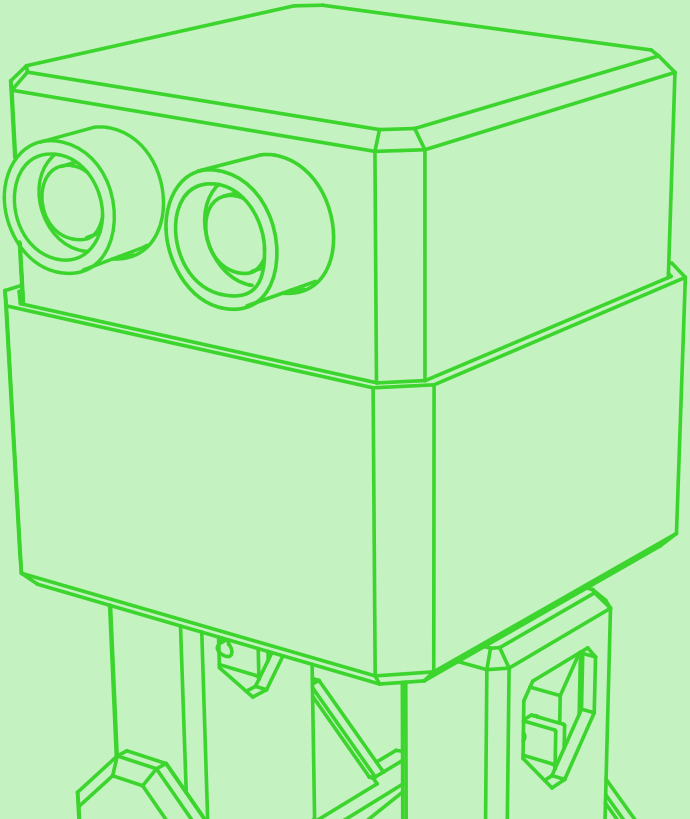
DIY

INSTRUCTION MANUAL
说明书



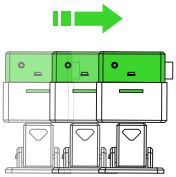
build your own robot

打造你自己的机器人

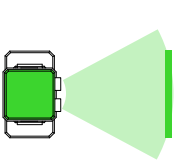
o++o

Otto is an interactive robot that anyone can make!

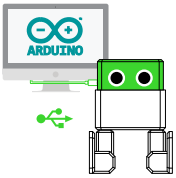
you will be able to build your own Otto in as little as two hours! easy to build and disassemble with a simple screwdriver.



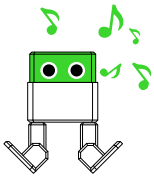
walk & dance



detect & avoid obstacles

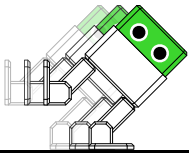


easy to program



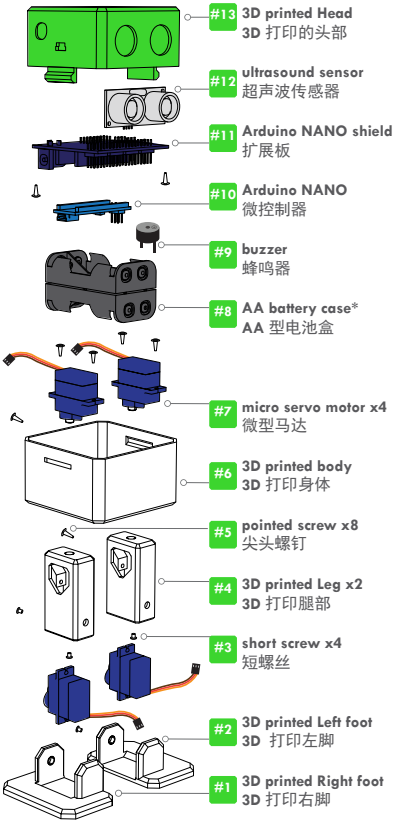
beeps & 8bit music

#OttoDIY follow us!



