

# Microduino

A Product of MakerModule Technologies Inc.,  
美科科技出品

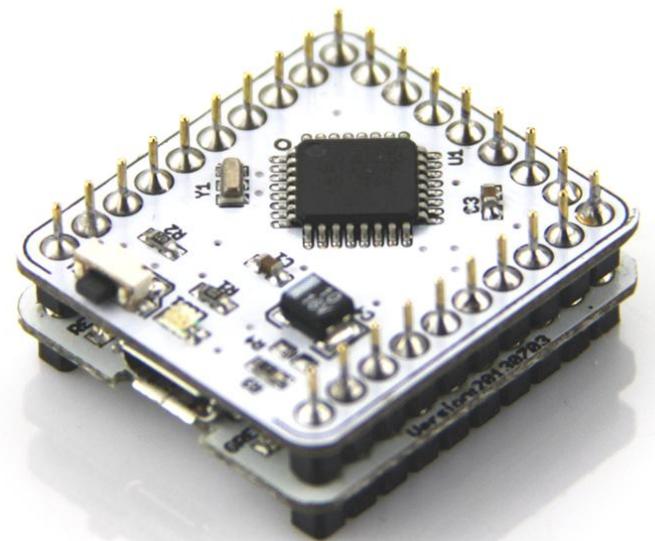
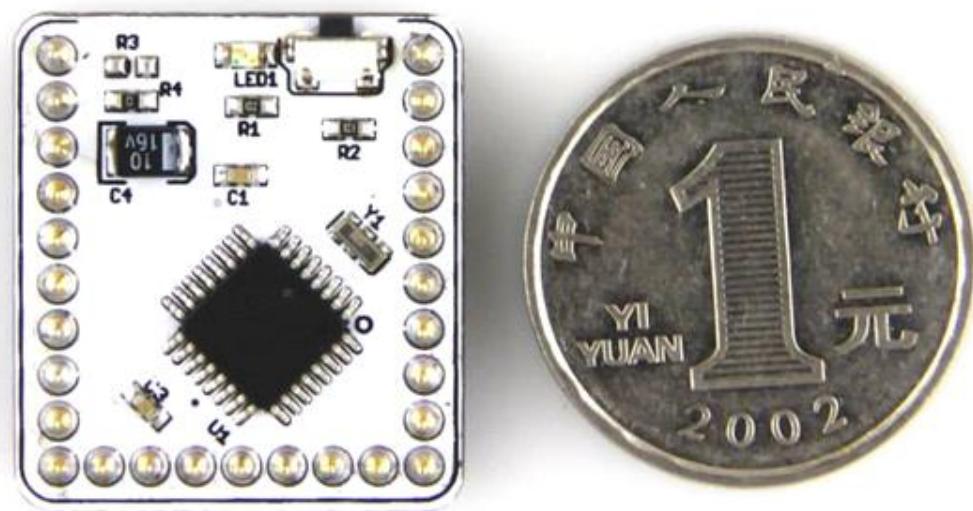
Aug/2014  
2014年8月

Facebook: <http://www.facebook.com/Microduino>  
Twitter: <http://www.twitter.com/Microduino>  
Wiki: <http://wiki.Microduino.cc>  
G+: <https://plus.google.com/communities/117933845827174624649>

# Microduino 是 尺寸最小的开源电子积木

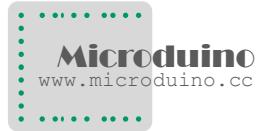
**Microduino** is... Arduino compatible + Small size  
+ Stackable pin-out + Various extension modules  
+ Open source + Low price == **Awesome!**

**Microduino** 电子积木兼容 AVR, STM32, MSP  
, 51系列+ 尺寸小巧 + 可堆叠 + 超过40种功能扩  
展模块 + 软硬件全部开源 == **Niubility !**



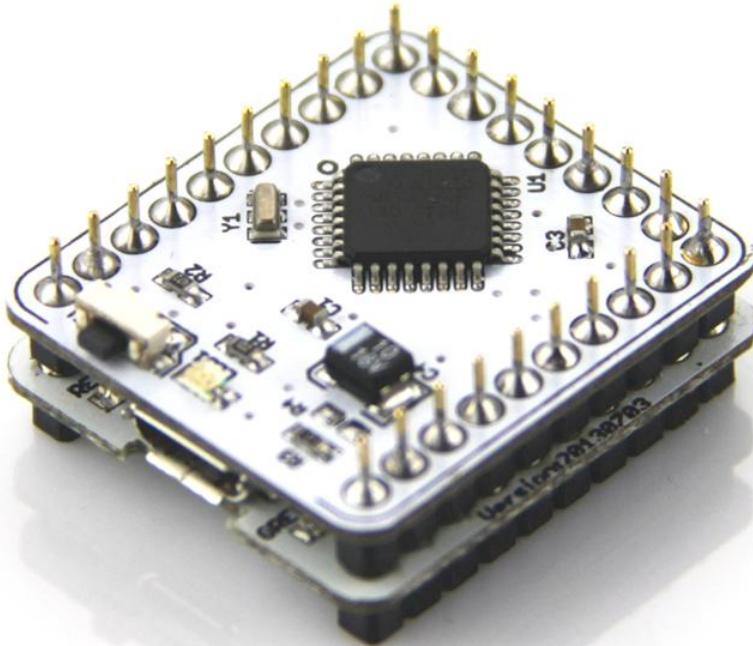
# Microduino: Small size, Great Power

Microduino:小身材，大能量！



Small  
小巧

As a Coin 如一元硬币



Stackable  
堆叠  
UPin27 Pinout

Compatible  
兼容  
Arduino

Crowdwin  
众营

Grow with community

Open 开放

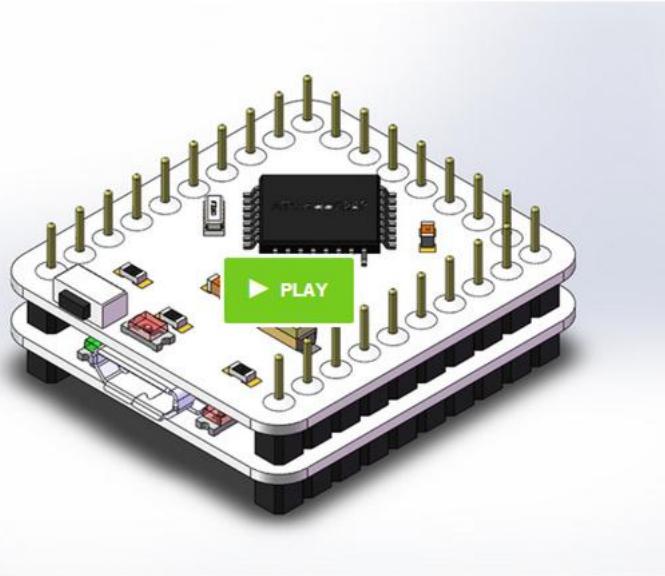
Open source Hardware  
开源硬件

## Microduino: Arduino in your pocket, small, stackable, smart

by Microduino Studio

Home   Updates 9   Backers 1,474   Comments 172   Beijing, China   Hardware

Funded! This project successfully raised its funding goal less than a minute ago.



**1,474**  
backers  
**\$134,563**  
pledged of \$20,000 goal  
**0**  
seconds to go

Funding period  
Sep 9, 2013 - Oct 19, 2013 (40 days)

Project by  
Microduino Studio  
Los Angeles, CA  
Contact me

First created · 2 backed

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Website: [microduino.cc](http://microduino.cc)

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**Microduino is... Arduino compatible + Small size + Stackable pin-out + Various extension modules + Open source + Low price == Awesome!**

**MICRODUINO FEATURED IN...**

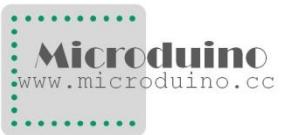
 Microduino: A typical Arduino microcontroller board is pretty small, about the size of a credit card. This makes it suitable for embedding into all sorts of electronic devices.

# Kickstarter Success!

Sep/09 ~Oct/19/2013  
Final achieved: \$134,563 (620%)

# Microduino Overview

## 美科科技概况



**4 founders**

Beijing Univ. Fudan Univ. etc.,

**>300**

wiki pages 维基内容

**5**

Continents users 大洲用户

**2012/11/11**

founded 成立

**>40**

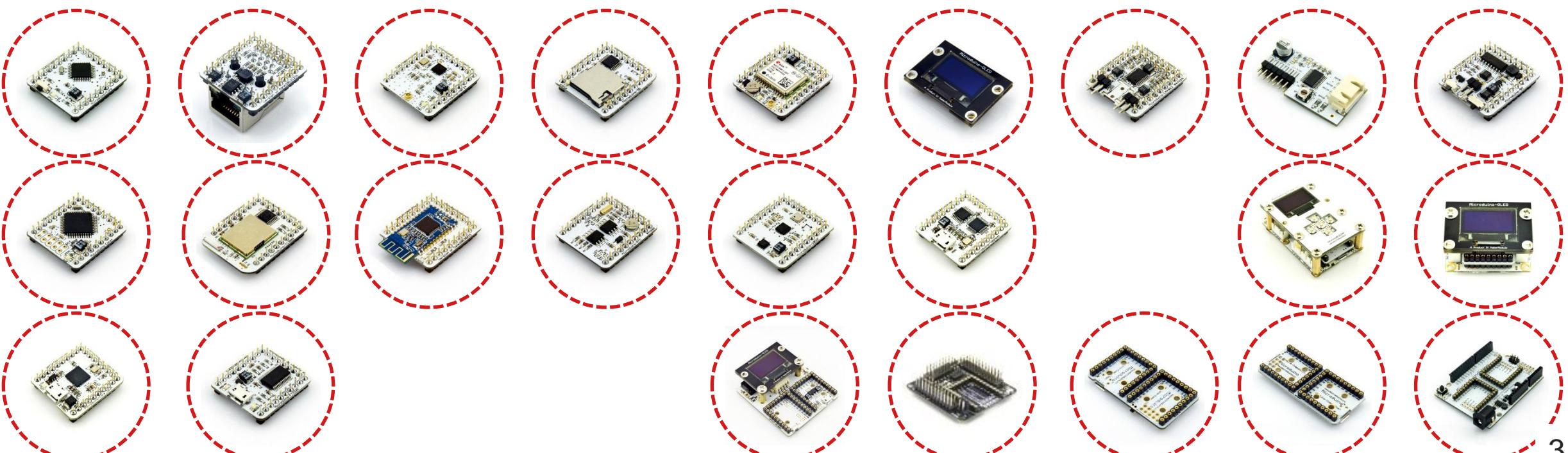
Microduino modules 模块

**>500**

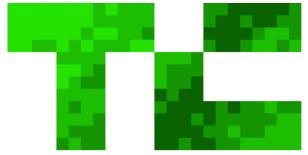
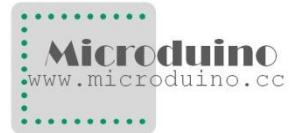
Applications 应用

**~10,000**

Community members 成员



# Microduino Features 国内外评价



Small, Stackable And Cheap,  
Microduino Puts 'Arduino  
(compatible) In Your Pocket'



Microduino: A typical Arduino microcontroller board is pretty small, about the size of a credit card. This makes it suitable for embedding into all sorts of electronic devices.



Small, Stackable, and uniform Upin27 interface make Microduino different from other Arduino compatible boards ...



## Hack Things



Being compact also means users don't have to pay for circuitry which they are not using, making it highly cost-efficient...

Microduino: A low-cost, tiny Arduino for small batch indie hardware ...

The result is a smart, powerful, low-cost Microduino of the size of a quarter...



Microduino series can be easily stacked together through the Upin27, and all modules are delivered ready to stack.

