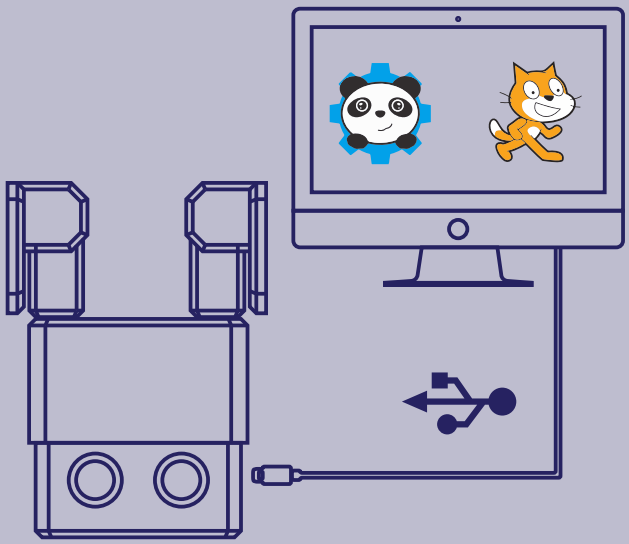
CODING GUIDE

mblock



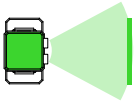
V01

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.

walk & dance



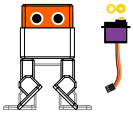
detect & avoid obstacles

DIY

easy to program

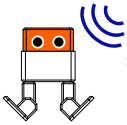
beeps & 8bit music

BT & APP

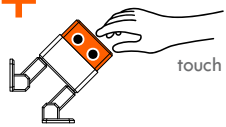


stronger

DIY+

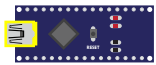


sound sensor



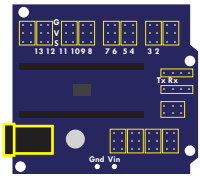
touch sensor

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



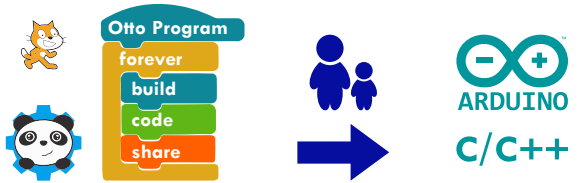
connect and power with USB and test your code before using new AA 1.5V batteries or any other energy source

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.

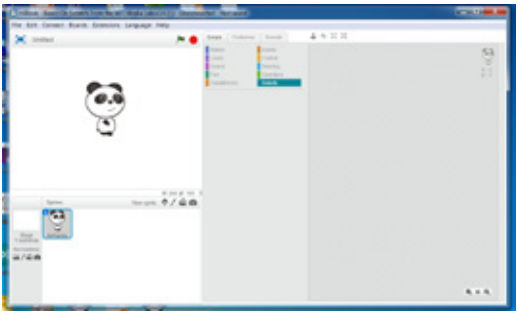


download Arduino for FREE to your computer
from http://www.mblock.cc/software/mblock/mblock3/

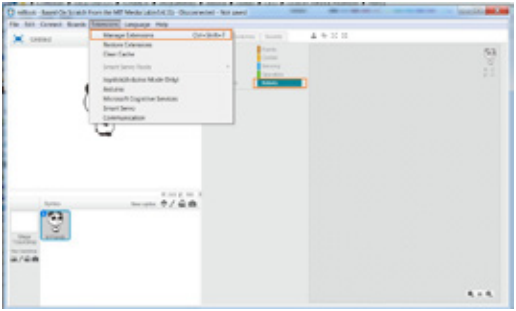
⚠ choose the appropriate Operating System installation package for your computer.

2

a open the software

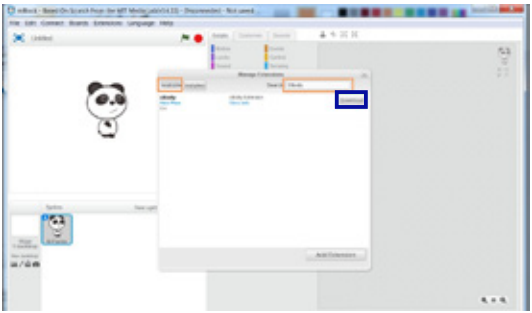


b go to Manage Extensions

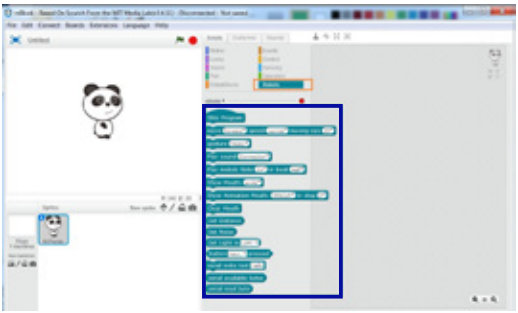


3

a search OttoDIY and Download

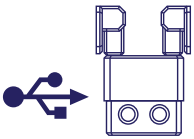


b OttoDIY blocks appear in Robots scripts area

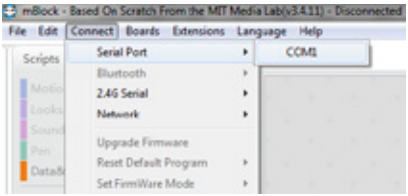


4

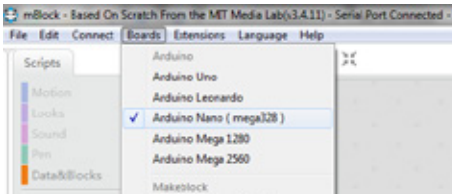
a enter Arduino mode; go to Edit/Arduino mode



