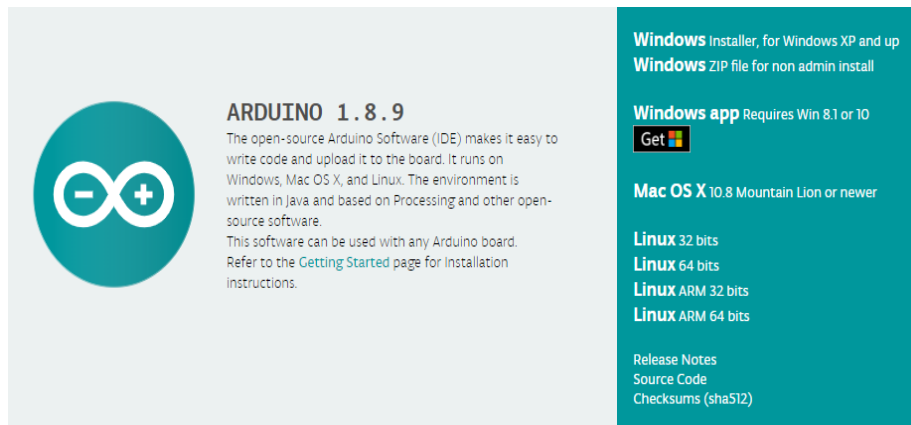


Upload Penguin Bot program for MacOS

STEP1: Download the Arduino Software (IDE)

Open the URL:<https://www.arduino.cc/en/Main/Software> with browser
Click “Mac OSX 10.7 Lion or newer”



The screenshot shows the Arduino Software (IDE) download page. On the left, there is a large teal circle with a white infinity symbol and a plus sign. To its right, the text reads: **ARDUINO 1.8.9**. Below this, it says: "The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open-source software. This software can be used with any Arduino board. Refer to the [Getting Started](#) page for Installation instructions."

On the right side, there is a teal sidebar with the following links: **Windows** Installer, for Windows XP and up; **Windows** ZIP file for non admin install; **Windows app** Requires Win 8.1 or 10; **Mac OS X** 10.8 Mountain Lion or newer; **Linux** 32 bits; **Linux** 64 bits; **Linux** ARM 32 bits; **Linux** ARM 64 bits; **Release Notes**; **Source Code**; **Checksums (sha512)**.

The version available at this website is usually the latest version, and the actual version may be newer than the version in the picture.

Click “JUST DOWNLOAD”



The screenshot shows the "Contribute to the Arduino Software" page. At the top, it says: "Contribute to the Arduino Software". Below this, it says: "Consider supporting the Arduino Software by contributing to its development. (US tax payers, please note this contribution is not tax deductible). [Learn more on how your contribution will be used.](#)"

In the center, there is a cartoon illustration of three characters: a red robot, a blue robot, and a green robot, standing next to an Arduino board. To the right of the illustration, it says: "SINCE MARCH 2015, THE ARDUINO IDE HAS BEEN DOWNLOADED **23,213,129** TIMES. (IMPRESSIVE!) NO LONGER JUST FOR ARDUINO AND GENUINO BOARDS, HUNDREDS OF COMPANIES AROUND THE WORLD ARE USING THE IDE TO PROGRAM THEIR DEVICES, INCLUDING COMPATIBLES, CLONES, AND EVEN COUNTERFEITS. HELP ACCELERATE ITS DEVELOPMENT WITH A SMALL CONTRIBUTION! REMEMBER: OPEN SOURCE IS LOVE!"

