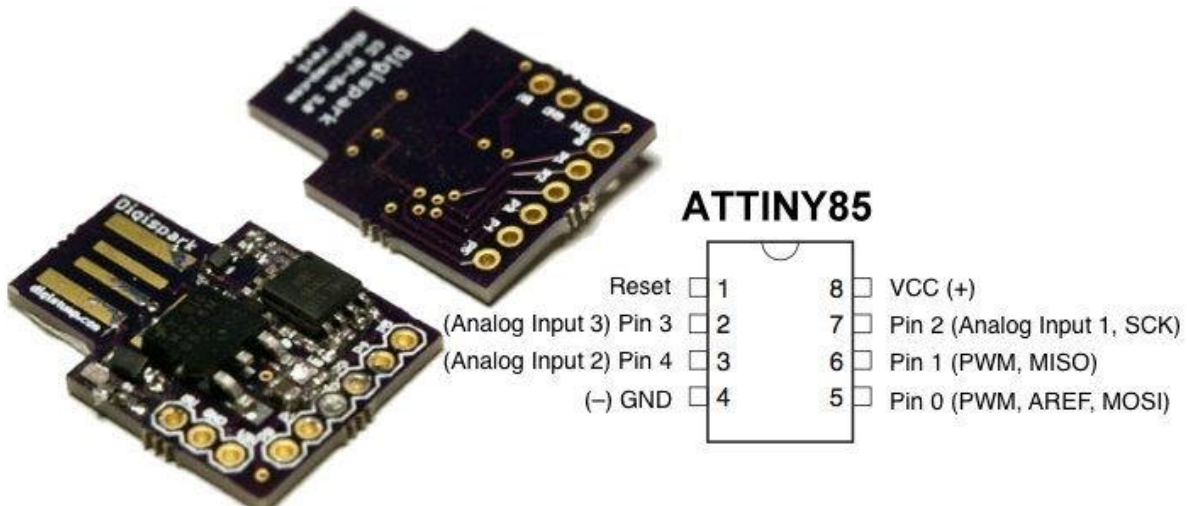


DIGISPARK DIY: THE SMALLEST USB ARDUINO

Introduction: Digispark DIY: the Smallest USB Arduino



Digispark is an ATtiny85 based microcontroller development board come with USB interface. Coding is similar to Arduino, and it use the familiar Arduino IDE for development.

Digispark is copyrighted by Digistump LLC (digistump.com) and the full license is here: <http://digistump.com/wiki/digispark/policy>

Specification:

Support for the Arduino IDE 1.0+ (OS X/Win/Linux)

Power via USB or External Source - 5v or 7-35v (automatic selection)

On-board 500ma 5V Regulator

Built-in USB (and serial debugging)

6 I/O Pins (2 are used for USB only if your program actively communicates over USB, otherwise you can use all 6 even if you are programming via USB)

8k Flash Memory (about 6k after bootloader)

I2C and SPI (via USB)

PWM on 3 pins (more possible with Software PWM)

ADC on 4 pins

Power LED and Test/Status LED (on Pin0)

