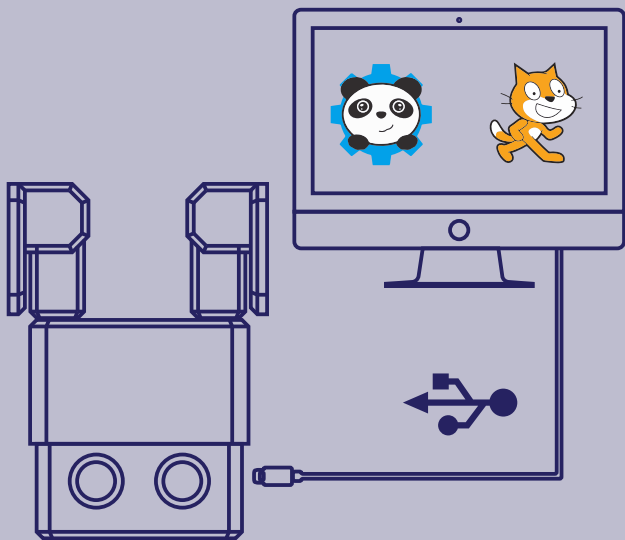


CODING GUIDE

mblock

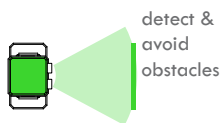
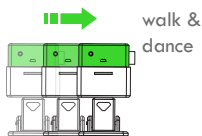


build your own robot

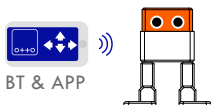


Otto is an interactive robot that anyone can make!

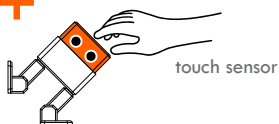
you will be able to build your own Otto in as little as one hour!
easy to build and disassemble with a simple screwdriver.



DIY

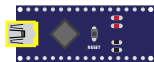


DIY+





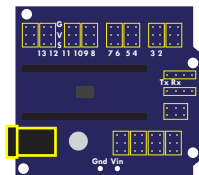
USB for programming-coding and POWER NOT FOR BATTERY RE-CHARGE



connect and power with USB and test your code
before using new AA 1.5V batteries
or any other energy source



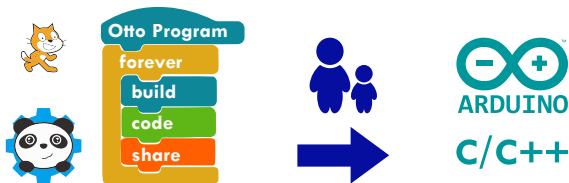
external auxiliary POWER port 6-12V



1



mblock is a graphical programming environment based on [Scratch 2.0 Open Source Code](#) that makes it easy to program electronics projects and create interactive robots like Otto; with the [Arduino mode](#) you can view both the Arduino source changes in real-time and the graphical blocks corresponding to the [C language](#) code, so that you can process a smooth transition to advanced programming.



download Arduino for FREE to your computer
from <http://www.mblock.cc/software/mblock/mblock3/>

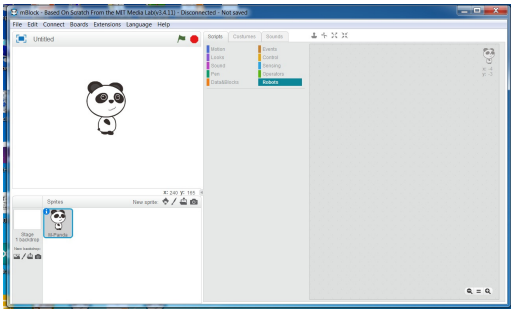


choose the appropriate Operating System
installation package for your computer.