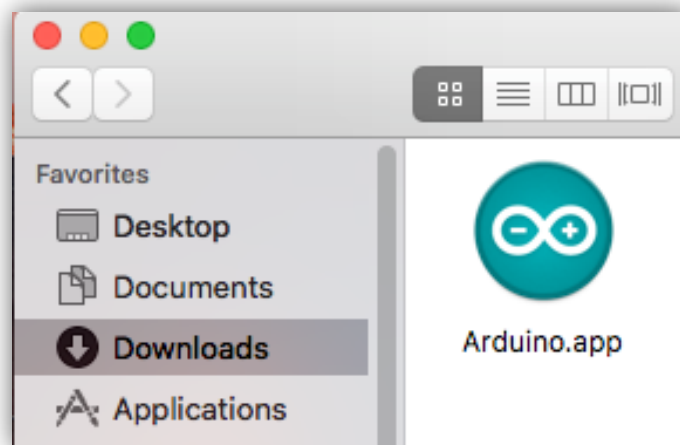
Below the text, there are six circular buttons with the following amounts: **\$3**, **\$5**, **\$10**, **\$25**, **\$50**, and **OTHER**.

At the bottom, there are two buttons: **JUST DOWNLOAD** and **CONTRIBUTE & DOWNLOAD**.

Open Finder

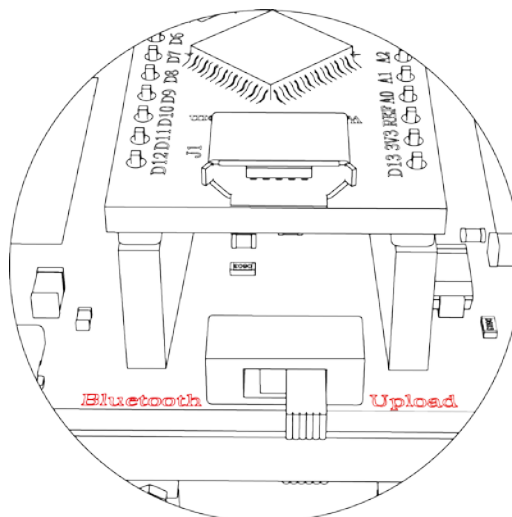


After the download is complete, an installation package will appear in the download directory

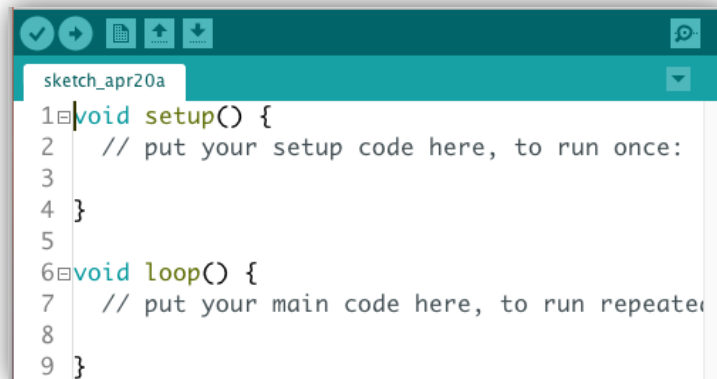


STEP2: Upload Penguin Bot program.

Turn the “Bluetooth-Upload” switch to the “Upload” side, which means the Penguin Bot is in Upload mode.

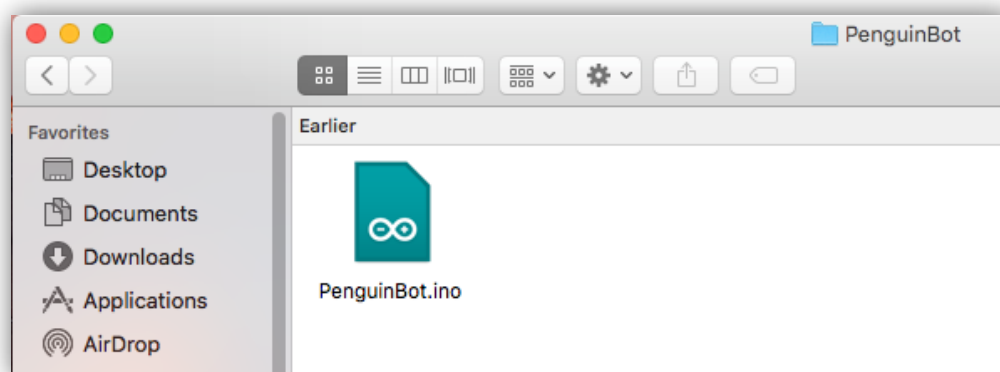


Double-click the Arduino application to enter the arduino programming development environment.