PARTS

部分



#13 3D printed Head
3D 打印的头部

#12 ultrasound sensor
超声波传感器

#11 Arduino NANO shield
扩展板

#10 Arduino NANO
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

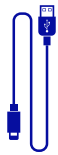
#3 short screw x4
短螺丝

#2 3D printed Left foot
3D 打印左脚

#1 3D printed Right foot
3D 打印右脚

#16 F/F connector cable x6
母对母杜邦线

#15 mini cross screwdriver
螺丝刀十字刀小一字

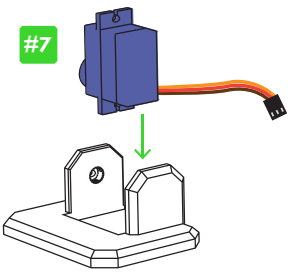


#14 mini usb cable
延长线

*AA batteries not included

1

a



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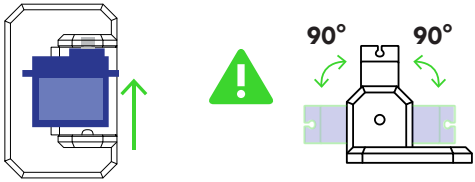

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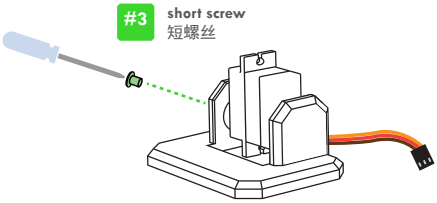

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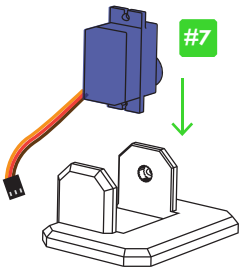

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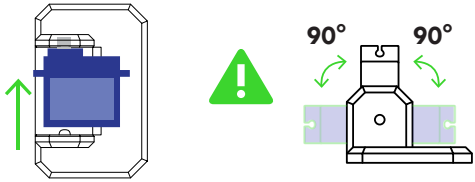

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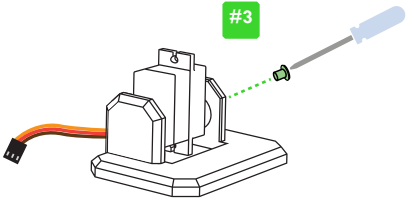

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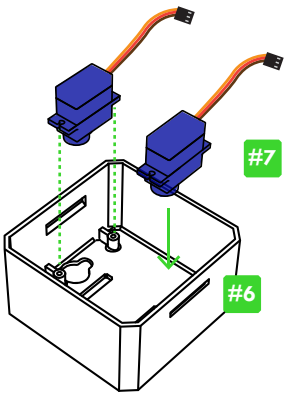

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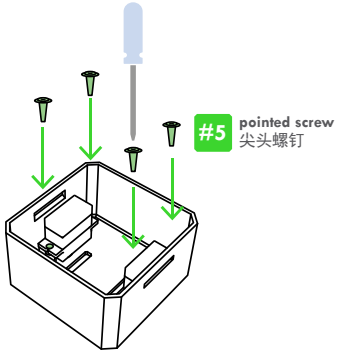

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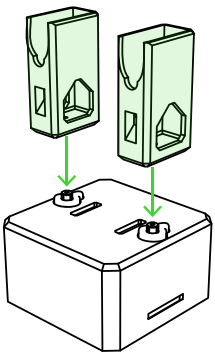

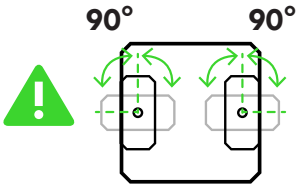

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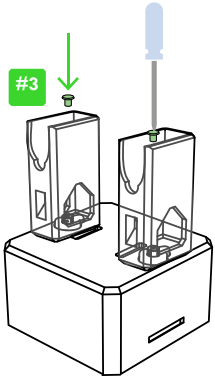
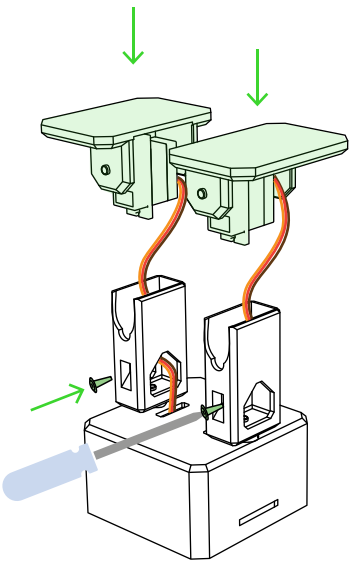


