

YFROBOT

Micro:Bit基础课程

Micro:Bit V2专属

第五课 温度报警器

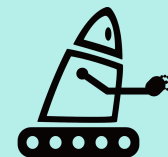
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学习目标

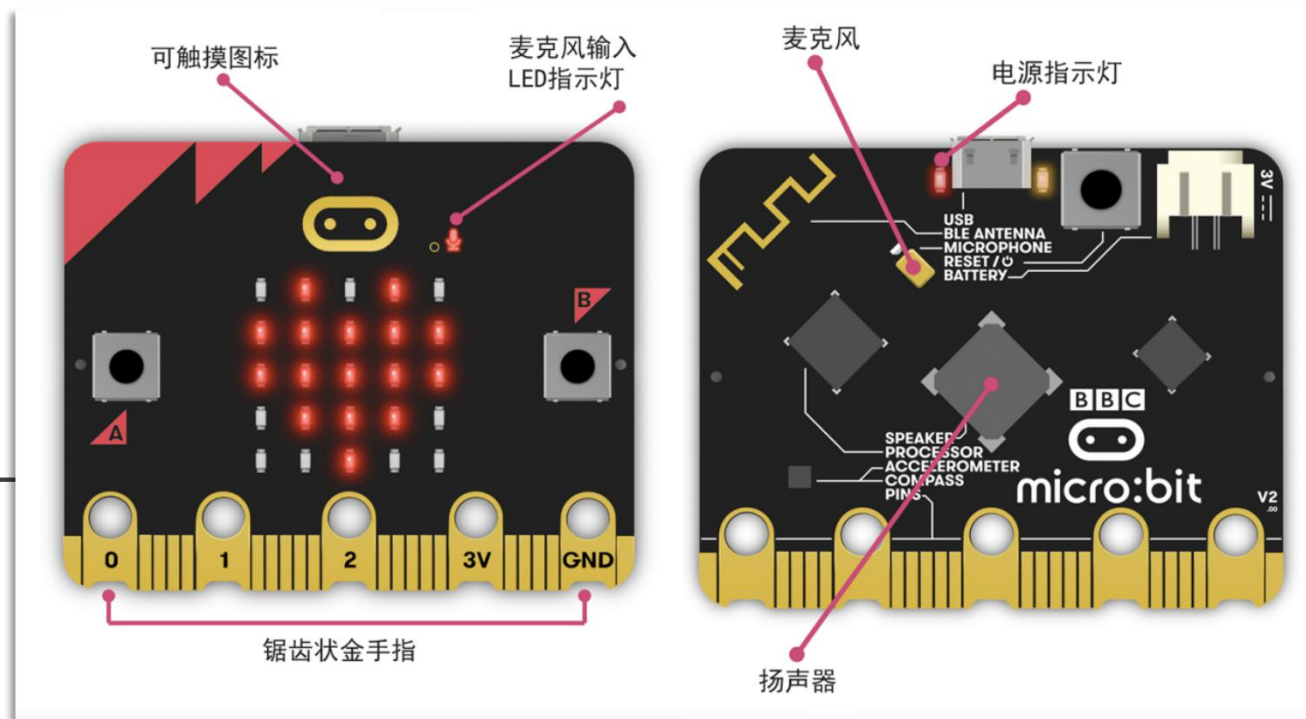
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V2主板新特征



*板载扬声器

*带LED指示灯的麦克风

*触控式徽标

*内置睡眠/关闭模式，这意味着板可以在连接电池的情况下断电

*可向外部附件提供高达 190mA 电流的分立式稳压器

Part 1

学习目标



本次课学习使用micro:bit V2板载蜂鸣器和温度传感器功能；使用编程器MakeCode内置2.0程序块，实现当芯片检测温度超过一定数值后，蜂鸣器报警。

Part 2



课前准备

器材准备：

- Micro:bit主板 V2*1
- USB数据线*1
- 一台可以上网的电脑

然后将Micro:Bit通过USB连接电脑，电脑会弹出一个名为“MICROBIT”U盘，

MakeCode编辑器登陆网址：

<https://MakeCode.Micro:Bit.org>，即可进入了编程页面。



Part 3

编程实验

基本栏
显示数字、无
限循环程序块

Microsoft MakeCode for micro:bit

https://makecode.microbit.org/#editor

Microsoft | micro:bit

方块 JavaScript

搜索...

基本

输入

音乐

LED

无线

循环

逻辑

变量

数学

高级

函数

数组

文本

游戏

图像

引脚

串行

控制

扩展

基本

显示数字 0

显示 LED

显示图标

显示字符串 "Hello!"