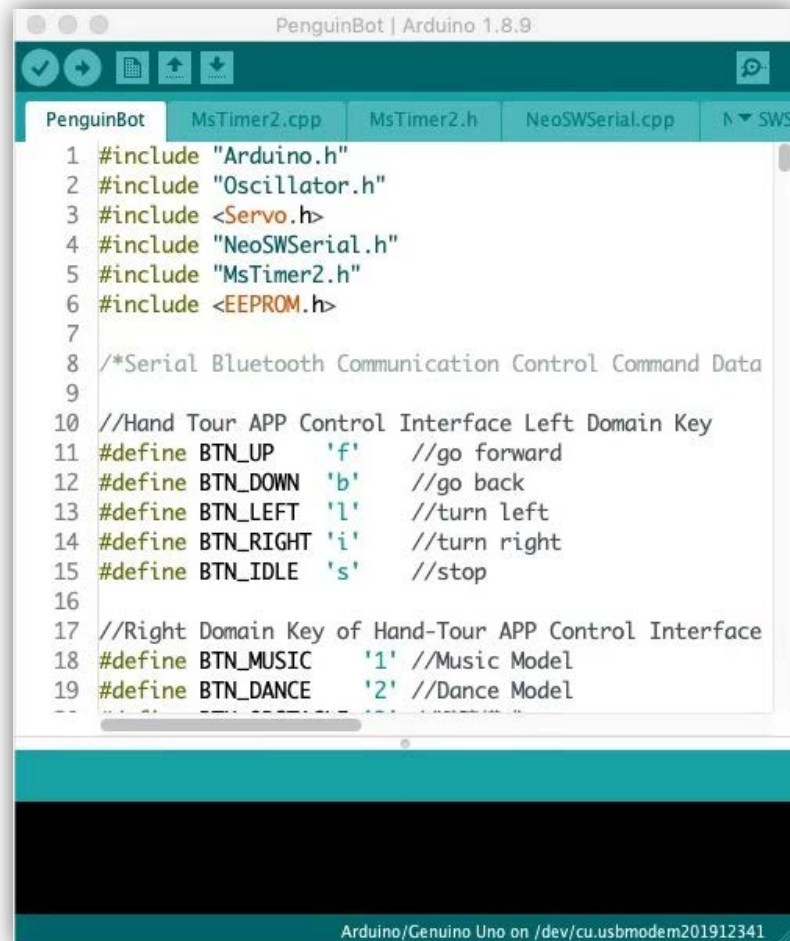


```
sketch_apr20a
1 void setup() {
2   // put your setup code here, to run once:
3
4 }
5
6 void loop() {
7   // put your main code here, to run repeatedly
8
9 }
```

Connect the Penguin Bot to PC with USB and open the directory where the Penguin Bot sketch is located.



Double-click Penguin Bot sketch. After open the Penguin Bot sketch, we can see the code in the Arduino IDE.