Download bootloader

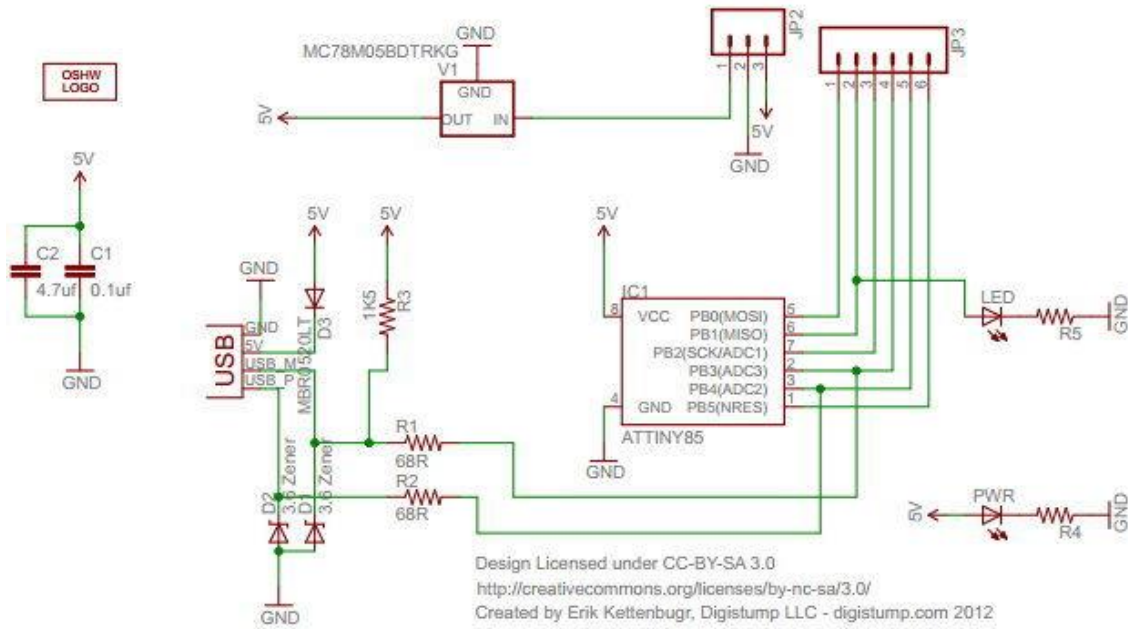
1. [Download Micronucleus bootloader](#) for ATTINY85
2. Extract the file (micronucleus-t85-master.zip) to any folder
3. You can find the bootloader file at micronucleus-t85-master\firmware\releases folder
4. Use micronucleus-1.06.hex for the bootloader

Installing Digispark USB Driver

Digispark use USB to communicate with computer, so your computer must install Digispark USB driver

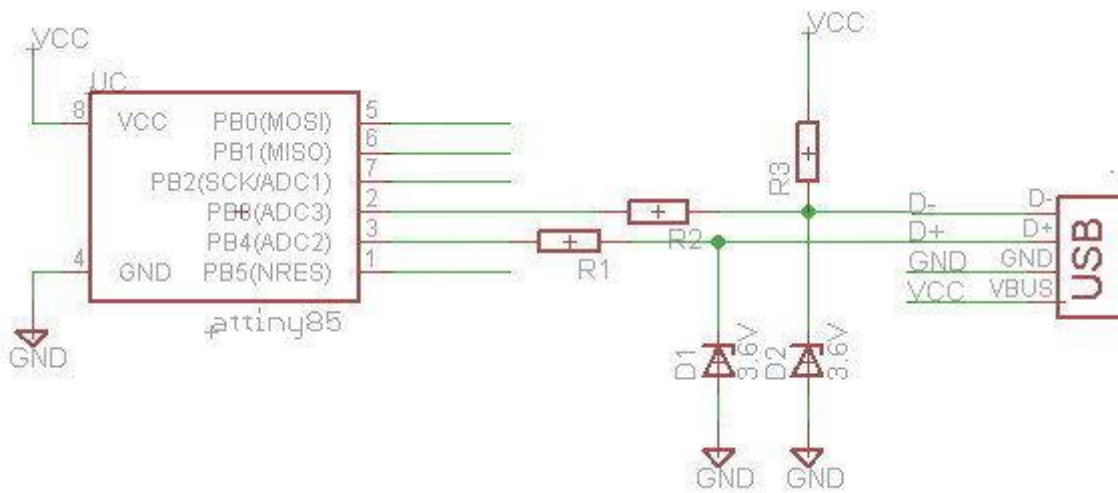
1. [Download Arduino for Digispark](#) which come with USB driver
2. Extract the file (DigisparkArduino-Win32-1.0.4-March29.zip) to any folder
3. Execute DigisparkArduino-Win32\DigisparkWindowsDriver\InstallDriver.exe to start installing the USB driver

Digispark Schematic



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 Created by Erik Kettenbugr, Digistump LLC - digistump.com 2012

