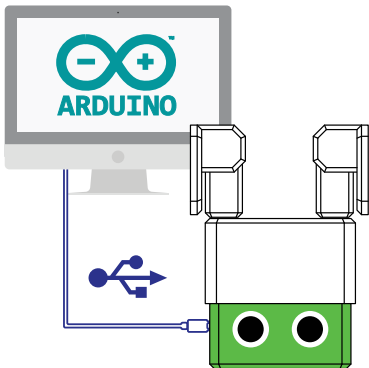
A

open Arduino and
open OTTO_avoid.ino



B

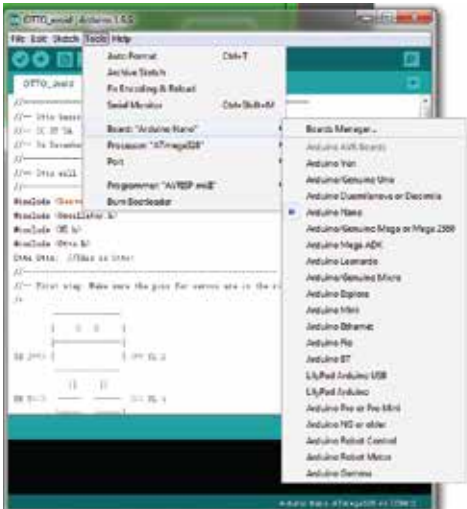
Connect Otto to your computer USB



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



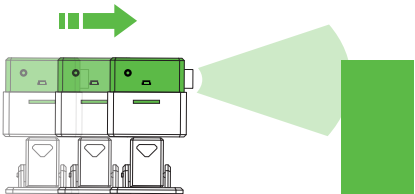
B

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