# What can be done with Microduino? 能用 Microduino 做什么？

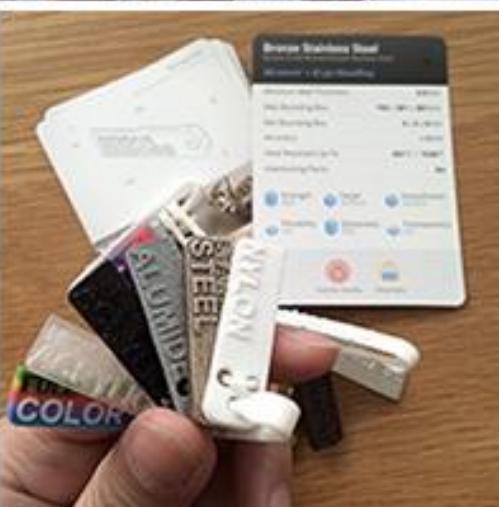


Double  
click  
here

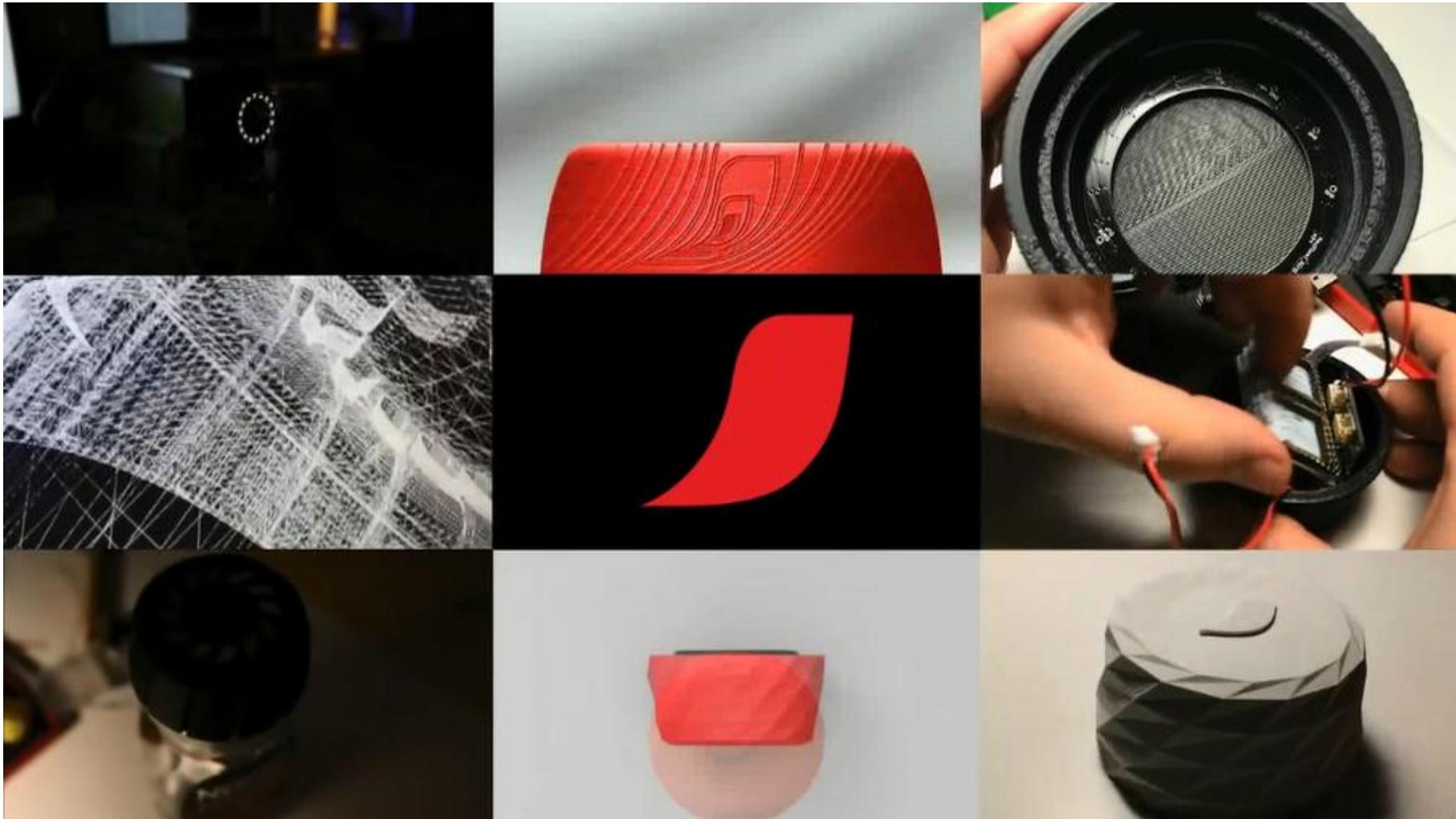


# Microduino Applications 应用

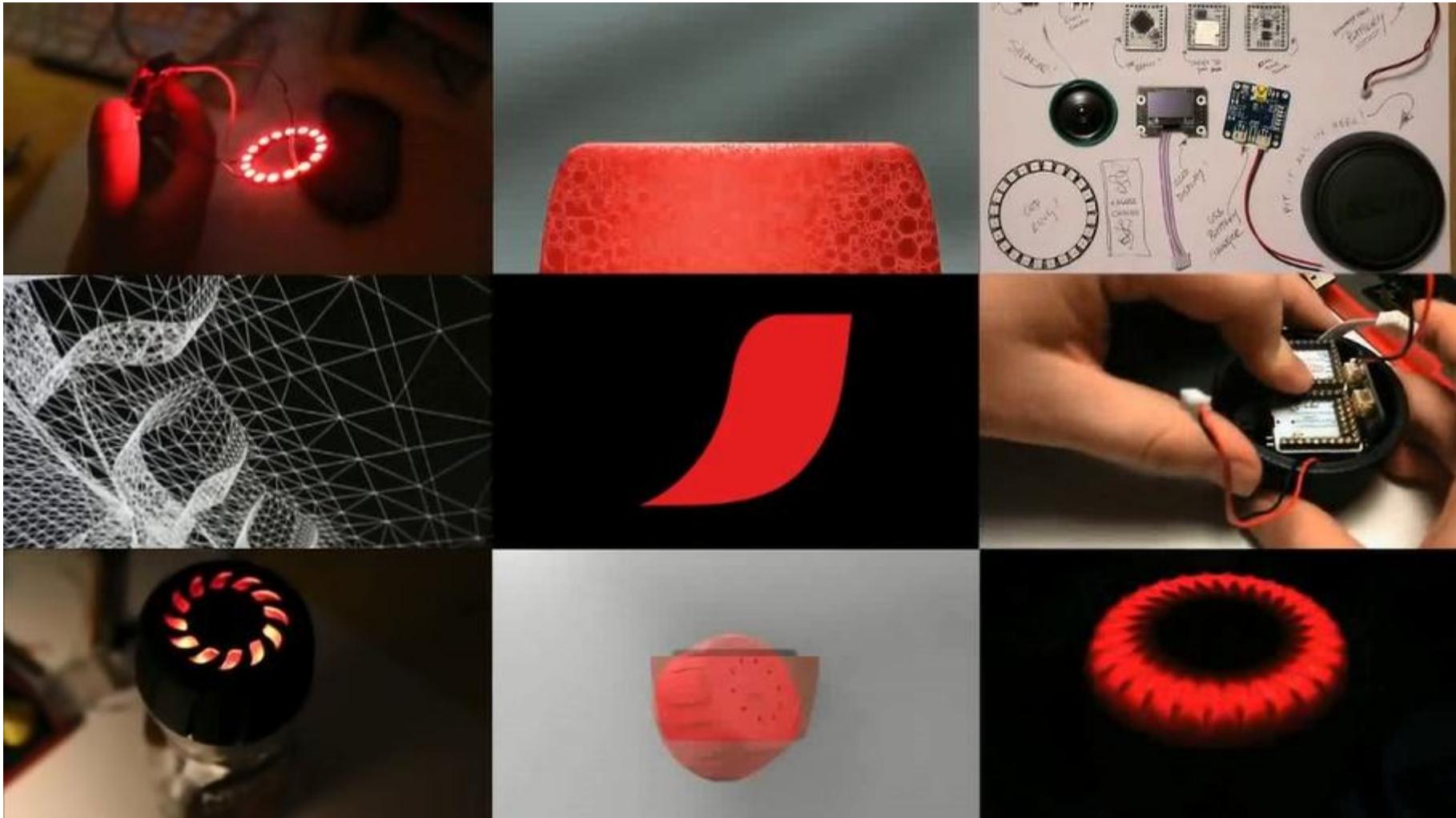
Nescafe-Alarm-Cap 雀巢闹钟瓶盖

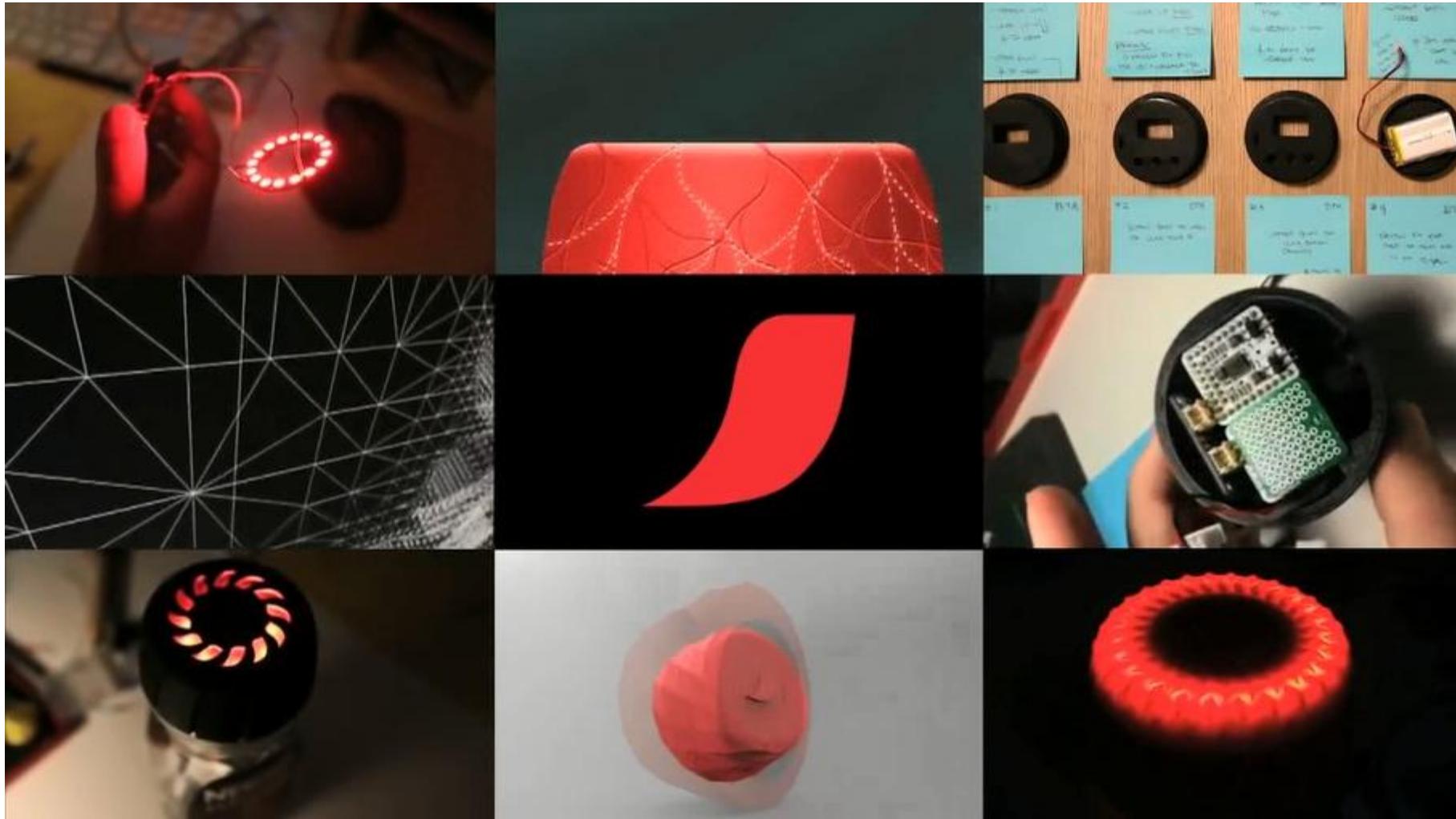


In recent most famous Nescafe Alarm Cap product, there are 6 different type microduino modules used in the small cap: Microduino-Core, -RTC, -LM4863, -SD, -BM, -OLED



Microduino  
inside







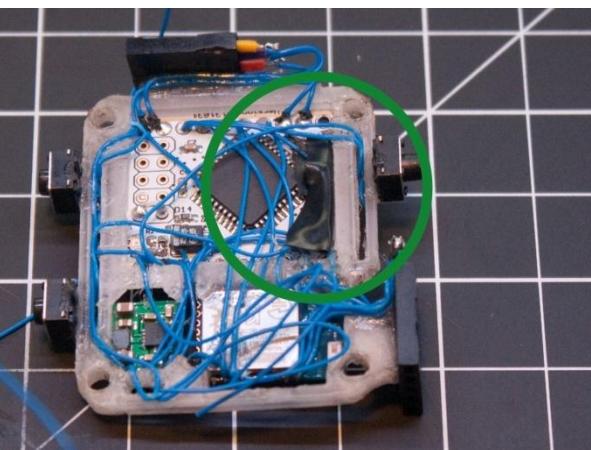
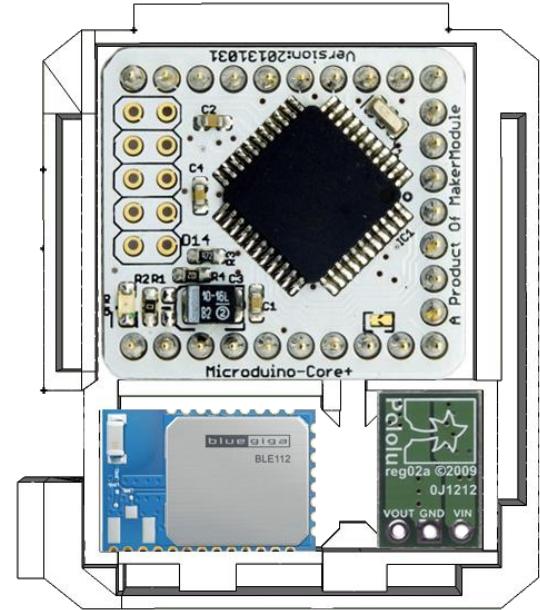


<http://www.notcot.com/archives/2014/01/microduino-up-close.php>

<http://www.notcot.com/archives/2014/03/instagram-electronics-overdose.php>

# Microduino Applications 应用

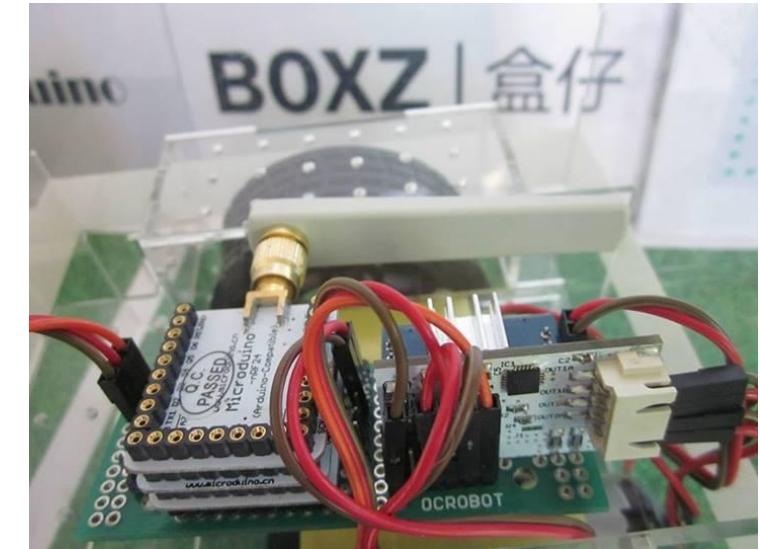
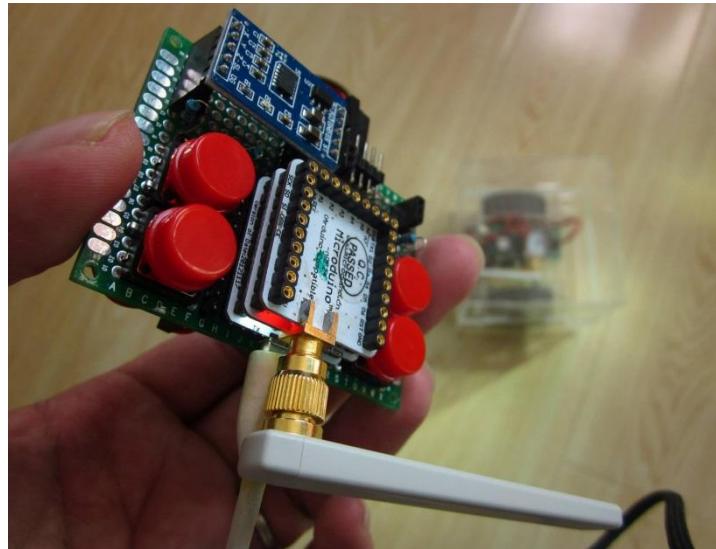
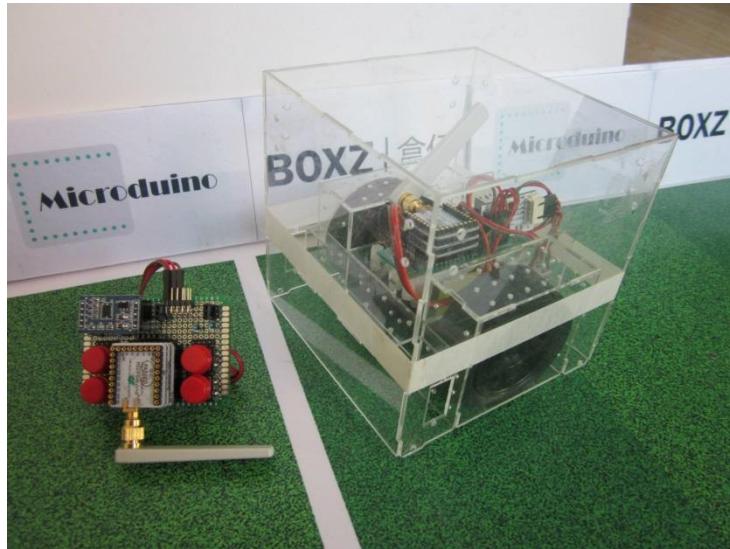
## Open Source Watch 开源手表