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



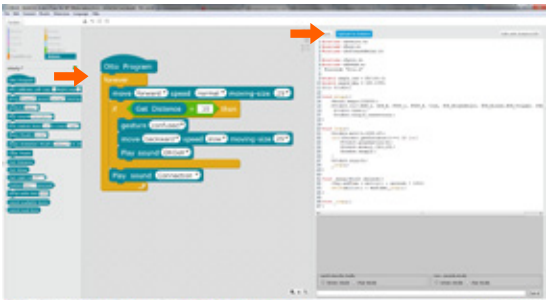
c go to Boards/Arduino Nano (mega328)



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**

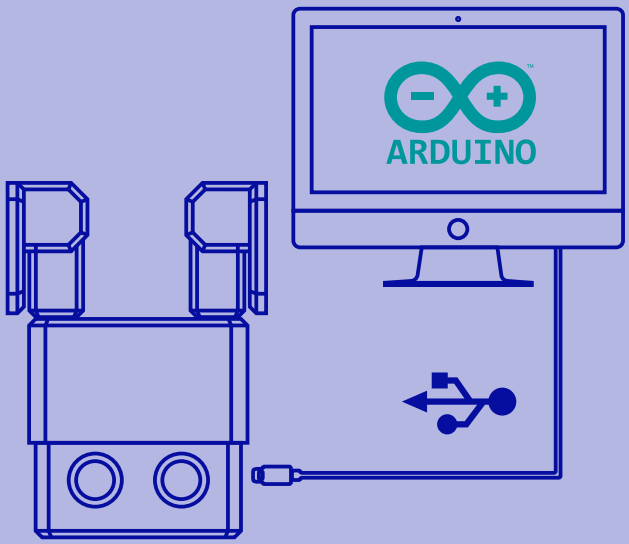
c find more in
facebook.com/groups/ottodiy/

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

Otto builder

CODING GUIDE

arduino



V01

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

o++o

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

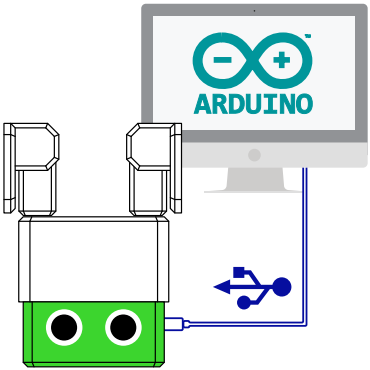
copy or move all “Otto_” folders to:

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

3

a open Arduino and
open Otto_avoid.ino

b Connect Otto to your computer USB

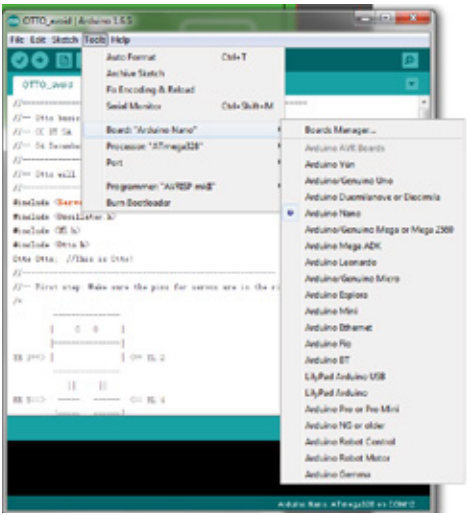


4

ARDUINO

select in Arduino Tools/

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



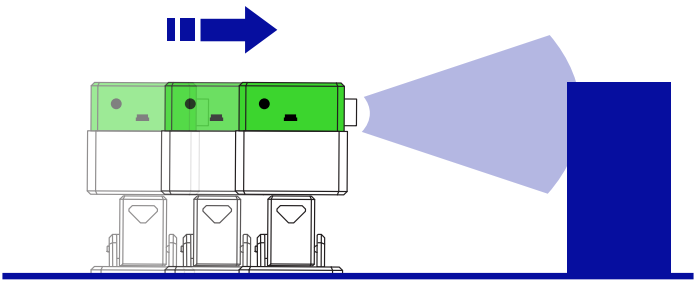
5

ARDUINO

a verify the code

b upload the code

c Otto will walk endless until detect obstacles to avoid



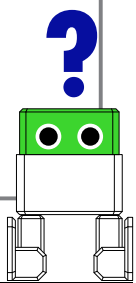
6

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);
```

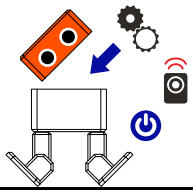
10

ARDUINO

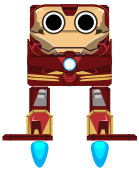
post your creations online

#OttoDIY share!

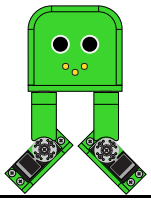
expand...



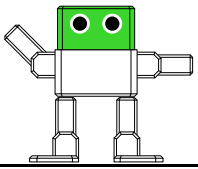
customize



remix



modify



o++o

wanted
Otto builders

do you have what it takes?

ottodiy.com