清空屏幕

无限循环

当开机时

无限循环

将 i 设为 温度 (°C)

显示数字 i

当条件为 i ≥ 25

执行 播放声音 咯咯笑 直到结束

下载

课程5-温度报警器

Part 3

编程实验

循环栏
当条件执行程序
序块

The screenshot displays the Microsoft MakeCode for micro:bit editor interface. On the left, a virtual micro:bit board is shown with a temperature gauge indicating 21°C. The central block palette is open to the '循环' (Loops) category, with the '当条件为' (When condition is) block highlighted. The main workspace contains a script for a temperature alarm:

- Repeat 4 times (highlighted in green).
- When condition is false (highlighted in green).
- For each index from 0 to 4 (highlighted in green).
- Set temperature (°C) to i (highlighted in green).
- Check if i is greater than or equal to 25 (highlighted in green).
- Play sound '咯咯笑' until the end (highlighted in red).
- Every 500 ms (highlighted in green).
- Jump out (highlighted in green).

At the bottom, there is a '下载' (Download) button and a search bar containing '课程5-温度报警器'.

Part 3

编程实验

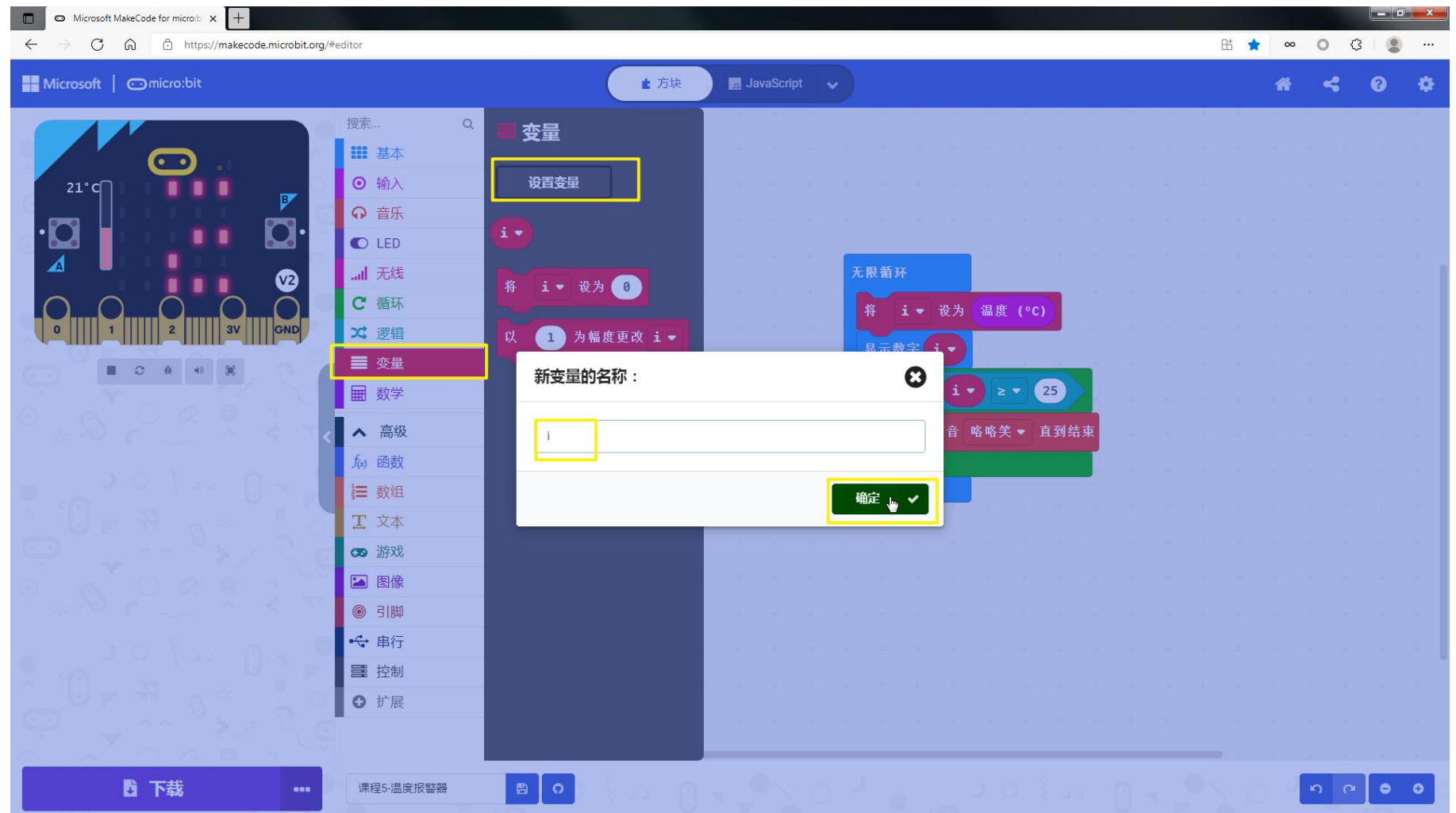
逻辑栏
比较程序块

The screenshot displays the Microsoft MakeCode for micro:bit web editor. The interface includes a top navigation bar with the Microsoft logo and 'micro:bit' text. A central sidebar lists various block categories such as '基本' (Basic), '输入' (Input), '音乐' (Music), 'LED', '无线' (Wireless), '循环' (Loops), '逻辑' (Logic), '变量' (Variables), '数学' (Math), '高级' (Advanced), '函数' (Functions), '数组' (Arrays), '文本' (Text), '游戏' (Games), '图像' (Images), '引脚' (Pins), '串行' (Serial), '控制' (Control), and '扩展' (Extensions). The '逻辑' (Logic) category is highlighted, and its sub-menu is open, showing options like '条件' (Conditions), '比较' (Comparisons), and '布尔值' (Booleans). The '比较' (Comparisons) sub-menu is selected, and the '=' (Equal) block is highlighted with a yellow box. The main workspace shows a script with the following blocks: an '无限循环' (Infinite Loop) block containing a '将 i 设为 温度 (°C)' (Set i to temperature in °C) block, a '显示数字 i' (Show number i) block, a '当条件为 i ≥ 25' (When condition is i ≥ 25) block, and an '执行 播放声音 咯咯笑 直到结束' (Execute play sound giggles until end) block. The background features a faint pattern of micro:bit icons.

Part 3

编程实验

变量栏
新建变量: i



Part 3

编程实验

变量栏
变量i、设置i程
序块