# Microduino Applications 应用



Robot 机器人 Microduino inside



# Microduino Applications 应用

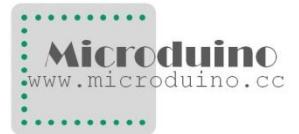


IOT (Internet of Things) 物联网

Microduino  
inside

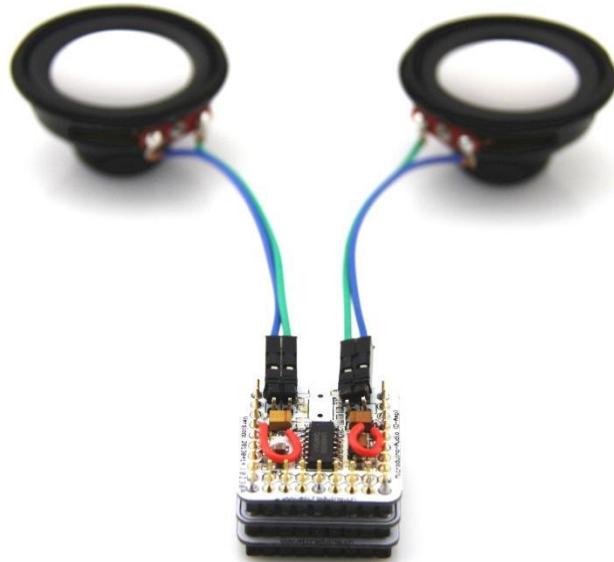
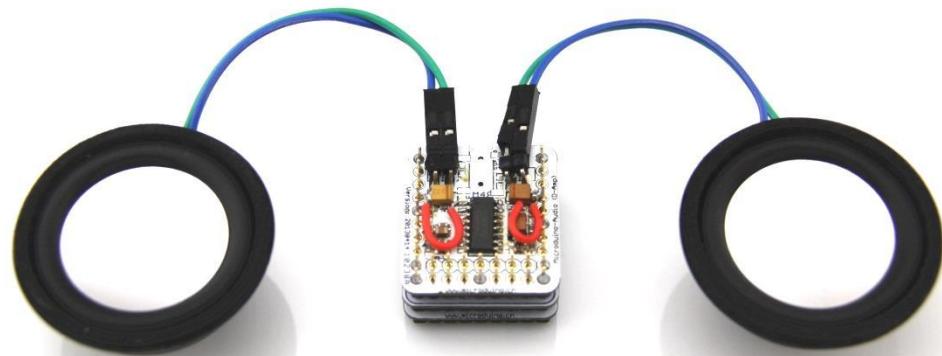


# Microduino Applications 应用



Music Box 音乐盒

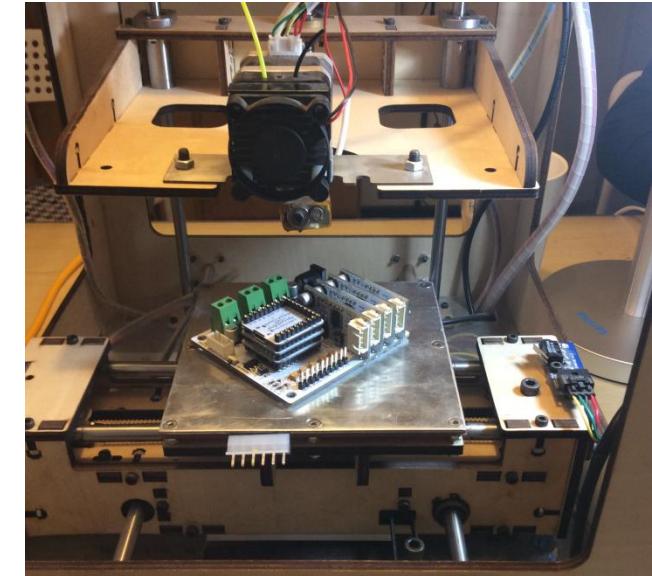
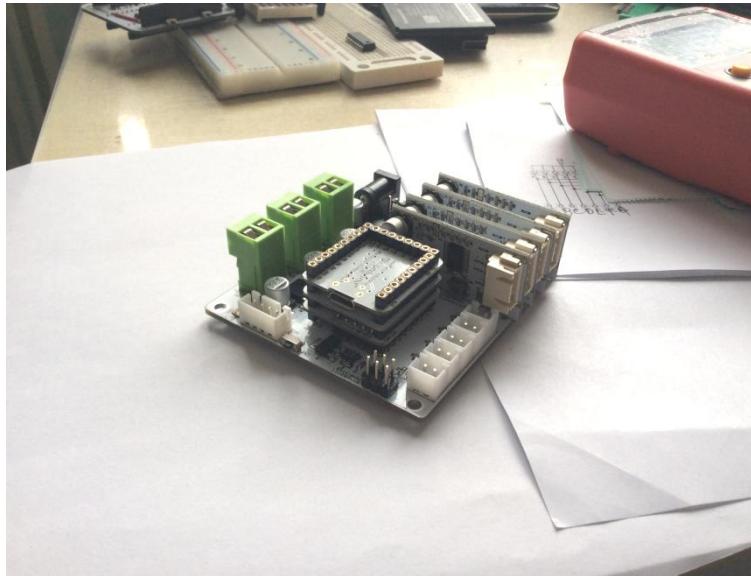
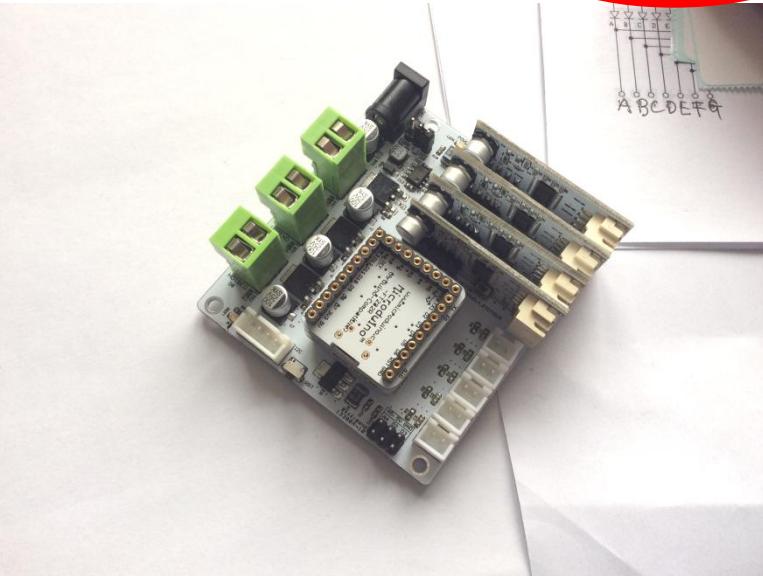
Microduino  
inside



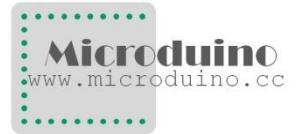
# Microduino Applications 应用



3D Printer 3D打印机

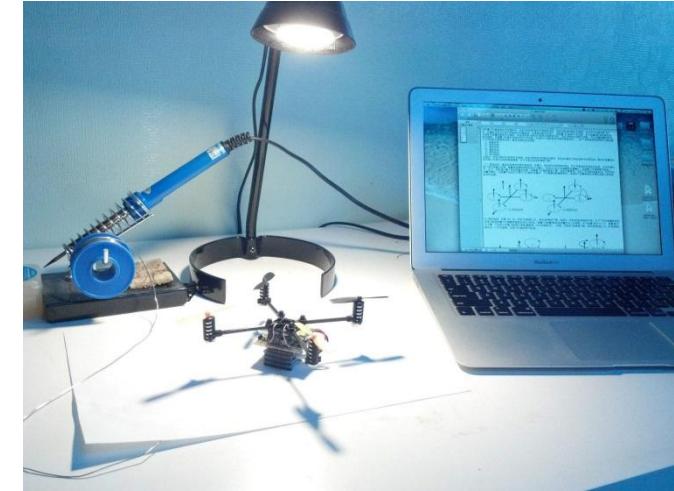


# Microduino Applications 应用



QuadCopter 四轴飞行器

Microduino  
inside



# Microduino Applications 应用



GPS tracker 自行车 GPS轨迹记录仪

Microduino  
inside



@stanleyhuangyc



@stanleyhuangyc



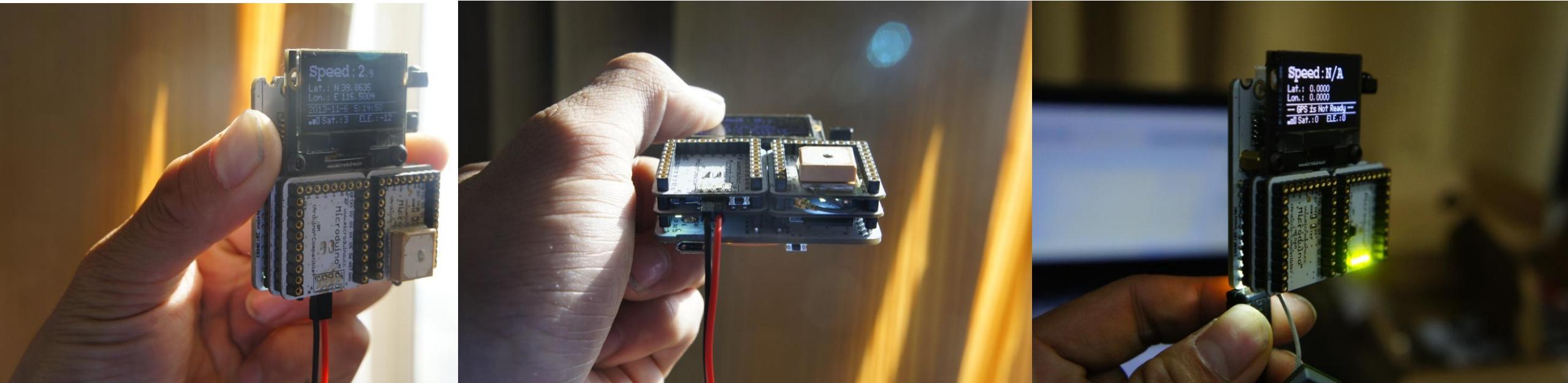
@stanleyhuangyc

# Microduino Applications 应用

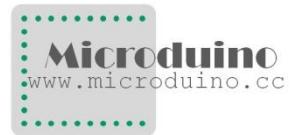


Speedometer 计速计

Microduino  
inside



# Microduino Applications 应用

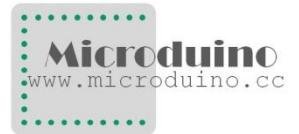


Smart Garden 智能花园

Microduino  
inside

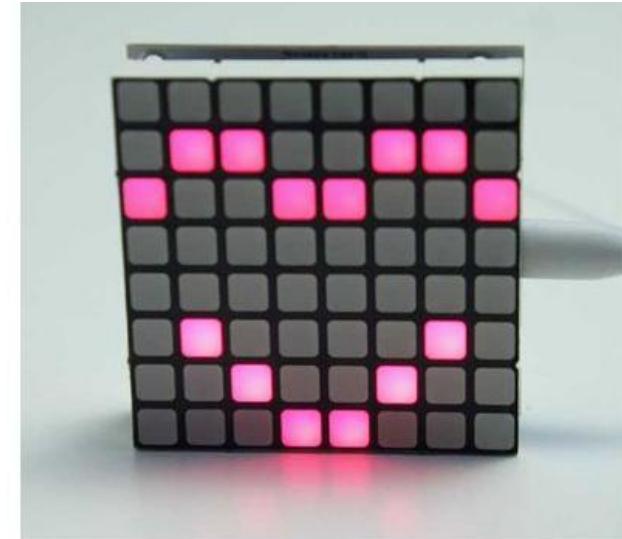
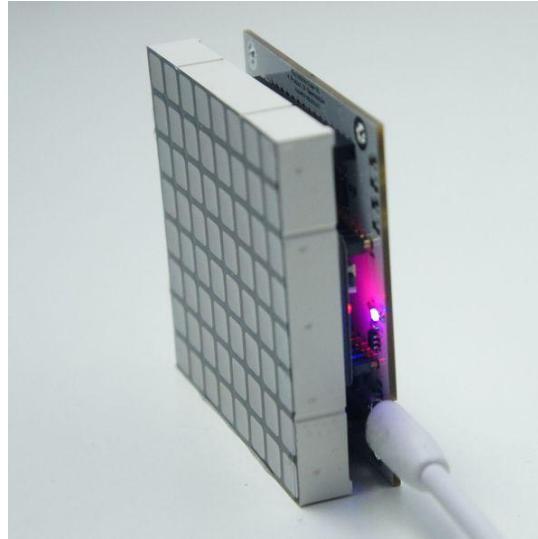
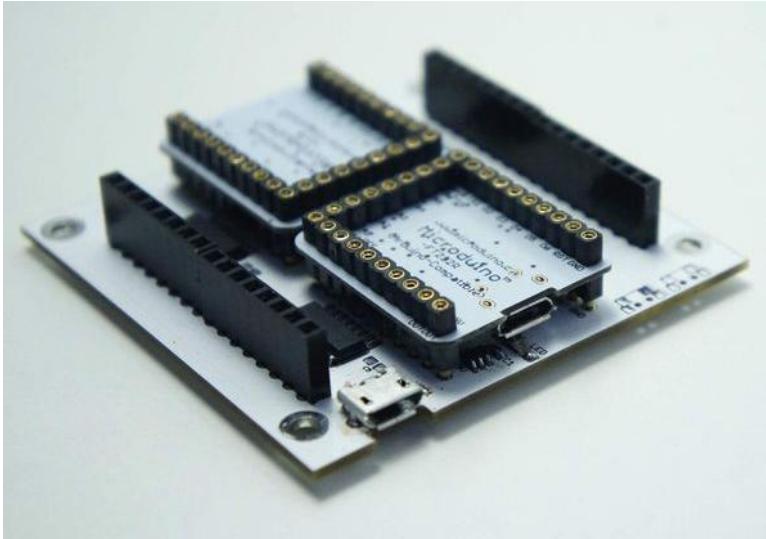