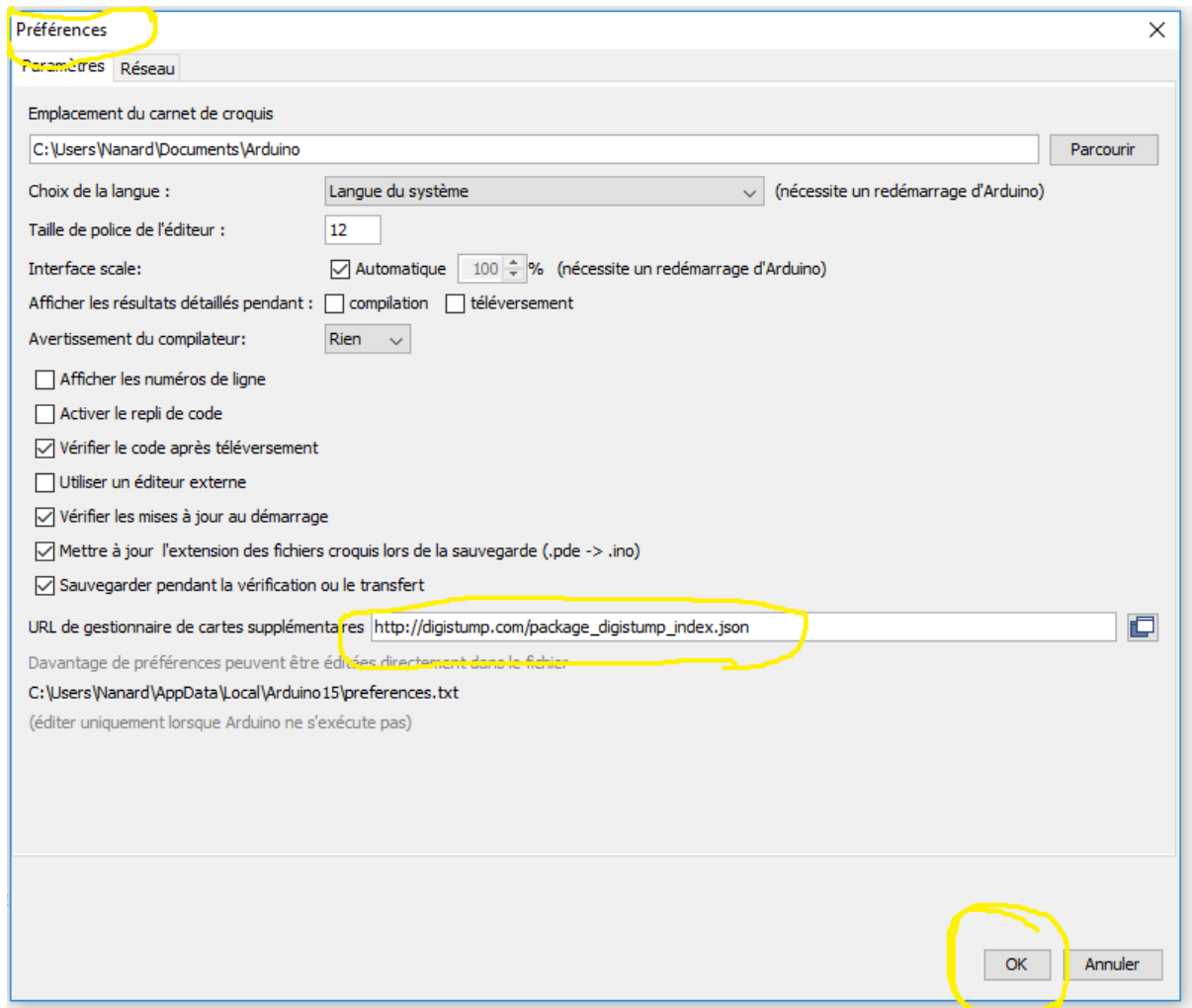
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I provide two schematics, first one is the official schematic for Digispark, the other one is for testing purposes which the 5v is get from USB port and hence it is lesser components and much more simple.