The screenshot displays the Microsoft MakeCode for micro:bit editor interface. On the left, a virtual micro:bit board is shown with a temperature display at 21°C. The central panel features a '变量' (Variables) section with a '设置变量' (Set Variable) block for 'i' set to 0, and a '以 1 为幅度更改 i' (Change i by 1) block. The right panel shows a script starting with an '无限循环' (Infinite Loop) block containing: '将 i 设为 温度 (°C)' (Set i to temperature in °C), '显示数字 i' (Show number i), a conditional '当条件为 i ≥ 25' (When condition is i ≥ 25), and an '执行' (Do) block with '播放声音 咯咯笑 直到结束' (Play sound giggles until end).

Part 3

编程实验

音乐栏
播放旋律程序
块

The screenshot shows the Microsoft MakeCode for micro:bit editor interface. The left sidebar contains a category list with '音乐' (Music) highlighted. The main workspace displays a JavaScript script for a temperature-based music player. The script includes blocks for setting the tempo to 120 bpm, playing a 'dadadum' melody, and a loop that plays a '咯咯笑' (giggling) sound when the temperature is 25°C or higher.

```
将节奏更改 (bpm) 20  
将节奏设定为 (bpm) 120  
1 节拍  
节奏 (bpm)  
旋律高级版  
播放旋律 dadadum 重复 播放一次  
停止旋律 全部  
播放 播放旋律音符 时响起音乐  
无限循环  
将 i 设为 温度 (°C)  
显示数字 i  
当条件为 i ≥ 25  
执行 播放声音 咯咯笑 直到结束  
micro:bit (V2)  
播放声音 咯咯笑 直到结束  
播放声音 咯咯笑  
设置内置扬声器 关
```



Part 3

编程实验

组合程序

https://makecode.microbit.org/_87eDUaEFz1bW

The screenshot displays the Microsoft MakeCode for micro:bit web editor. The interface includes a toolbar at the top with 'Microsoft | micro:bit' and 'JavaScript' options. On the left, there is a sidebar with a search bar and a list of categories: 基本 (Basic), 输入 (Input), 音乐 (Music), LED, 无线 (Wireless), 循环 (Loops), 逻辑 (Logic), 变量 (Variables), 数学 (Math), 高级 (Advanced), 函数 (Functions), 数组 (Arrays), 文本 (Text), 游戏 (Games), 图像 (Images), 引脚 (Pins), 串行 (Serial), 控制 (Control), and 扩展 (Extensions). The main workspace shows a Micro:bit board on the left with a temperature of 21°C. The right workspace contains a block-based program: an '无限循环' (Infinite Loop) block containing a '将 i 设为 温度 (°C)' (Set i to temperature in °C) block, a '显示数字 i' (Show number i) block, a '当条件为 i ≥ 25' (When condition is i ≥ 25) block, and an '执行 播放声音 咯咯笑 直到结束' (Execute play sound giggles until end) block. At the bottom, there is a '下载' (Download) button and a title bar that reads '课程5-温度报警器' (Lesson 5 - Temperature Alarm).



Part 4 “

拓展思考

本次课实现当检测温度超过25度时蜂鸣器发声报警，低于25度时蜂鸣器不报警。

今天的课程你学会了吗？
如果学会了就给自己一个顶呱呱吧~
现在布置一个课后作业给你哦~

比较下程序中温度值和实际测得的环境温度值是否有误差~~





谢谢观看!

Micro:Bit 基础课程