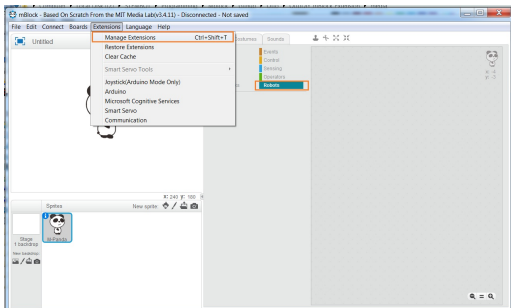
2



a open the software



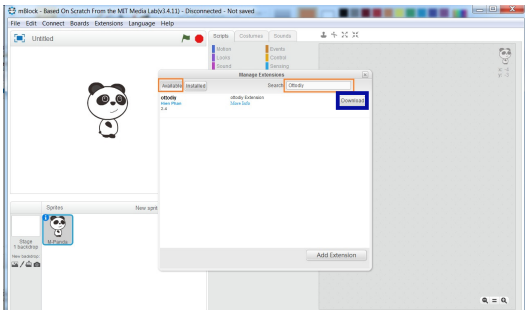
b go to Manage Extensions



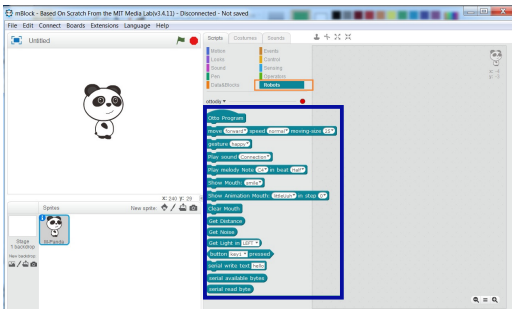
3



a search OttoDIY and Download



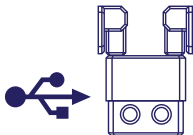
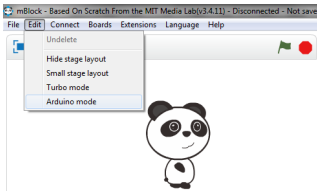
b OttoDIY blocks appear in Robots scripts area



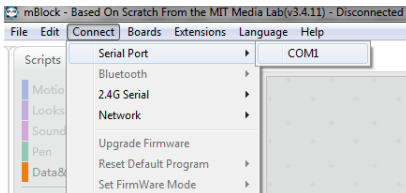
4



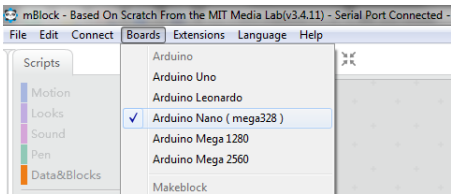
- a** enter Arduino mode; go to Edit/Arduino mode



- b** go to Connect/Serial Port (select Otto USB port)



- c** go to Boards/Arduino Nano (mega328)

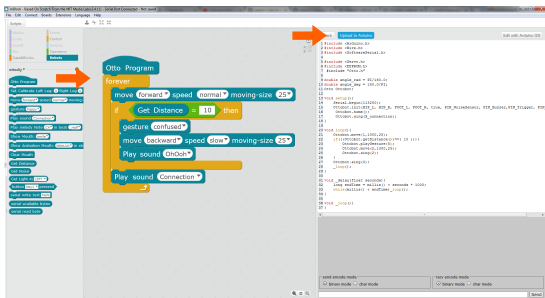


5



you are all setup and ready to code your own Otto!

Programming is easy to master as building blocks. drag & drop the blocks from script area to the center, you can create dances, stories and interactions easily.



Upload to Arduino

“the Arduino code will be automatically encoded by mblock and directly upload to your Otto”

6



a **SIGN UP** in ottodiy.com
download and unzip [OttoDIY_PLUS_all.zip](#)

b try the examples demos for **Otto DIY**

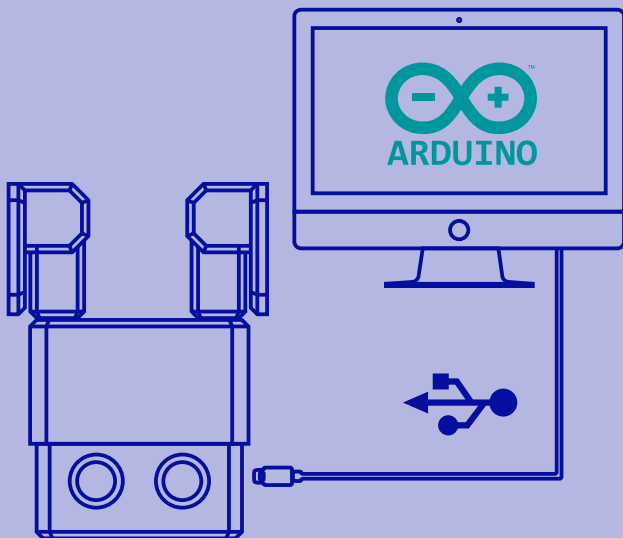
c  find more in
facebook.com/groups/ottodiy/