# Microduino Applications 应用



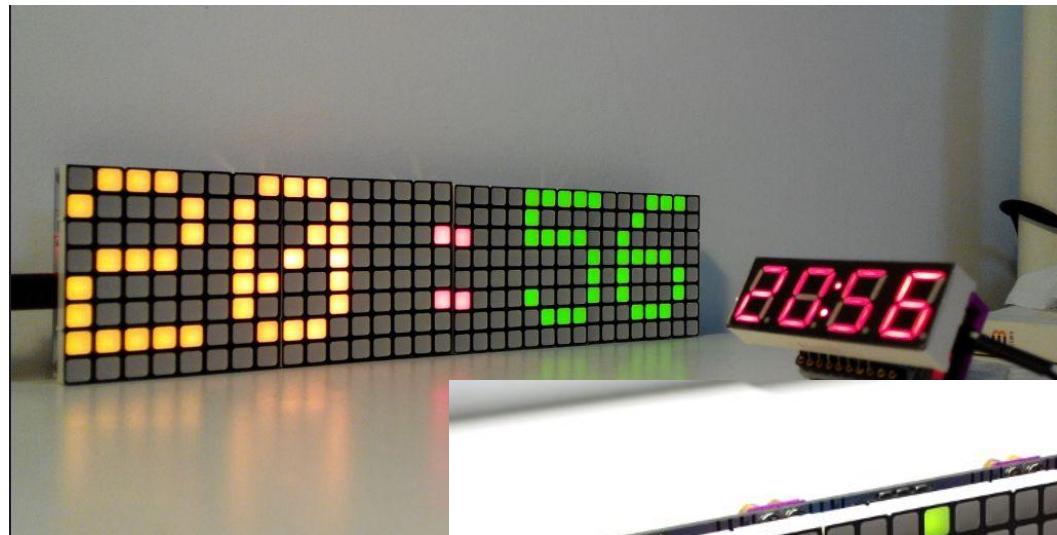
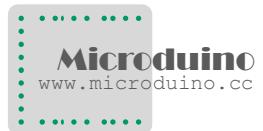
LED Matrix LED 点阵

Microduino  
inside

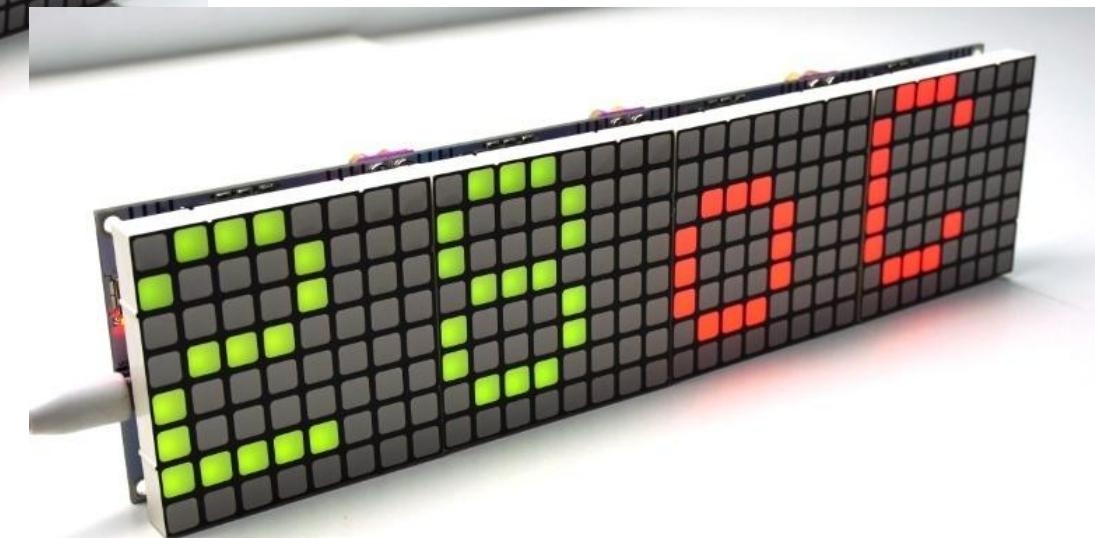
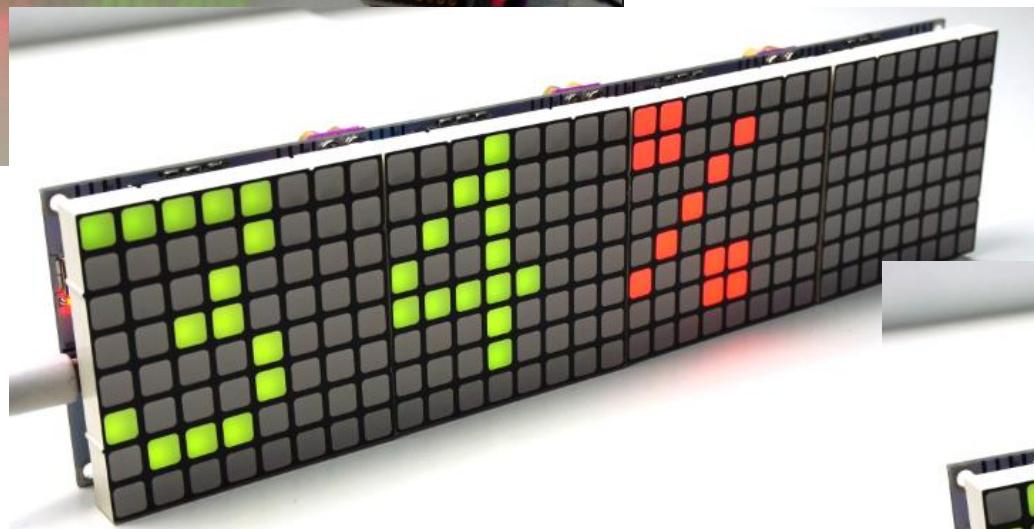


# Microduino LED Matrix Display

## Microduino LED 点阵显示



Microduino  
inside

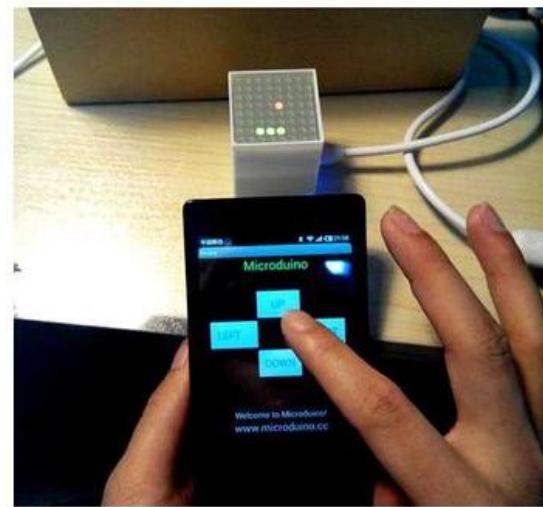
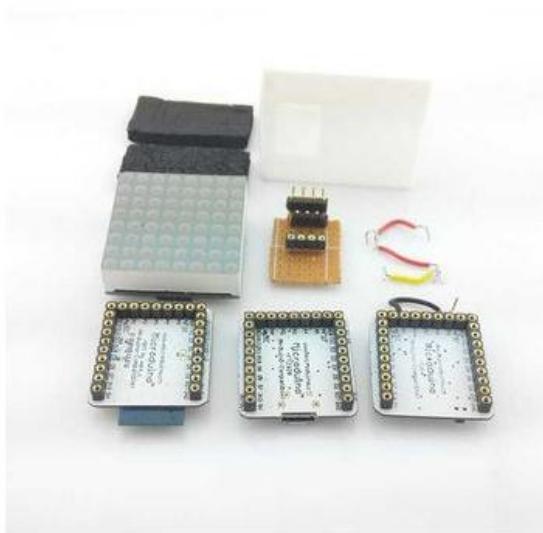


# Microduino Applications 应用



Interactive Game 互动游戏

Microduino  
inside

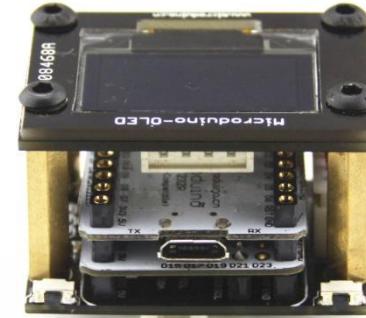


# Microduino Applications 应用

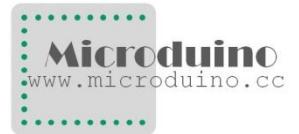


OBDII Device OBDII 汽车诊断系统

Microduino  
inside

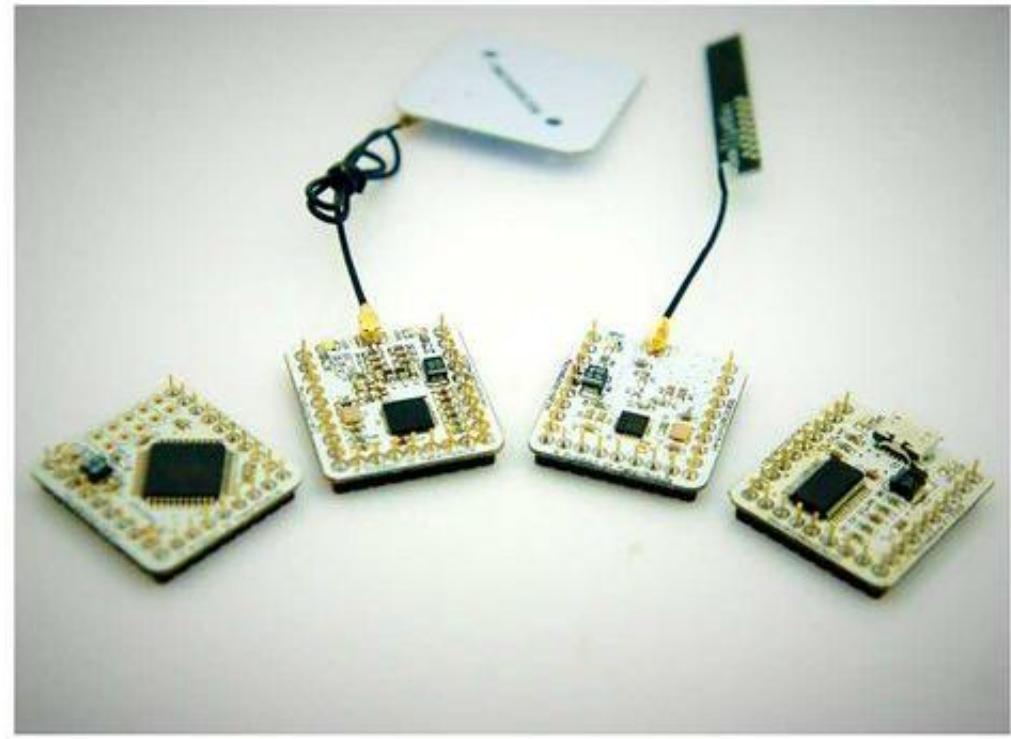
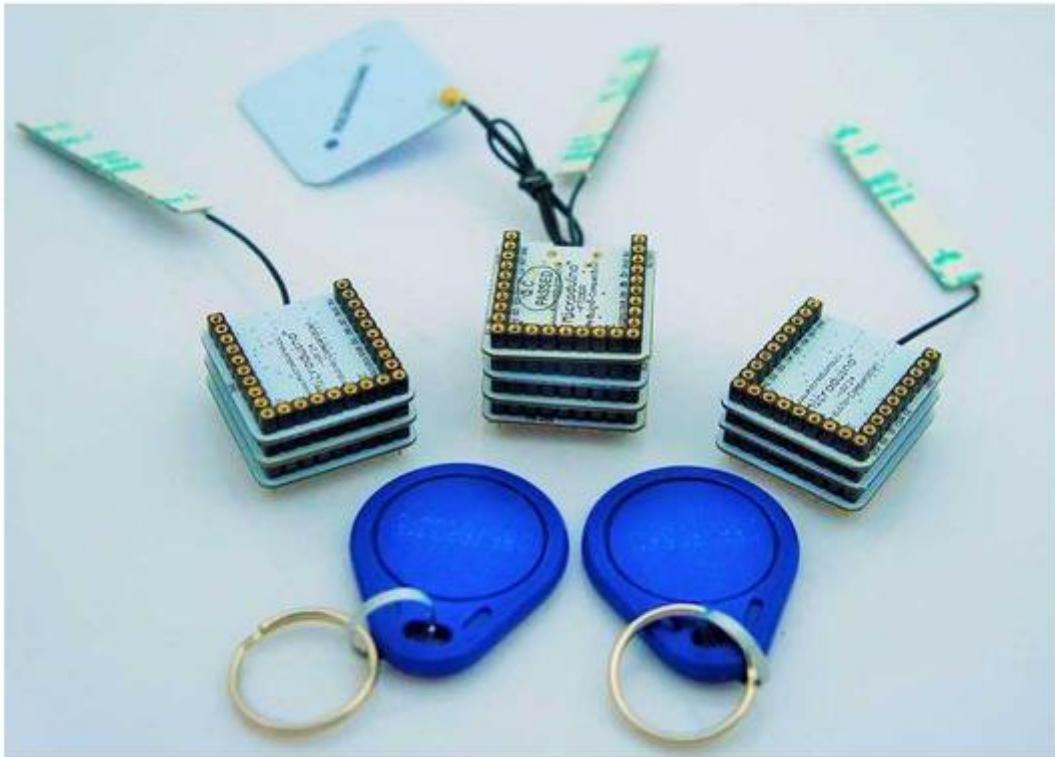


