萬鈞伯裘書院
2024-2025 年度
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招標編號：MKPC-T2425-013 附件一

Item	Description / Specifications	Qty
1	**Microbit v2.0** Processor: Nordic Semiconductor nRF52833 Memory: 512kB Flash, 128kB RAM Interface: NXP KL27Z, 32kB RAM Microphone: MEMS microphone and LED indicator Speaker: on board speaker Logo touch: touch sensitive logo pin Edge Connector: 25Pin,4 dedicated GPIO, PWM, I2C, SPI and ext. power. 3 ring pins for connecting crocodile clips/banana plugs. Notched for easier connection. I2C: Dedicated I2C bus for peripherals Wireless: 2.4Ghz Micro: bit Radio/BLE Bluetooth 5.0 Power: 5V via Micro USB port, 3V via edge connector or battery pack. LED power indicator · Power off(push and hold power button) Current available: 200mA available for accessories Motion sensor: ST LSM303 Software: C++, Make Code, Python, Scratch Size: 5cm(w) x 4cm(h)	980
2	**AI Lens** Processor: K210, equipped with powerful AI computing capabilities, capable of efficiently handling various AI tasks. Supported Controllers: Microbit, Future Board, Arduino series, allowing users to flexibly choose different control platforms to meet different teaching and experimental needs. Display: 1.3-inch 240x240 IPS screen, clear display effects, allowing students to observe experimental results more intuitively. Camera: 640x480 RGB, providing high-quality image capture, ensuring the accuracy of image recognition. Audio Input/Output: Mono 48k sampling rate output, 8k sampling rate microphone input, suitable for audio processing and analysis, enabling students to conduct voice recognition and processing experiments. SD Card Slot: Supports TF card, used for storing AI models and audio-visual resources, expanding storage space to meet various teaching needs. Wireless Communication: WiFi based on ESP32, ensuring stable wireless connection, allowing students to perform remote data transmission and processing. Data Output: UART / USB, providing flexible data transmission methods, facilitating data reading and storage. Input Buttons: 2 programmable buttons, allowing users to customize functions, increasing the flexibility and fun of experiments. Memory Card Support: 16 GB, sufficient storage space to store a large amount of data and models. Power Supply Voltage: 5V, convenient power supply design, adaptable to various teaching scenarios. Supported Programming Environments: Kittenblock, Makecode, Micropython, ObjectBlocks, providing a variety of programming environment choices suitable for users of different levels, allowing students to transition from simple graphical programming to complex text programming.	250

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3	**Husky Lens Pro** Processor: Kendryte K210 Image Sensor: OV2640 (2.0Megapixel Camera) Supply Voltage: 3.3~5.0V Current Consumption (TYP): 320mA@3.3V, 230mA@5.0V (face recognition mode; 80% backlight brightness; fill light off) Connection Interface: UART, I2C Display: 2.0-inch IPS screen with 320*240 resolution Built-in Algorithms: Face Recognition, Object Tracking, Object Recognition, Line Tracking, Color Recognition, Tag Recognition Dimension: 52mm * 44.5mm / 2.05 x 1.75inch	**160**

4	**micro:bit Smart Greenhouse Kit**
	• Electronic Modules Included:
	  • IOT:bit expansion board
	  • 3V relay module
	  • 3V water pump module
	  • 8 rainbow light rings
	  • Light sensor
	  • Soil moisture sensor
	• Number of Cases: 6+
	• Programming Languages Supported:
	  • MakeCode Graphics Programming
	  • Python Code Programming
	
	With Greenhouse Base and Greenhouse OuterCover
		240

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5 **Environment Science Expansion Board V2.0 for micro:bit** **600**

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

Include:
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

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6	**Smart Science IoT Kit** IoT Kit is developed based on IoT:Bit, a new breakout board compatible with science sensors such as the ultrasonic sensor, dust sensor, light sensor and water level sensor, including RTC Timing and WIFI module. IoT:bit: (1) Intergrated ESP12F WiFi, RTC, earphone jack and passive buzzer (2)Adaptive for Building Blocks (4 standard spacing fixed holes) (3)Separately lead IIC interface, directly plug in OLED, BME280 and IIC,etc (4) Support Thingspeak/ IFTTT. Component number IoT:bit 1 OLED 1 BME 280 1 PIR sensor1 Light sensor1 Noise sensor 1 Water level sensor 1 soil moisture sensor1 Sonar:bit 1 Dust sensor 1 180° servo 1	**680**
7	**micro:bit Smart City Kit** The Smart City Kit has a well-selection of IoT:bit, DHT11 sensor, soil moisture sensor, water level sensor, sonar:bit, servos and etc., we could use it to build such themes as the smart parking lot, transportation network, and river level monitoring 1 x IoT:bit Internet WIFI extension board for micro:bit 1 x LED-Green 1 x LED-Yellow 1 x LED-Red 1 x DHT11 sensor 1 x Sonar:bit 1 x Soil moisture sensor 1 x Water level sensor 1 x OLED screen 1 x EF92A 180° servo 1 x micro USB cable Jumper wires	**160**