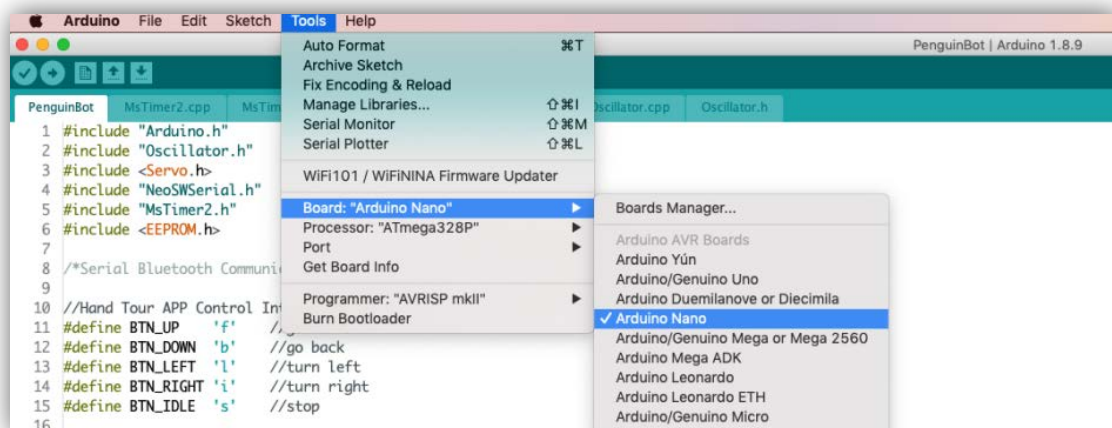


The screenshot shows the Arduino IDE interface with the PenguinBot sketch open. The code is as follows:

```
1 #include "Arduino.h"
2 #include "Oscillator.h"
3 #include <Servo.h>
4 #include "NeoSWSerial.h"
5 #include "MsTimer2.h"
6 #include <EEPROM.h>
7
8 /*Serial Bluetooth Communication Control Command Data
9
10 //Hand Tour APP Control Interface Left Domain Key
11 #define BTN_UP 'f' //go forward
12 #define BTN_DOWN 'b' //go back
13 #define BTN_LEFT 'l' //turn left
14 #define BTN_RIGHT 'i' //turn right
15 #define BTN_IDLE 's' //stop
16
17 //Right Domain Key of Hand-Tour APP Control Interface
18 #define BTN_MUSIC '1' //Music Model
19 #define BTN_DANCE '2' //Dance Model
```

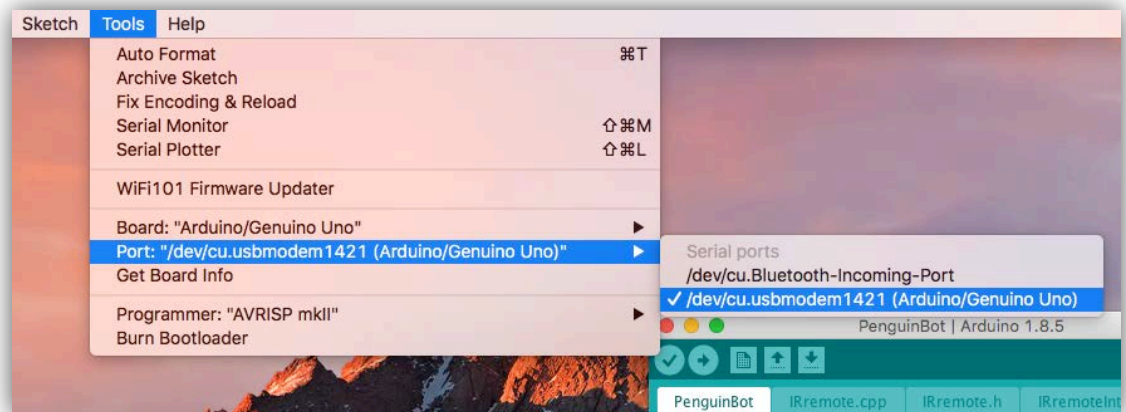
The status bar at the bottom indicates: Arduino/Genuino Uno on /dev/cu.usbmodem201912341

Select the Arduino Nano board.

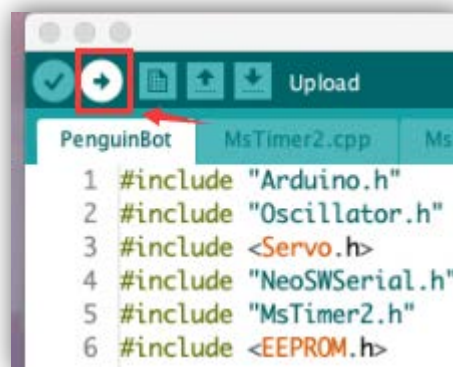


Select the Serial Port name.

(Tips: Each Arduino Nano board has a different COM number on the same computer. You should choose the COM number of the actual display.)



Click the upload button to start upload the Penguin Bot program.



Done uploading.