# Microduino Applications 应用



NFC 近场通信

Microduino  
inside



# Microduino Applications 应用

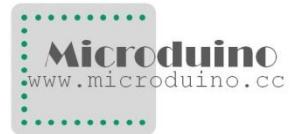


GPRS/GSM Feature Cell phone  
GSM/GPRS 设备

Microduino  
inside

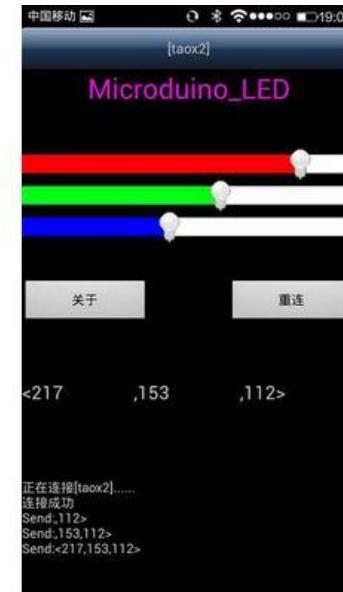
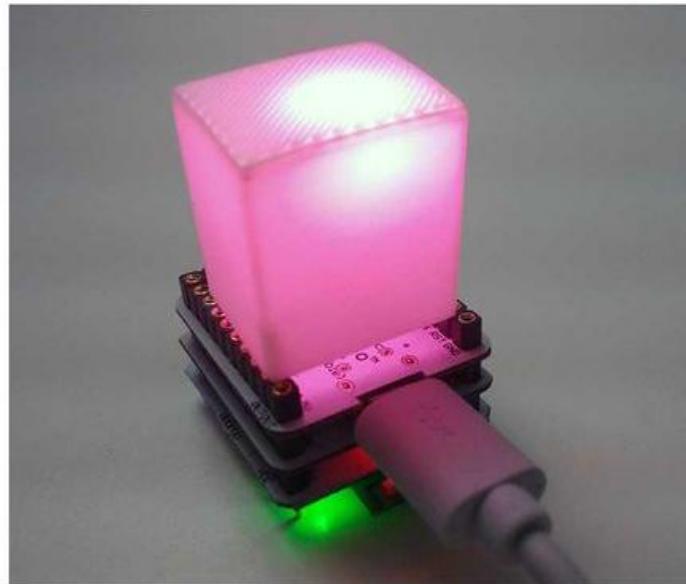
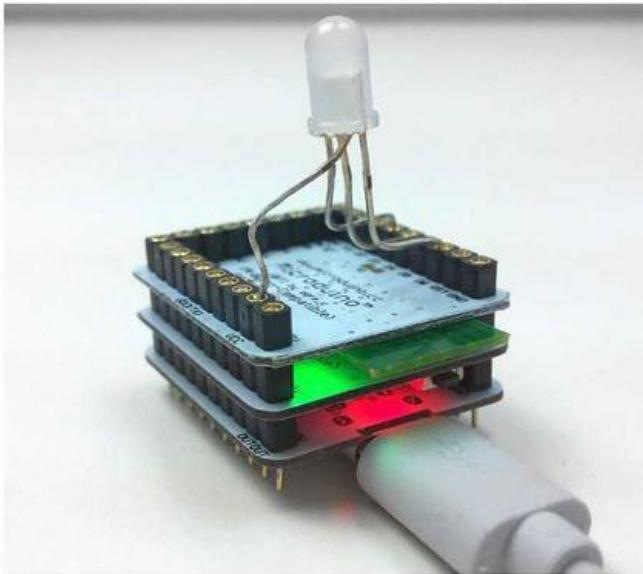


# Microduino Applications 应用

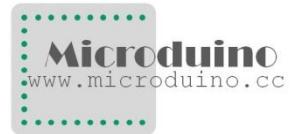


RGB LED lamp 手机控制LED 灯泡

Microduino  
inside

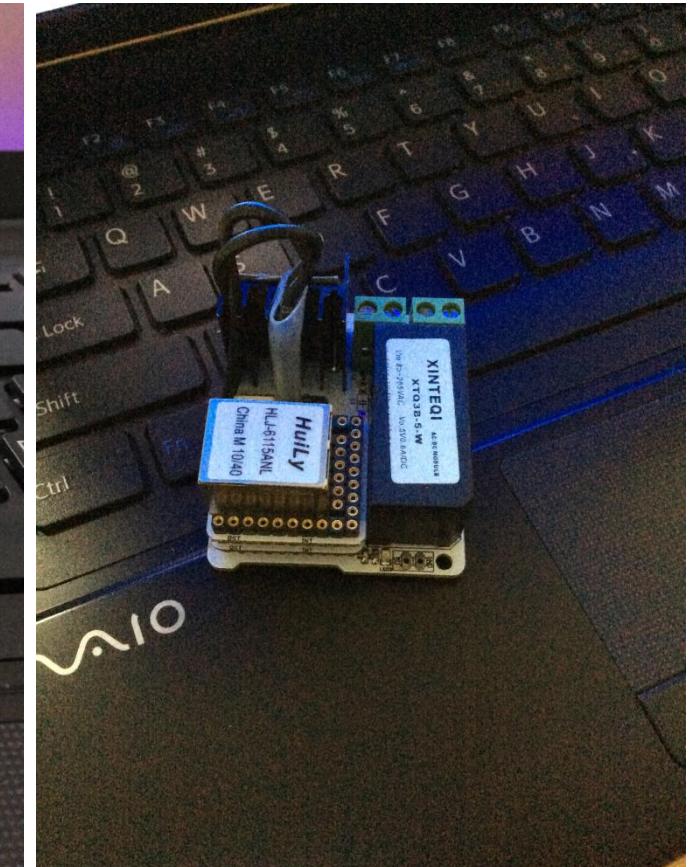
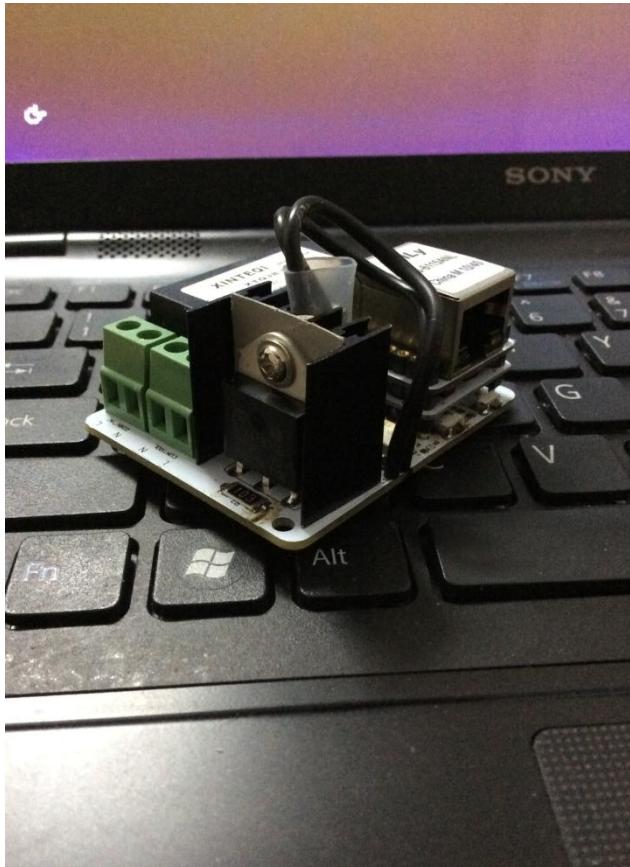