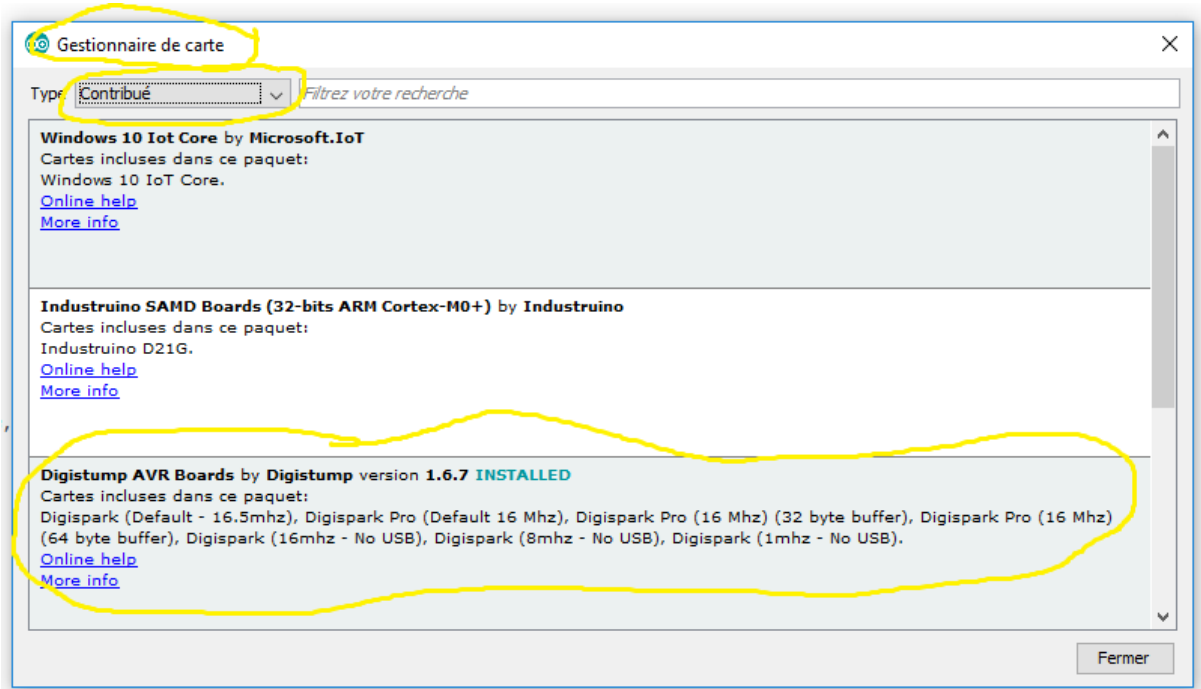
Configure Digispark Software

First in the IDE Arduino

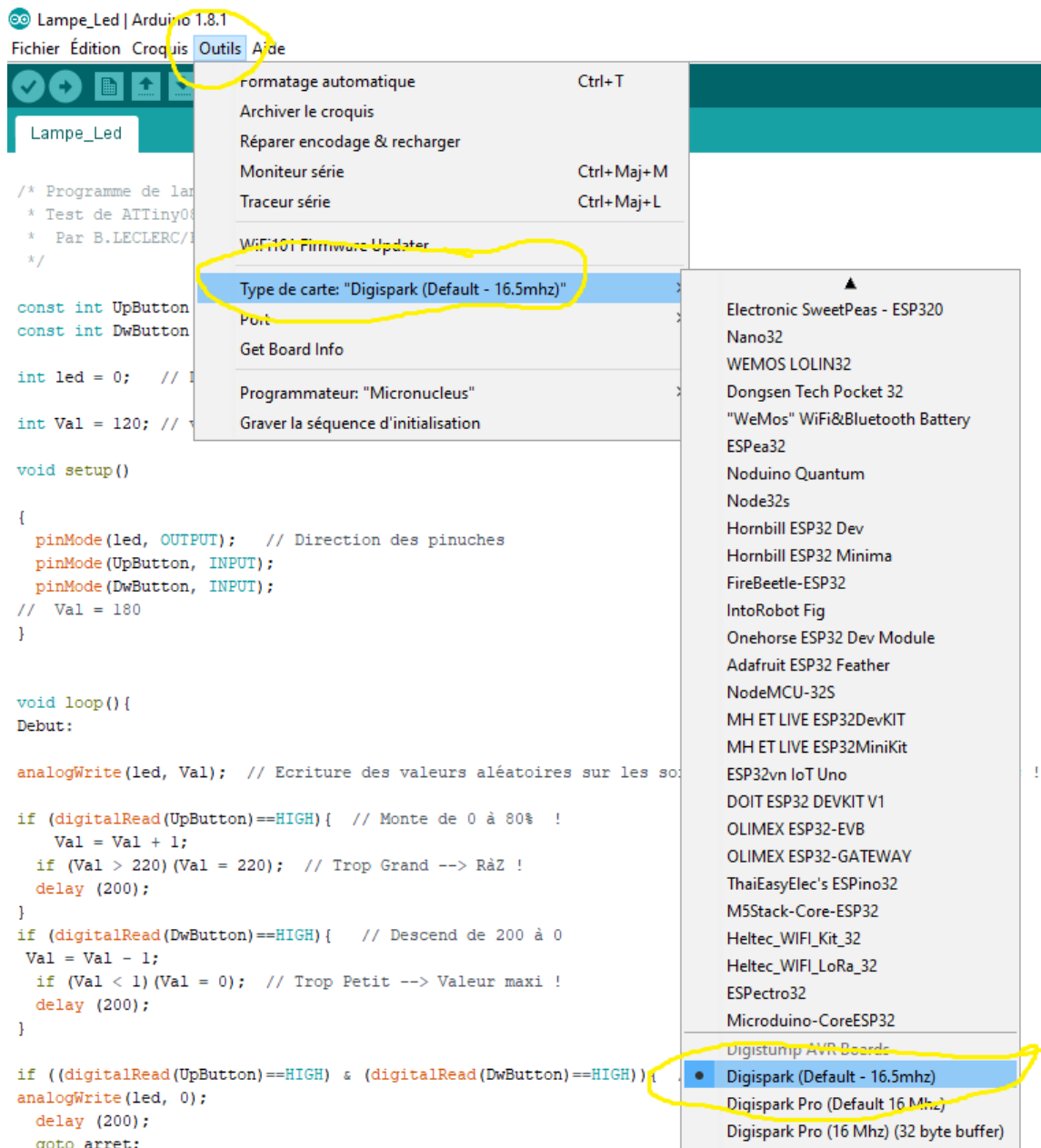


http://digistump.com/package_digistump_index.json

After in the IDE Arduino



Select a Board in Tools Menu



1. Run DigisparkArduino-Win32\Digispark-Arduino-1.0.4\arduino.exe to starting Arduino IDE
2. Click on Tools>Board>Digispark (Défaut - 16,5 mhz)
3. Click on Tools>Programmer>Nucléus

Upload Sketch : Example ...

```
/* Programme de lampe à LED avec réglage de l'intensité lumineuse.
```

```
* Test de ATTiny085 avec sortie PWM et entrées Boutons poussoir.
```

```
* Par B.LECLERC/FEELGOOD
```

```
*/
```

```
const int UpButton = 1; // Déclaration d' Entrees
```

```
const int DwButton = 2;
```

```
int led = 0; // Déclaration de Sorties
```

```
int Val = 120; // variables à valeurs calculée
```

```
void setup()
```

```
{
```

```
  pinMode(led, OUTPUT); // Direction des pinuches
```

```
  pinMode(UpButton, INPUT);
```

```
  pinMode(DwButton, INPUT);
```

```
// Val = 180
```

```
}
```

```
void loop(){
```

