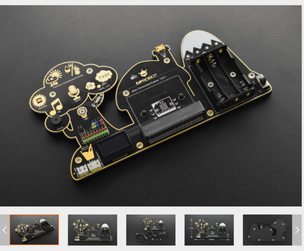

Environment Science Expansion Board V2.0 for micro:bit

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$69.00 In Stock

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INTRODUCTION

This micro:bit-based expansion board, specially designed for STEAM education, allows students to measure environmental conditions for scientific experiments by using rich on-board sensors that cover all basic aspects of nature and science in daily life, which helps them explore the related science knowledge and understand nature phenomenon. It aims to provide a platform for students to learn science theory with practices and bring science education closer to daily life!

Integrated sensors include UV sensor, temperature sensor, humidity sensor, air pressure sensor, sound sensor, light sensor, water temperature sensor, and a TDS (Total Dissolved Solids) water quality sensor, soil moisture sensor, TVOC, CO2 sensor, etc.

Environment Science Expansion Board V2.0 for micro:bit

Board Overview

FEATURES

V2.0 Update

- Comes with WiFi-IoT card, support IoT platforms such as IFTTT, ThingSpeak, EasyIoT
- Supports for the measurements of TVOC and CO2
- MicroUSB power supply port, battery holder is welded on the PCB, more convenient for classroom teaching
- Onboard 4-way RGB lights
- 1-way motor driver
- More powerful chip and more IO ports
- Greatly optimized OLED display program, more convenient and flexible to use
- The color sensor is removed from the list

Product Features

- Highly-Integrated (14 function modules): atmospheric pressure, temperature, humidity, harmful gases(TVOC), carbon dioxide, ultraviolet rays, light, sound, water quality, water temperature, soil humidity, buzzer, RGB light, OLED display, and motor driver.
- IoT Function: able to be accessible to famous IoT platforms such as IFTTT, ThingSpeak, and EasyIoT through the WiFi-IoT card.
- The interesting shape of the tree makes the classroom teaching more vivid and fun.

SPECIFICATION

- **Power Supply:** MicroUSB (5V) /Three 1.5V AAA Batteries (4.5V)

(Note: Because the power consumption of WiFi-IoT card is relatively large, it may not work properly if the AAA battery is low. Please use MicroUSB port to supply power to ensure the normal operation of the product when using it for class teaching.)

- **Digital Port Output Voltage:** 3.3V
- **GPIO:** I2C×2 P0 P1 P2 P8 P12 P13 P14 P15 P16
- **ML8511 UV Sensor**
  - Operating Temperature: -20℃~70℃
  - Sensitive Area: UV-A, UV-B
  - Sensitivity Wavelength: 280-390nm
- **BME280 Environment Sensor**
  - Operating Current: 2mA
  - Operating Temperature: -40℃~+85℃
  - Temperature Measuring Range: -40℃~+85℃ , Resolution 0.1℃ , Deviation±0.5℃
  - Humidity Measuring Range: 0~100%RH, Resolution 0.1%RH , Deviation±2%RH
  - Response Time of Humidity Measurement: 1S
  - Atmospheric Pressure Measuring Range: 300~1100hPa
- **Waterproof Temperature Sensor**
  - Temperature Display Range: -10℃~+85℃ (Deviation±0.5℃)
  - Operating Temperature Range: -55℃~125℃
  - Query Time: less than 750ms
- **TDS Water Quality Sensor**
  - The TDS probe should not be used in water above 55℃.
  - The TDS probe should not be placed too close to the edge of the container, as this will affect the accuracy.
- **CCS811 Air Quality Sensor**
  - Operating Temperature Range: -40℃~85℃
  - Operating Humidity Range: 10%RH~95%RH
  - CO2 Measuring Range: 400ppm~8000ppm
  - TVOC Measuring Range: 0ppb~1100ppb
- **Capacitive Soil Humidity Sensor**
  - Operating Voltage: 3.3V-5.5V DC
  - Output Voltage: 0-3.0V DC
  - Connector: PH2.0-3P
  - Dimension: 98×23mm
- **RGB Light**
  - RGB Light Model: WS2812
  - Port: P15
- **Light Sensor**
  - Output Date Type: analog value
  - Data Range: 0-1023
- **Buzzer**
  - Dimension: 9mm in diameter
  - Model: passive buzzer
  - Port: P0
- **Sound Sensor**
  - Output Date Type: analog value
  - Data Range: 0-1023
- **OLED Display**
  - Dimension: 0.96"
  - Display Color: blue
  - Pixels: 128 × 64
  - Refresh Rate: 60 fps
  - Brightness: 60 (Typ) cd/m2
  - Full-screen Lighting Consumption: about 22.75mA
  - Operating Temperature: -30℃~+70℃
  - Display Area: 21.744×10.864 (mm)
- **Motor Driving**
  - Driving Mode: PWM
  - Compatible Motor: Low Power DC Motors such as N20 Gear Motor and 130 Gear Motor
- **WIFI IoT**
  - Wireless Mode: IEEE802.11b/g/n
  - Encryption Type: WPA WPA2/WPA2-PSK
  - Frequency: 2.4GHz
  - Built-in Protocol: TCP/IP protocol stack
  - Supported IoT Platform: EasyIoT, IFTTT, ThingSpeak, SIoT
  - Status Indicator:
    - Red: disconnected
    - Blue: connecting
    - Green: connected
- **Dimension:** 196mm*110.6mm/7.72*4.35"
- **Programming Platform:** MakeCode, Mind+

DOCUMENTS

- Tutorial of Environment Science (makecode) -EN-V1.0

SHIPPING LIST

- Environment Science Expansion Board V2.0 for micro:bit x1
- Capacitive Soil Humidity Sensor x1
- TDS Water Quality Sensor Probe x1
- Waterproof Temperature Sensor x1

REVIEW

FAQ

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