# Microduino Applications 应用



Wifi Plugin 插座

Microduino  
inside



# Microduino Applications 应用



Portable Weather Station 迷你气象站

Microduino  
inside



# Microduino Applications 应用

Pebble talk to Microduino

Microduino  
inside

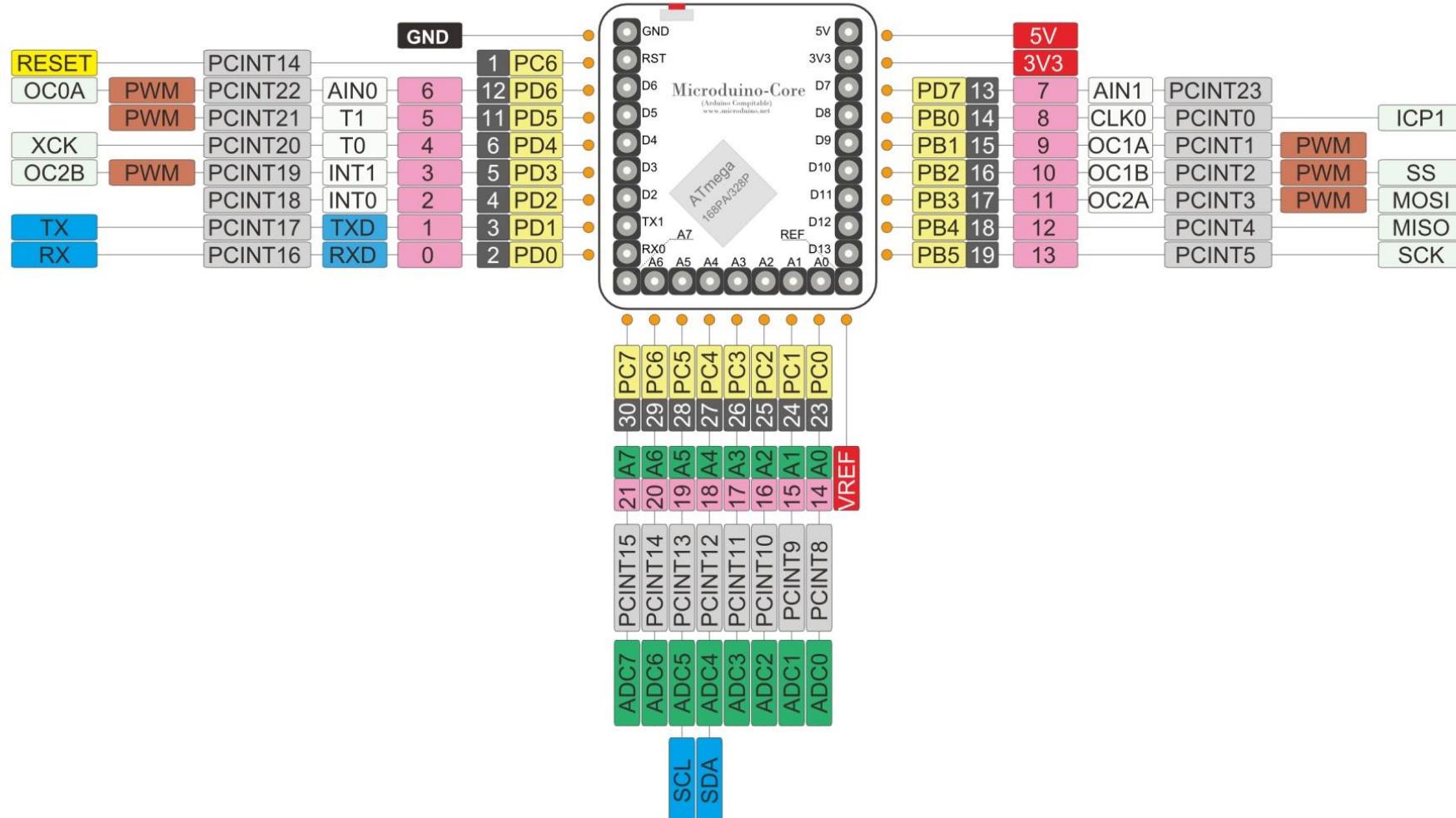


# The Features of Microduino

# Microduino 特色

# Microduino Upin27 Standard Pinout

# Microduino Upin27 标准规范



# Microduino UPin27 Cover AVR, STM32, MSP430, 51 series

## Microduino UPin27 兼容 AVR, STM32, MSP430, 51 系列

**STM32**

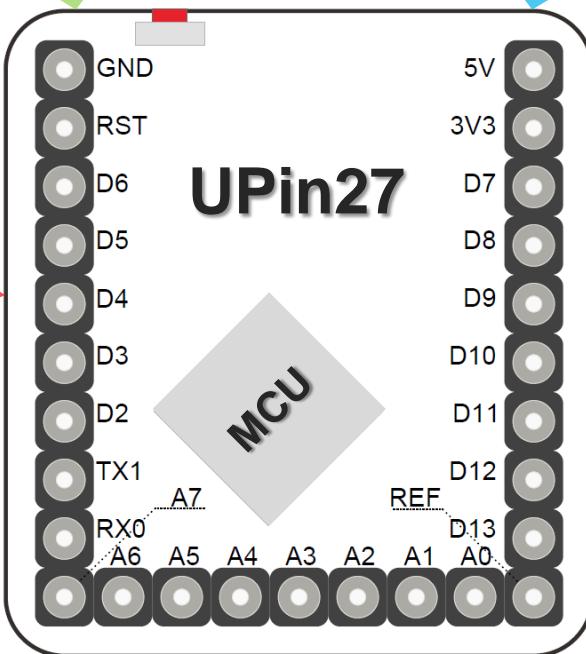
ST Microelectronics  
32-bit MCU

**MSP430**

TI  
16-bit MCU

**AVR**

Arduino (driven by Atmel)  
8-bit MCU



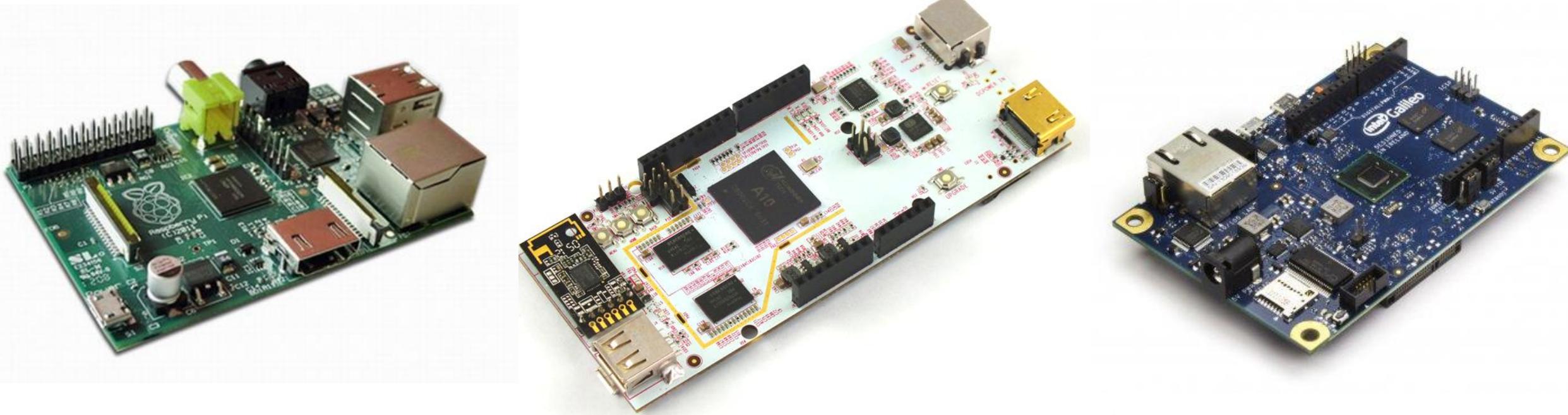
**51**

The most popular 8-bit MCU

UPin27 unified the pinout of many MCUs  
UPin27 统一多种MCU应用接口

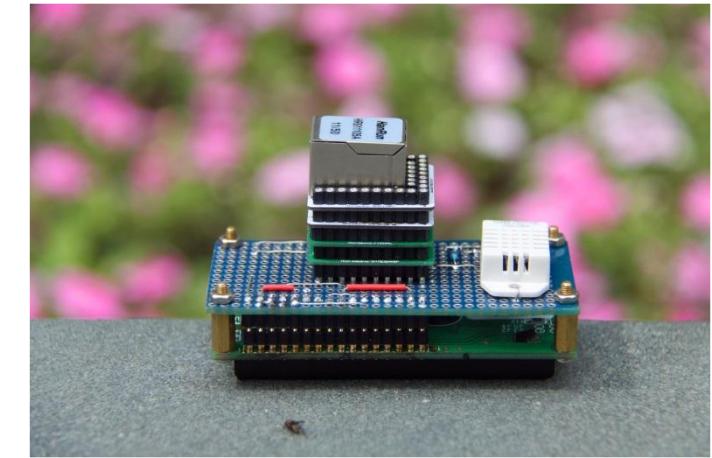
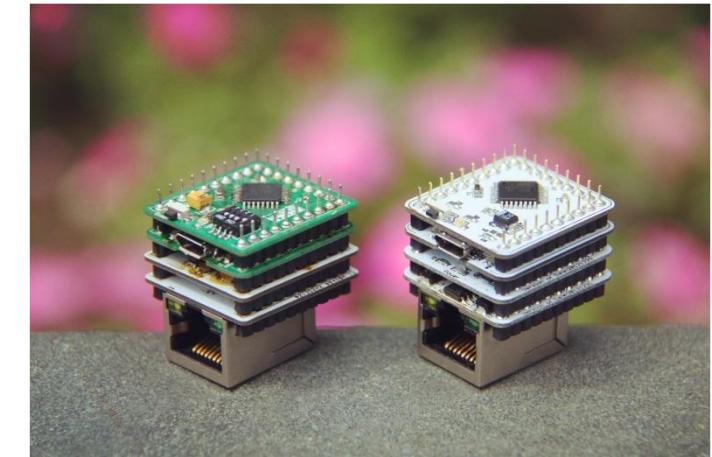
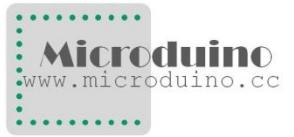
# Microduino UPin27 connect to Raspberry PI, PCDuino, Intel Galileo

## Microduino UPin27 接驳 树莓派、PCDuino, Intel 伽利略



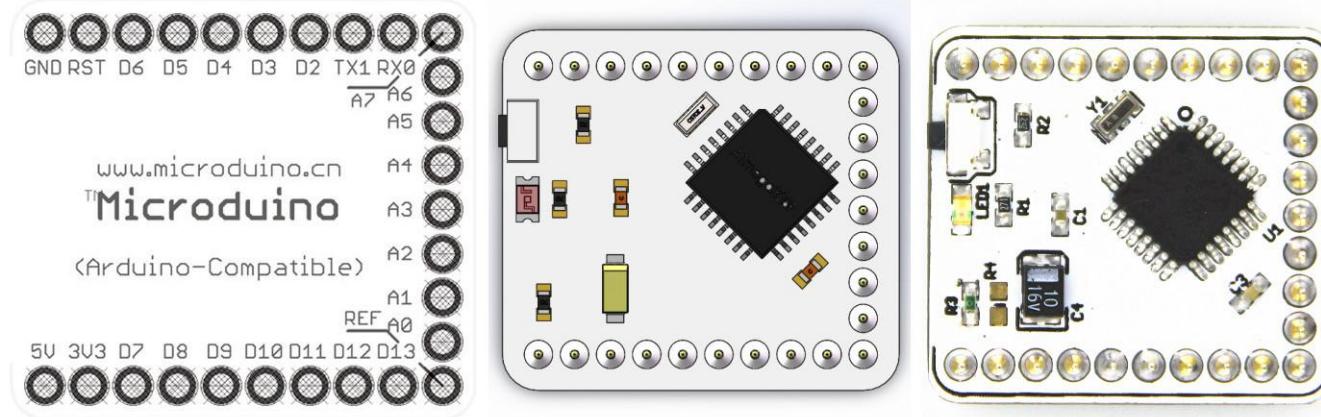
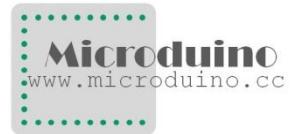
# Microduino Stackable

## Microduino 可堆叠



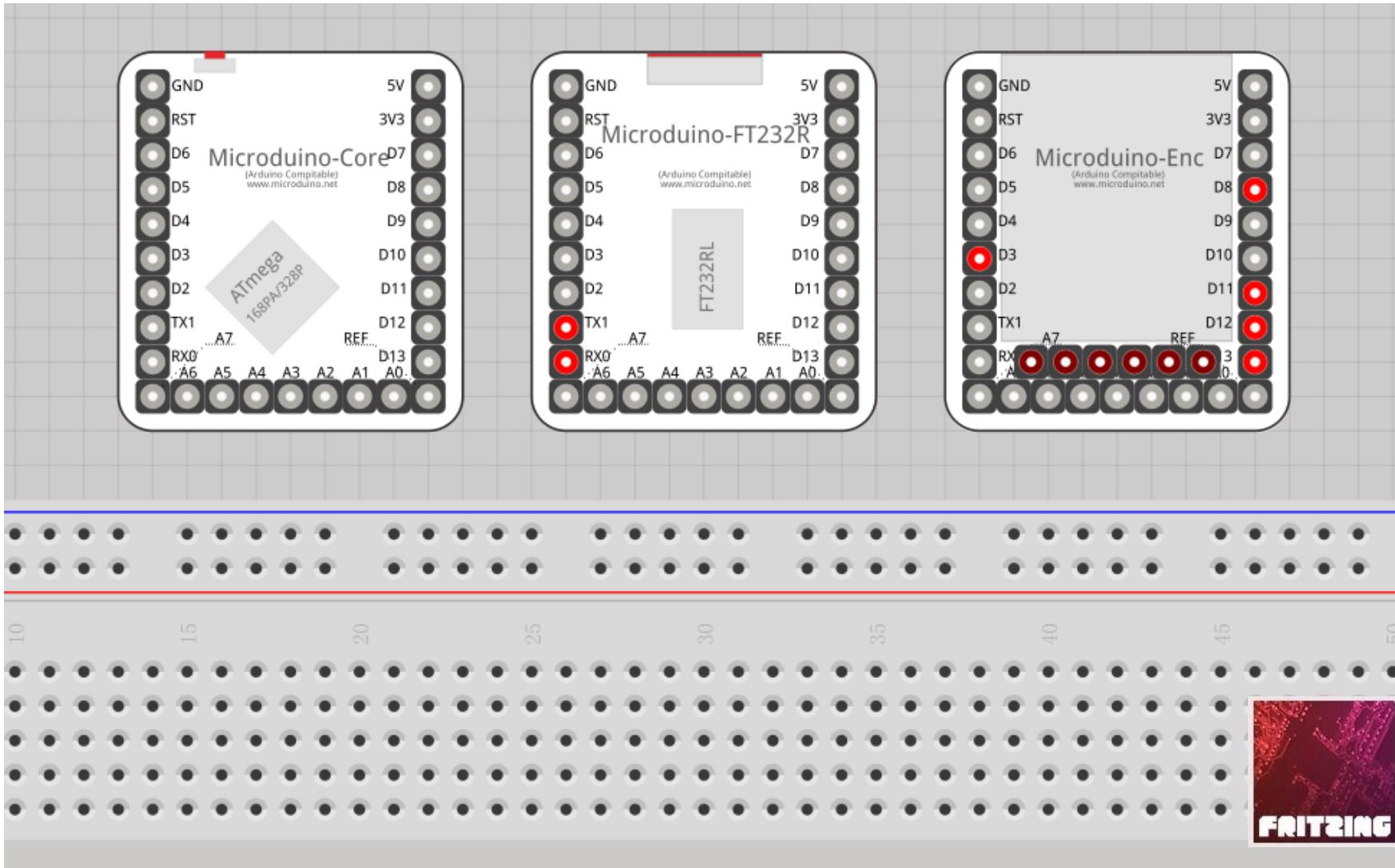
# Microduino Upin27 Standard Pinout

## Microduino Upin27 标准规范

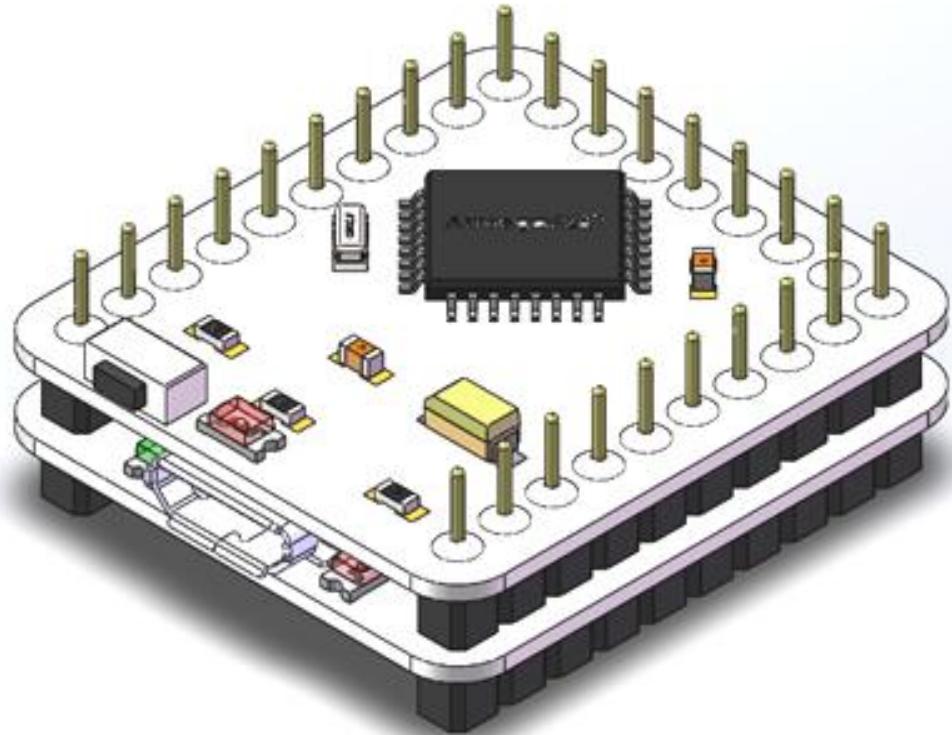
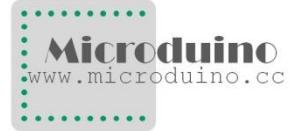


Micromodule	RX0	TX1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	A0	A1	A2	A3	A4	A5	A6	A7	5V	3V3	GND
	RX	TX	INT0									MISO	MOSI	SCK					SDA	SCL					
Core	RX0	TX0																						IN	
Core+	RX0	TX0	RX1	TX1																				IN	
FT232RL	TX0	RX0																					OUT	OUT	
ENC28J60			IRQ				CS			SO	SI	SCK												IN	
nRF24L01+			INT					CSN	CE	SO	SI	SCK												IN	
CC3000			IRQ					EN	CS	DI	DO	SCK												IN	
BT	TX	RX	(TX)	(RX)				(TX)	(RX)															IN	
NEO-6M	TX	RX	(TX)	(RX)																				IN	
SD							CS			DO	DI	SCK	CD											IN	
RTC																		SDA	SCL					IN	
10DOF																		SDA	SCL					IN	
LM4863								L	R															IN	
BM										SS	SI	SO	SCK										OUT/IN	OUT	
smartRF			INT															SDA	SCL					IN	
NFC																								IN	