5

a

b



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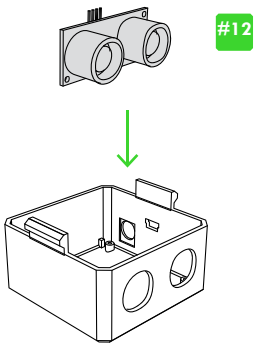

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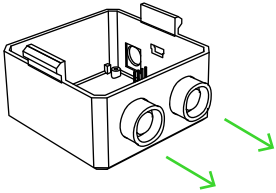

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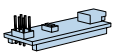

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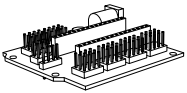
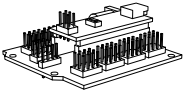
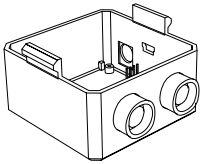


#11

b





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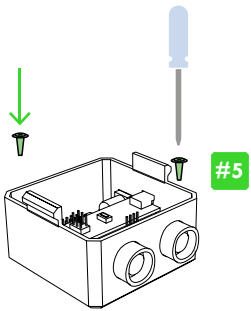

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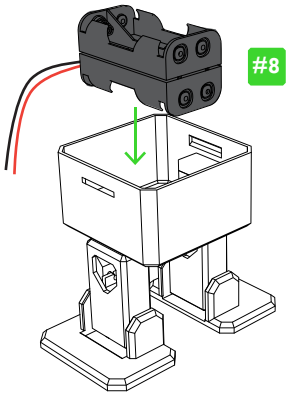
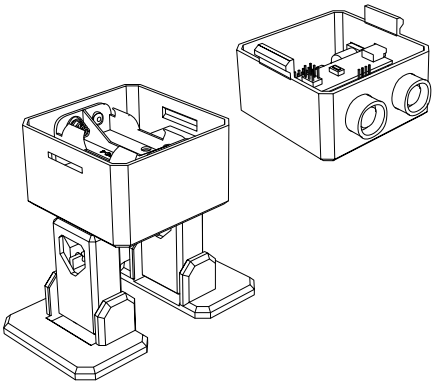


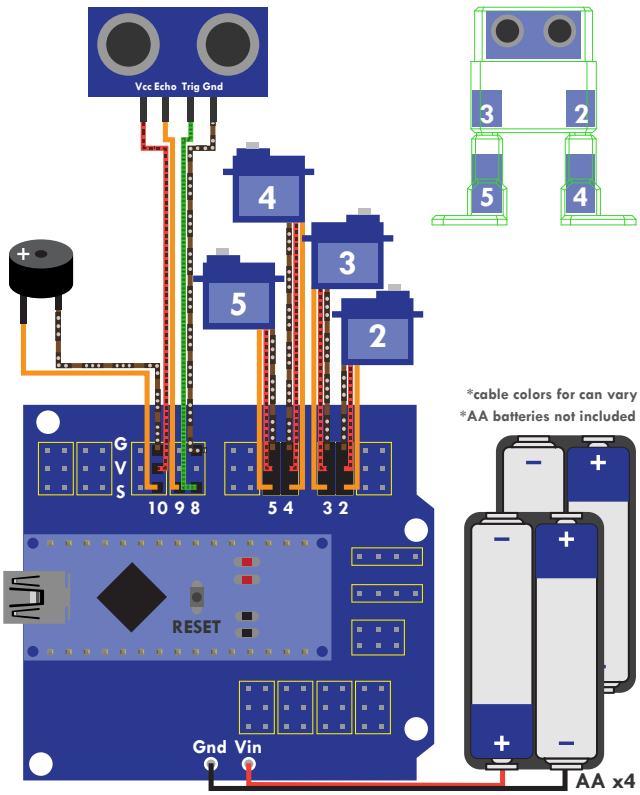
9

#9

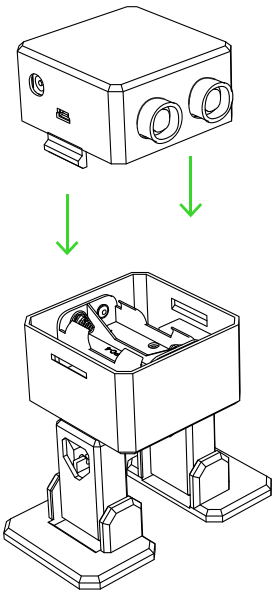


*cable colors may vary

10


Vcc Echo Trig Gnd
4
3
2
5
+
G
V
S
10 9 8
5 4
3 2
RESET
Gnd Vin
3
2
5
4
*cable colors for can vary
*AA batteries not included
AA x4