Debut:

```
analogWrite(led, Val); // Ecriture des valeurs aléatoires sur les sorties leds, pendant un certain temps !
```

```
if (digitalRead(UpButton)==HIGH){ // Monte de 0 à 80% !
```

```
    Val = Val + 1;
```

```
    if (Val > 220)(Val = 220); // Trop Grand --> RàZ !
```

```
    delay (200);
```

```
}
```

```
if (digitalRead(DwButton)==HIGH){ // Descend de 200 à 0
```

```
    Val = Val - 1;
```

```
    if (Val < 1)(Val = 0); // Trop Petit --> Valeur maxi !
```

```
    delay (200);
```

```
}
```

```
if ((digitalRead(UpButton)==HIGH) & (digitalRead(DwButton)==HIGH)){ // Arrêt !
```

```
    analogWrite(led, 0);
```

```
    delay (200);
```

```
    goto arret;
```

```
}
```

```
    goto Debut;
```

arret:

```
if ((digitalRead(UpButton)==HIGH) or (digitalRead(DwButton)==HIGH)){
```

```
    goto Debut;
```

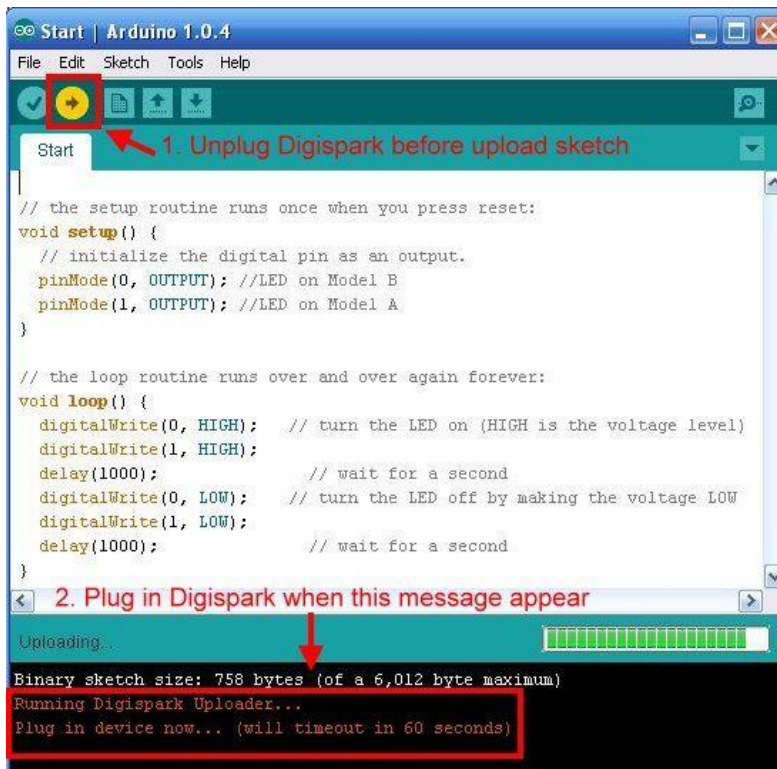


```
delay (500);
```

```
}
```

```
goto arret;
```

```
}
```



```
Start | Arduino 1.0.4
File Edit Sketch Tools Help

Start

// the setup routine runs once when you press reset:
void setup() {
  // initialize the digital pin as an output.
  pinMode(0, OUTPUT); //LED on Model B
  pinMode(1, OUTPUT); //LED on Model A
}

// the loop routine runs over and over again forever:
void loop() {
  digitalWrite(0, HIGH); // turn the LED on (HIGH is the voltage
  digitalWrite(1, HIGH);
}

Done uploading.
> Erasing the memory ...
erasing: 55% complete
erasing: 60% complete
erasing: 65% complete
>> Eep! Connection to device lost during erase! Not to worry
>> This happens on some computers - reconnecting...
>> Reconnected! Continuing upload sequence...
> Starting to upload ...
writing: 70% complete
writing: 75% complete
writing: 80% complete
> Starting the user app ...
running: 100% complete
-> Micronucleus done. Thank you!

Digispark (Tiny Core) on COM1
```

Follow step below to upload sketch to Digispark.

1. Unplug Digispark from computer before click on the Upload button
2. Click on Upload button now
3. Plug in Digispark to computer when it prompt for "Plug in device now..."
4. If you see "running: 100% complete". Congraturation! you have own a working Digispark.