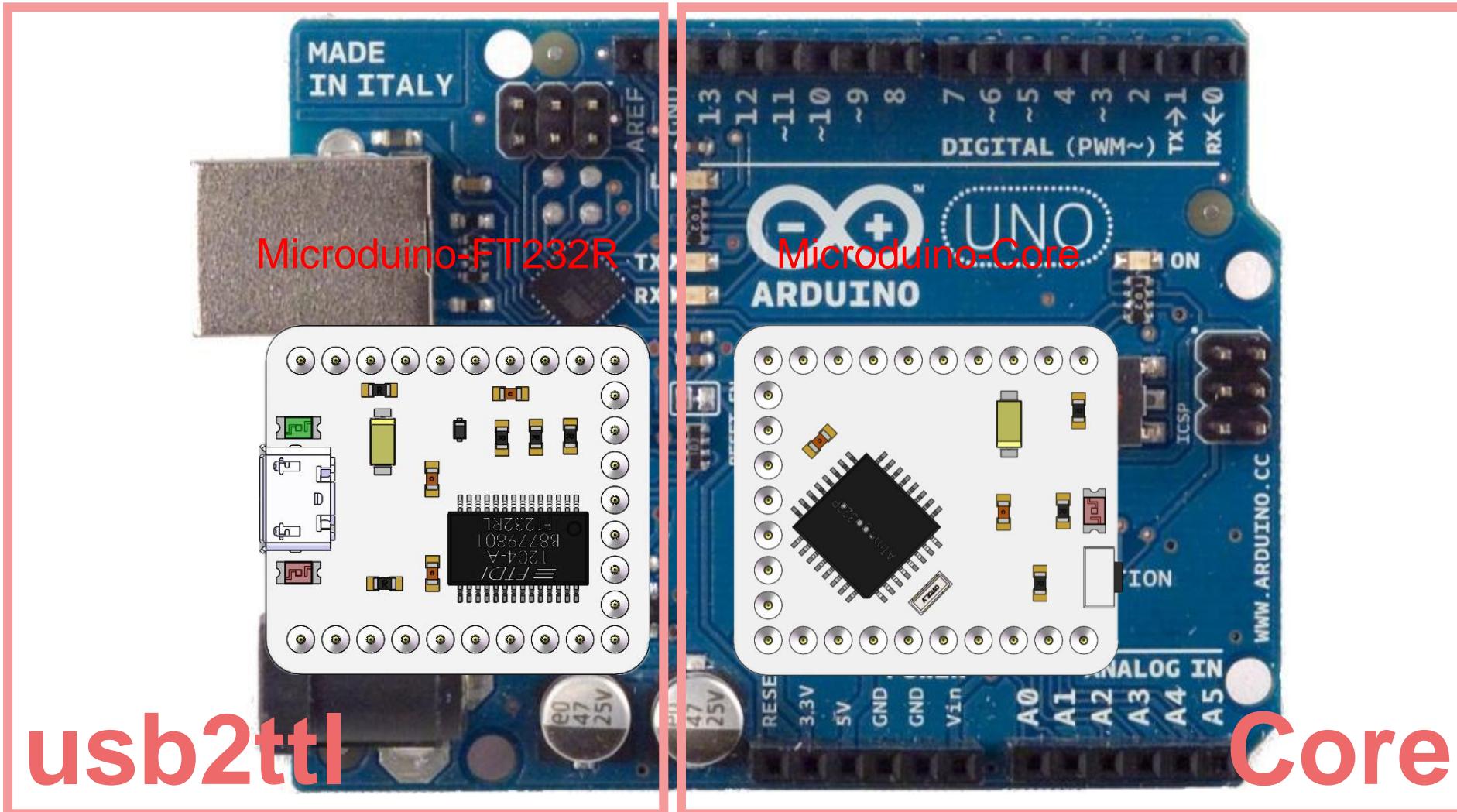
# Microduino Fritzing Library



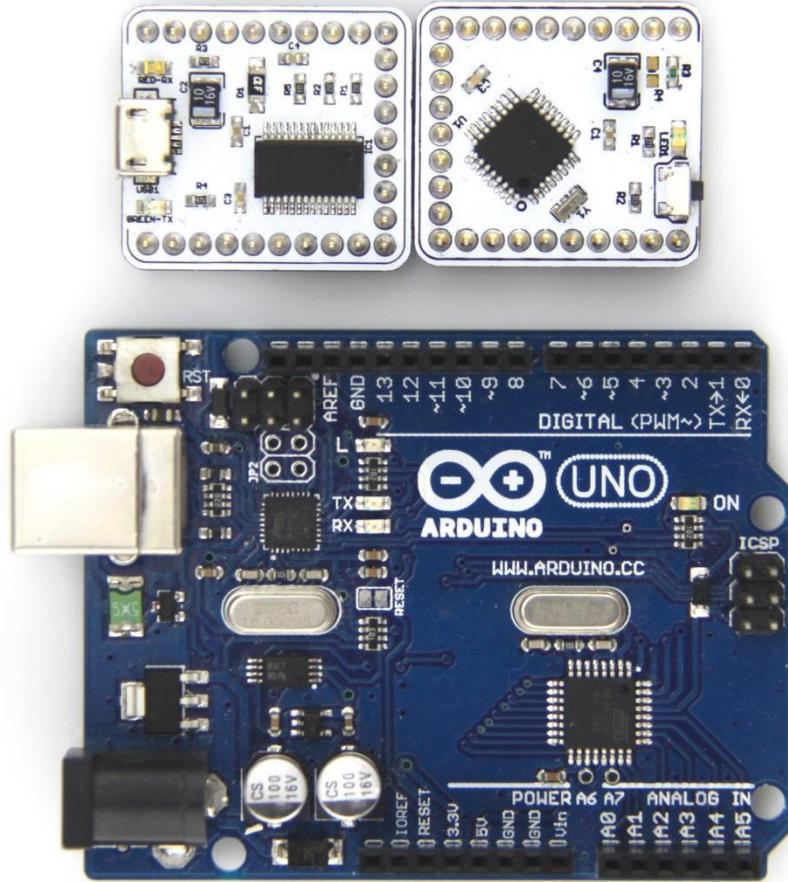
# Microduino 3D Model



# Microduino & Arduino



# Microduino & Arduino



# Microduino Education

# Microduino 教育

# Microduino 模块种类

>50种积木模块



# Microduino Features

## Microduino 产品特点

>300个应用



# Microduino Campus

# Microduino 创新阶梯教程



课程全部开源



Microduino 301

Microduino 201

Microduino 101

# Microduino Online Class

# Microduino 在线互动教学



## Microduino -10dof



Microduino 矢量传感器模块，集成四种传感器：  
三轴加速度 & 三轴陀螺仪、磁场强度、数字气压  
采用 I2C 接口与核心相连。  
可广泛用于航模，平衡车等应用。

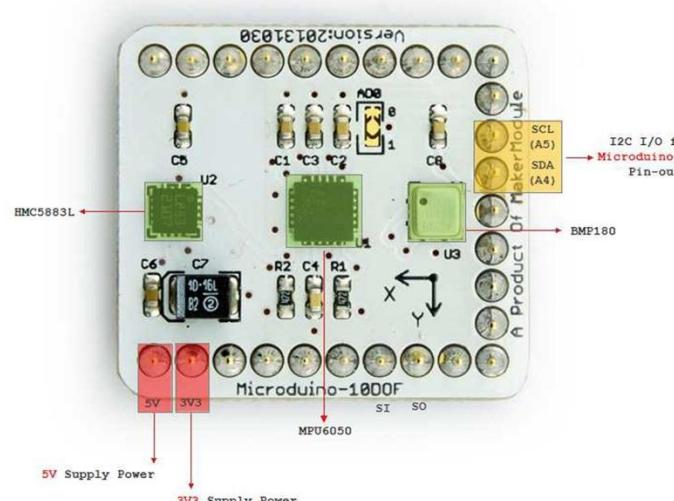
1 of page 3

三种传感器皆以 I2C 方式通信，节省 IO 口：

三轴加速度 & 陀螺仪传感器：MPU6050

磁场强度传感器：HMC5883L

数字气压传感器：BMP180



查看详细参数请扫描右侧二维码：



2 of page 3

## How wo start ?

用 MWC 的开源程序测试 10dof 模块

所需要准备的硬件：

Microduino FT232R、Microduino Core、Microduino 10dof；

所需要准备的软件有：

MultiWii 上位机 ( Linux/Mac/Windows ) , MultiWii 程序 ( Arduino 端 ) ,  
Arduino IDE ( 1.0 版本以上 ) ;

1. 用 IED 打开 MultiWii 目录中 MultiWii.ino , 可载入工程 ; ,
2. 提供的程序已适配了 Microduino 10dof , 下载即可 ;
3. 打开上位机 ( 以 Windows 为例 , 执行 MultiWiiConf\appliance.windows32 目录中的 MultiWiiConf.exe ) 选对相应串口 , 点击 Start 即可测试模块。



所用程序请扫描右侧二维码下载：

3 of page 3

# Microduino Modules Overview

# Microduino 模块总览

# Microduino Core Modules

## Microduino 核心模块



### Microduino-Core/zh

- Microduino 核心模块
- 兼容Arduino Uno
- 主芯片: ATmega328P/ATmega168PA
- UPin-27 标准接口



### Microduino-Core+/zh (性能加强) 核心板

- 与Arduino Mega2560配置相当
- 配备两套硬串口，增加10个数字接口
- 主芯片: ATmega644PA/ATmega1284P
- UPin-27 标准接口



### Microduino-Core32U4/zh (性能加强) 核心板

- Microduino 核心模块
- 兼容Arduino Uno
- 包含了微控制器和USB通信
- UPin-27 标准接口



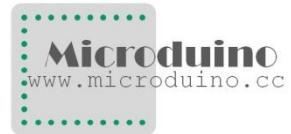
### Microduino-FT232R/zh

- Microduino USB转串口通信模块
- 与Microduino-Core/Core+ 模块叠加，从上位机下载程序
- UPin-27 标准接口



# Microduino Extension Modules

## Microduino 扩展模块



### Microduino-RJ45/zh

- Microduino 以太网口模块
- 集成网络变压器
- POE供电
- UPin-27 标准接口



### Microduino-nRF24/zh

- Microduino 2.4G 无线通信模块
- 通过 spi 接口 与Core/Core+ 核心模块通信
- 有相应的组网库支持，可进行简单组网
- UPin-27 标准接口



### Microduino-smartRF/zh

- 470/950 MHz ISM/SDR 频带的超低功耗无线通信模块
- 通过 spi 接口 与Core/Core+ 核心模块通信
- 有相应的组网库支持，可进行简单组网
- UPin-27 标准接口



### Microduino-MFC/zh

- 双向连接和识别的近距离无线通信模块
- 通过IIC 接口 与Core/Core+ 核心模块通信
- UPin-27 标准接口



# Microduino Extension Modules

## Microduino 扩展模块



### Microduino-【BT】/zh

- Microduino 蓝牙盾，蓝牙4.0版本
- 支持蓝牙相应传输协议
- 通过串口与 Core/Core+ 核心模块通信
- UPin-27 标准接口



### Microduino-SD/zh

- Microduino Micro SD 卡存储模块
- 通过 spi 接口 与Core/Core+ 核心模块通信
- UPin-27 标准接口



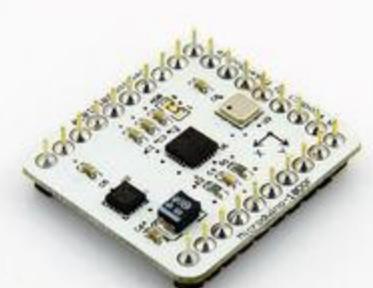
### Microduino-BM/zh

- Microduino 单节锂电池充放电管理模块
- 集成充电、电量检测及LED指示功能
- 可将锂电池 3.7V升压到5V输出，LDO到3.3V输出
- UPin-27 标准接口



### Microduino-10DOF/zh

- Microduino 矢量传感器模块，集成四种传感器
- 三轴加速度传感器+三轴陀螺仪（MPU6050）
- 磁场强度传感器（HMC5883L）
- 气压传感器BMP180
- 通过I2C接口与Core/Core+ 核心模块通信
- UPin-27 标准接口



# Microduino Extension Modules

## Microduino 扩展模块



### Microduino-RTC/zh

- Microduino RTC时钟模块
- 基于PCF8563时钟芯片
- 采用I2C接口与Core/Core+ 核心模块通信
- 带I2C接口的EEPROM AT24C32 存储芯片
- 带中断输出
- UPin-27 标准接口



### Microduino-CC3000/zh

- Microduino WIFI通信模块
- 基于TI CC3000 IEEE 802.11b/g solution
- 通过 spi 接口 与Core/Core+ 核心模块通信
- UPin-27 标准接口



### Microduino-NEO-6M/zh

- Microduino GPS定位模块
- 核心采用UBLOX NEO-6M模组
- 通过串口与 Core/Core+ 核心模块通信
- UPin-27 标准接口



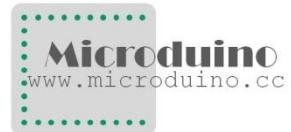
### Microduino-LM4863/zh

- Microduino 音频功率放大模块
- 基于LM4863芯片
- 2.54排针接口
- UPin-27 标准接口



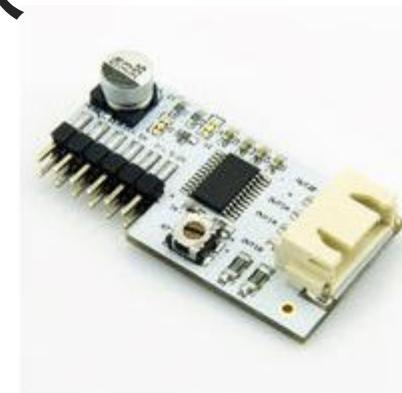
# Microduino Extension Modules

## Microduino 扩展模块



### Microduino-A4982/zh

- Microduino 步进电机驱动模块
- 支持四线二相步进电机
- 独特的接插方式，更加节省空间



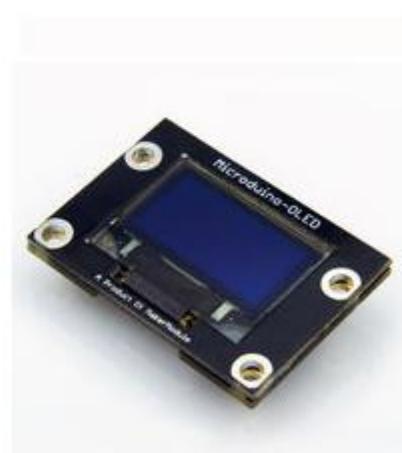
### Microduino-A3906/zh

- Microduino 直流电机驱动模块
- 可驱动两个直流电机
- 独特的接插方式，更加节省空间



### Microduino-OLED/zh

- Microduino OLED 显示模块
- 基于 SSD1306 的 0.96 吋 128x64 OLED 显示模块
- 采用 I2C 接口与 Core/Core+ 核心模块通信
- 3.3V 供电