11



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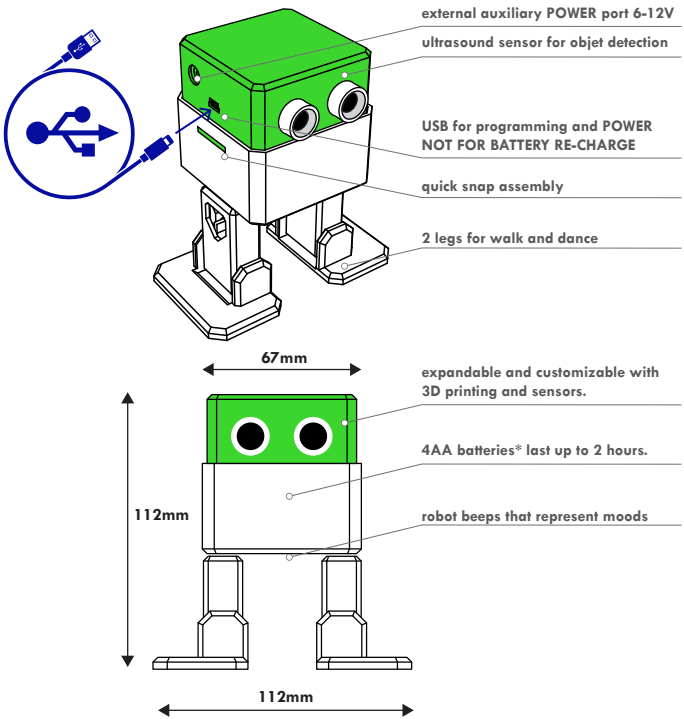
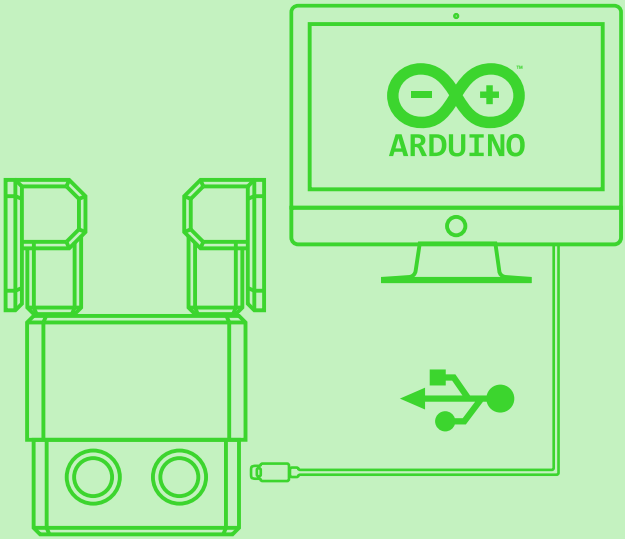


*AA batteries not included

DIY

ARDUINO PROGRAMMING
编程



1

ARDUINO

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 in your computer...

2

ARDUINO

a go to ottodiy.com in the build it! section
download and unzip OTTO_DIY_all.zip

b from the “driver” folder install CH341SER

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

c copy or move all **“libraries”** folders to:

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

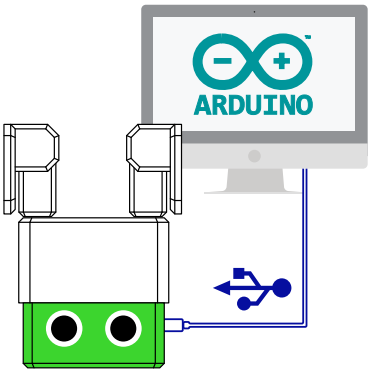
d copy or move all **“OTTO_”** folders to:

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

3

a open Arduino and
open OTTO_avoid.ino

b Connect Otto to your computer USB



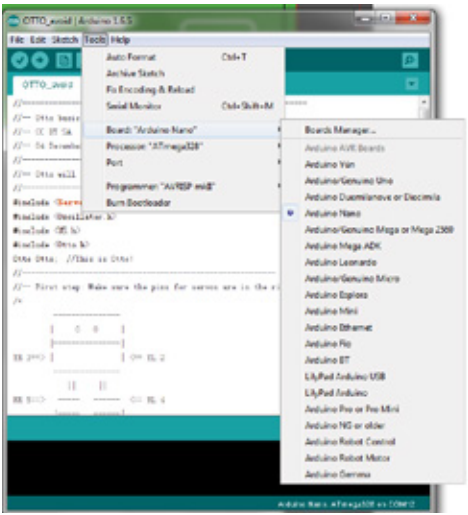
4

ARDUINO

o++o

select in Arduino Tools/

- Board: “Arduino Nano”
- Processor: “ATmega328”
  Port COM# (where your Otto is connected)



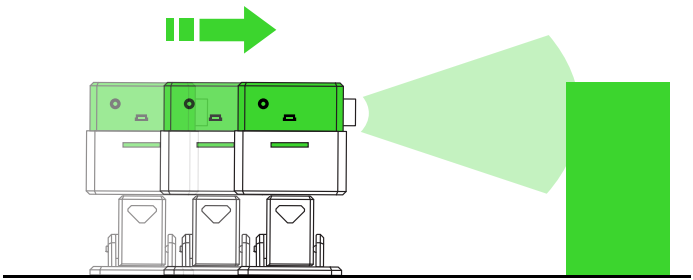
5

ARDUINO

a verify the code

b upload the code

c Otto will walk endless until detect obstacles to avoid

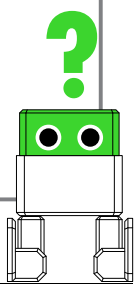


ARDUINO

in Arduino the principal loop code looks like this:

OTTO_avoid.ino

```
52 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();
            }
     }
```



7

ARDUINO

sing function:

```
Otto.sing(S_surprise);
```

sing function ("sound to make")

try change sound:

(S_surprise); (S_OhOoh); (S_OhOoh2);

(S_cuddly); (S_sleeping);

(S_happy); (S_superHappy); (S_happy_short);

(S_sad); (S_confused);

(S_fart1); (S_fart2); (S_fart3);

(S_mode1); (S_mode2); (S_mode3);

(S_connection); (S_disconnection); (S_buttonPushed);

8

ARDUINO

o++o

play Gesture function:

```
Otto.playGesture(OttoFretful);
```

play Gesture function ("emotion to express")

try change emotion:

(OttoSuperHappy); 

(OttoSleeping); 

(OttoConfused); 

(OttoLove); 

(OttoMagic); 

(OttoVictory); 

(OttoSad); 

(OttoFart); 

(OttoFretful); 

(OttoAngry); 

(OttoWave); 

(OttoFail); 

9

ARDUINO

o++o

move functions:

```
Otto.walk(2,1300,-1);
```

move function ("#steps, Time[ms], direction")

try change move function to:

```
Otto.walk(1,1000,1);
Otto.walk(1,1000,-1);

Otto.turn(3,1000,1);
Otto.bend(2,1000,1);
Otto.shakeLeg(1,1000,1);

Otto.turn(3,1000,-1);
Otto.bend(2,500,-1);
Otto.shakeLeg(1,500,-1);

Otto.moonwalker(1,1000,moveSize,1);   moveSize: "height of the move"
Otto.moonwalker(1,1000,30,1);
Otto.crusaito(1,1000,moveSize,1);
Otto.flapping(1,1000,moveSize,1);

Otto.swing(1,1000,moveSize);
Otto.updown(1,1000,moveSize);
Otto.tiptoeSwing(1,1000,moveSize);
Otto.jitter(1,1000,moveSize);
Otto.ascendingTurn(1,1000,moveSize);

Otto.jump(1,1000);
```

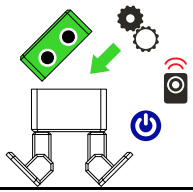
10

ARDUINO

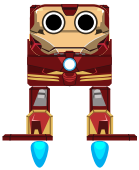
post your creations online

#OttoDIY share!

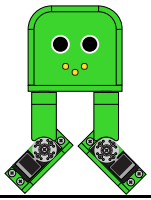
expand...



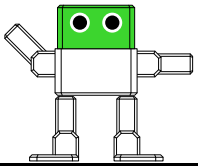
customize



modify



remix



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打造你自己的机器人

ottodiy.com