d post your creations **#OttoDIY**
become an **#Ottobuilder**



CODING GUIDE

arduino

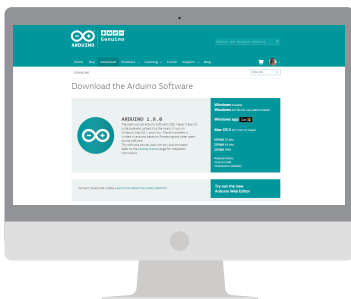


1



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



a SIGN UP in ottodiy.com

download and unzip [OttoDIY_PLUS_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\
(your Arduino library folder location)

d copy or move all “[Otto_](#)” folders to:

C:\Documents\Arduino\
(your Arduino library folder location)

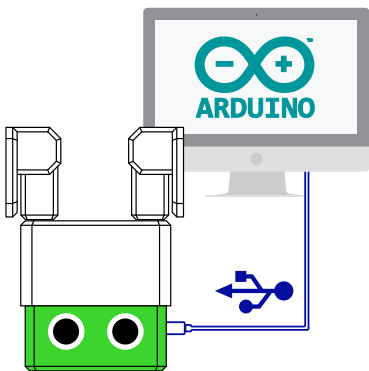
3



- a** open Arduino and
open `Otto_avoid.ino`



- b** Connect Otto to your computer USB

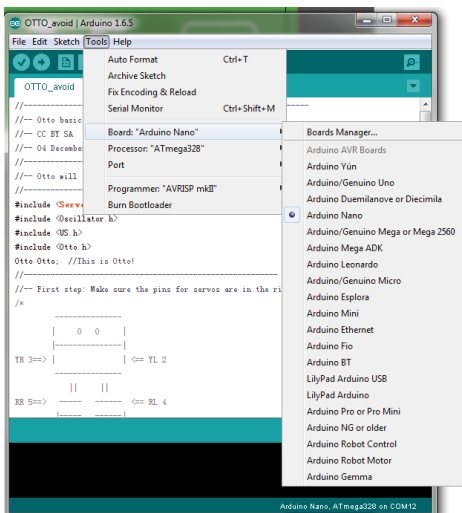


4




select in Arduino Tools/


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



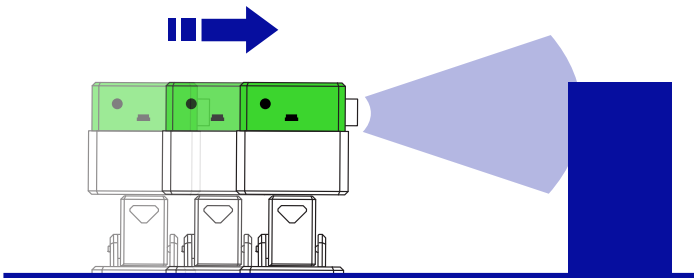
5



a verify the code 

b upload the code 

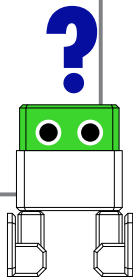
c Otto will walk endless until detect
obstacles to avoid



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();  
    }  
}
```





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);
```



play Gesture function:

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

play Gesture function

("emotion to express")

try change emotion:

(OttoSuperHappy);



(OttoSad);



(OttoSleeping);



(OttoFart);



(OttoConfused);



(OttoFretful);



(OttoLove);



(OttoAngry);



(OttoMagic);



(OttoWave);



(OttoVictory);



(OttoFail);



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.turn(3,1000,-1);
```

```
Otto.bend(2,1000,1);
```

```
Otto.bend(2,500,-1);
```

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

```
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

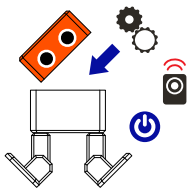


post your creations online



#OttoDIY share!

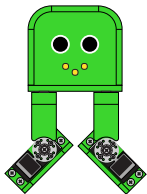
expand...



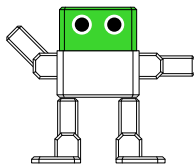
customize



remix



modify





wanted Otto builders

do you have what it takes?

ottodiy.com