### Microduino-USBHOST/zh

- Microduino USB 通讯模块
- 支持 USB 主机控制器与 USB 外设
- UPin-27 标准接口



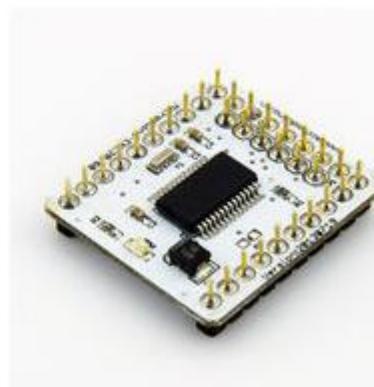
### Microduino-GPRS/GSM/zh

- Microduino GPRS/GSM 通讯模块
- 发送、接收短信
- 通过 SIM 卡上网



### Microduino-ENC28J60/zh

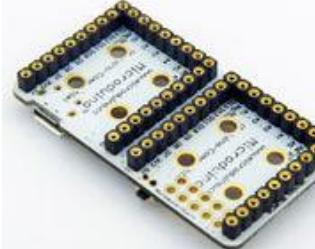
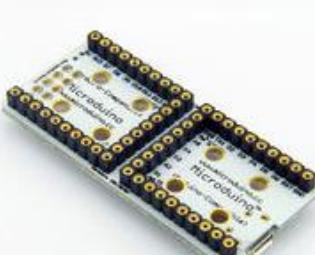
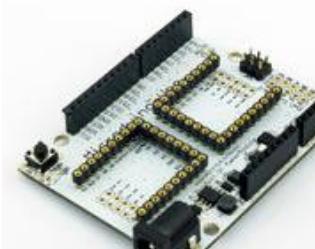
- Microduino 以太网模块
- IEEE 802.3 兼容的以太网控制器
- 集成 MAC 和 10 BASE-T PHY
- 通过 SPI 接口与 Core/Core+ 核心模块通信
- UPin-27 标准接口



# Microduino Application Boards

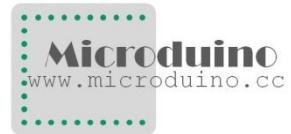
## Microduino 应用主板



<b>Microduino-Solo/zh</b> • 基于Microduino模块的传感器扩展板		<b>Microduino-Duo-h/zh</b> • 基于Microduino模块的扩展板	
<b>Microduino-Duo-v/zh</b> • 基于Microduino模块的扩展板		<b>Microduino-Uno/zh</b> • 兼容Arduino uno针脚&UPIN27的主板	

# Microduino Application Boards

## Microduino 应用主板



**Microduino-Cube-S1/zh**

- 兼容Arduino uno针脚&UPIN27的主板



**Microduino-Cube-V1/zh**

- 兼容Arduino uno针脚&UPIN27的主板

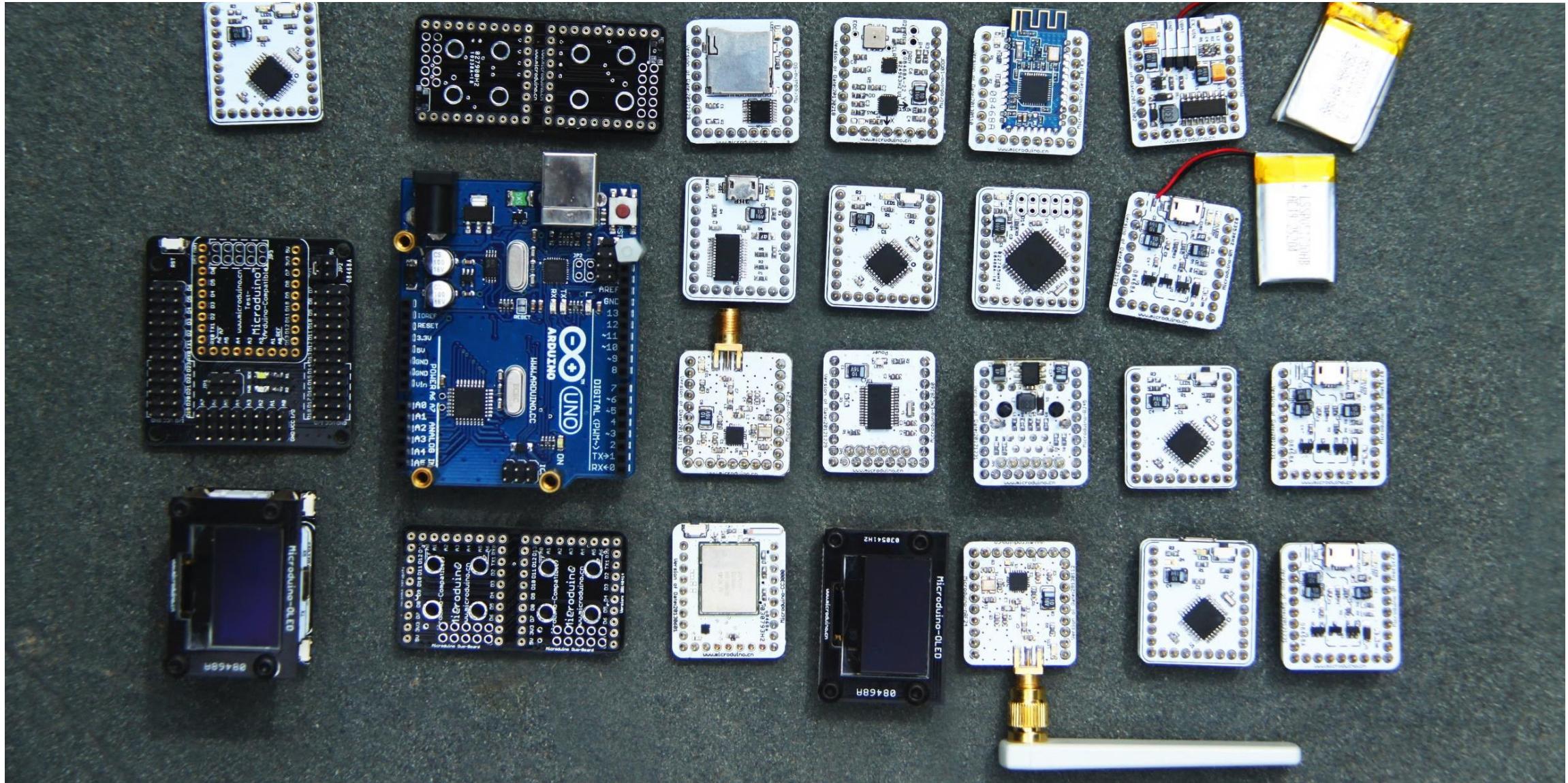


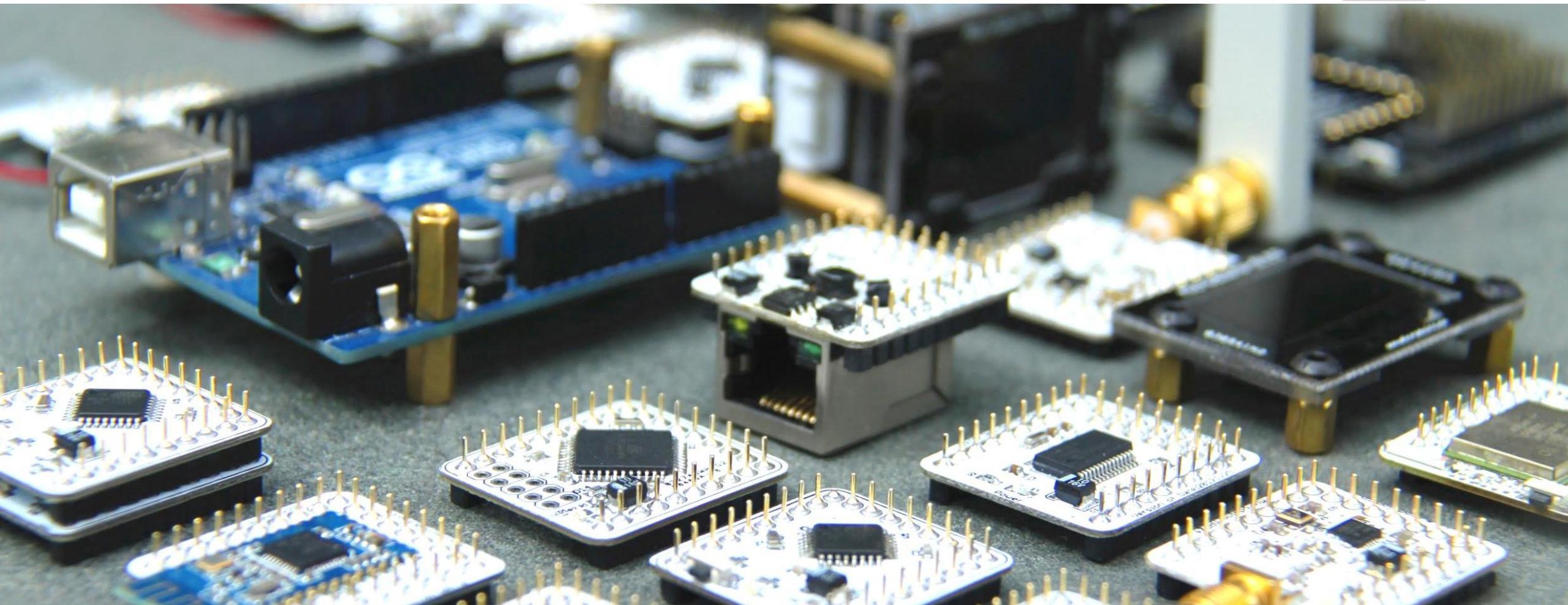
**Microduino-Weatherstation/zh**

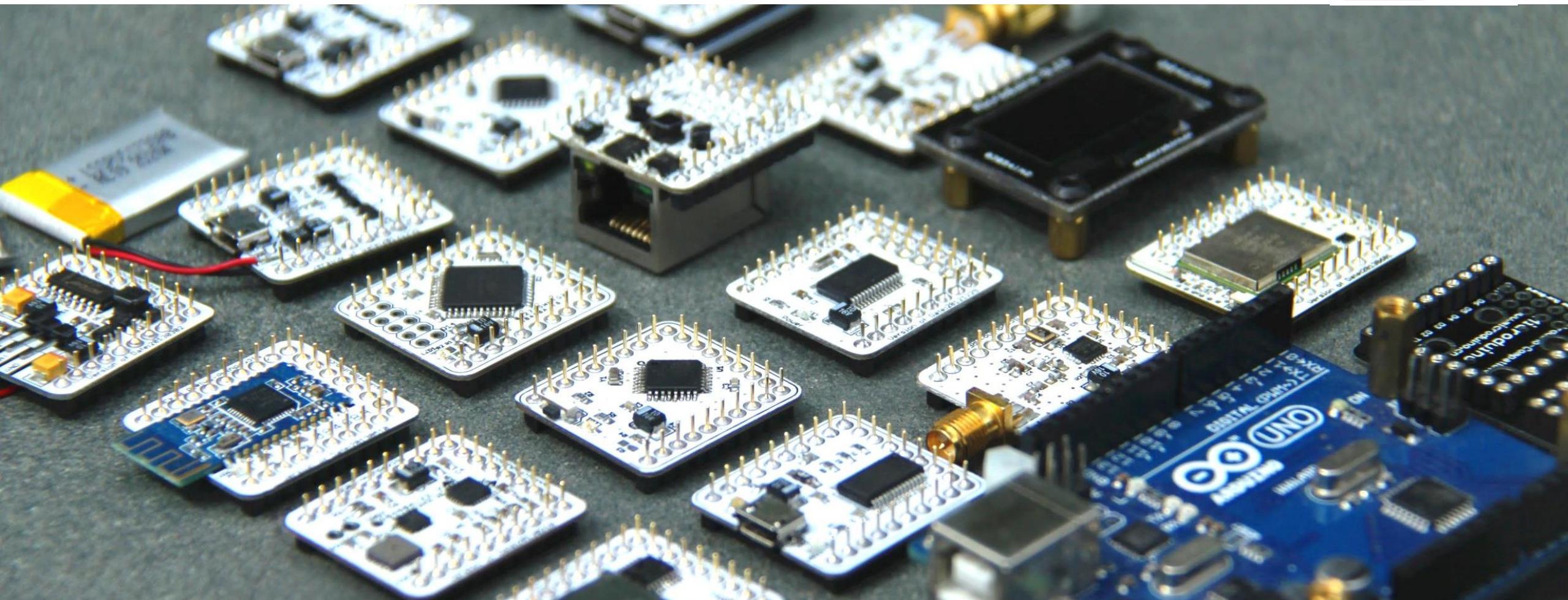
- 兼容Arduino uno针脚&UPIN27的主板



# BACKUP







WIKI : [wiki.microduino.cc](http://wiki.microduino.cc)



END 

**Microduino信息请关注：**

Weibo/Facebook/Twitter : @Microduino

QQ群1 : 123972320

QQ群2 : 105345289

微博: <http://www.weibo.com/Microduino>  
维基: [http://www.microduino.cc/wiki/index.php?title=Main\\_Page/zh](http://www.microduino.cc/wiki/index.php?title=Main_Page/zh)  
QQ群: 123972320  
Facebook: <http://www.facebook.com/Microduino>  
Twitter: <http://www.twitter.com/Microduino>  
Wiki: <http://wiki.Microduino.cc>  
G+: <https://plus.google.com/communities/117933845827174624649>