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DFR0100 DFRduino Beginner Kit For Arduino V3
DFR0267 Bluno
DFR0282 Beetle
DFR0283 Dreamer Maple V1.0
DFR0296 Bluno Nano
DFR0302 MiniQ 2WD Plus
DFR0304 BLE Wireless Gamepad V2
DFR0305 RoMeo BLE
DFR0351 Romeo BLE mini V2.0
DFR0306 Bluno Mega 1280
DFR0321 Wido-WIFI IoT Node
DFR0323 Bluno Mega 2560
DFR0329 Bluno M3
DFR0339 Bluno Beetle
DFR0343 UHex Low-power Controller
DFR0355 SIM808 with Leonardo mainboard
DFR0392 DFRduino M0 Mainboard Arduino Compatible
DFR0398 Romeo BLE Quad Robot Controller
DFR0416 Bluno M0 Mainboard
DFR0575 Beetle ESP32
DFR0133 X-Board
DFR0162 X-Board V2
DFR0428 3.5 inches TFT Touchscreen for Raspberry Pi
DFR0494 Raspberry Pi UPS HAT
DFR0514 DFR0603 IIC 16X2 RGB LCD KeyPad HAT V1.0
DFR0524 5.5 HDMI OLED-Display with Capacitive Touchscreen V2.0

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SKU:KIT0152

Introduction

MindPlus Coding Kit for Arduino is a set of tools for programming learning. As its compatibility for Mind+, a graphical coding software for starters, and Arduino IDE, this kit is well applicable to students from the lower grade to the higher grade. It comes with an Arduino Uno R3 mainboard and a sensor expansion board V7, and 18 commonly used sensors and actuators. These sensors are equipped with Gravity interfaces, which are easy to use and allow your creativity to be realized more quickly. The course for this kit will first start from lighting up an onboard LED on Arduino to help students step into the world of coding. Then more sensors and actuators will be used to realize complicated functions in later projects. Four aspects are covered in the courses: algorithms & programming, computing system, network & internet, data analysis. Students will practically participate in the projects like Express transportation detection via IoT, Mobile smart client and so on, during which they will get to know basics about coding, internet and data as well as build logic thinking skills.

What is Mind+?

Mind+ is a graphical programming software for teenagers integrating with all kinds of mainstream mainboards and open-source hardware. As it supports AI and IoT, you can build a program by dragging and snapping coding blocks, or using advanced programming language like python, c, c++. It can help you to easily experience the joy of creation!

1. Offline programming editor

Mind+ is a programming tool, which allows you to build a program by dragging and snapping coding blocks. With tons of tutorials, sample projects and a large community, it is one of the best tools for you to learn programing from absolutely zero!

2. Create Interactive Projects with Hardware

Mind+ supports a wide range of hardware including Arduino, micro:bit or even a series of ESP32-based educational microcontrollers, which makes it possible to let the program change your real life. Not only that you can use microcontrollers to interact with PC in real time, but also you

DFR0550 5'' TFT-Display with Touchscreen V1.0

DFR0591 raspberry pi e-ink display module V1.0

DFR0592 DC Motor Driver HAT

DFR0604 I O Expansion HAT for Pi zero V1.0

DFR0566 IO Expansion HAT for Raspberry Pi

DFR0528 UPS HAT for Raspberry Pi Zero

DFR0331 Romeo for Edison Controller

DFR0453 DFRobot CurieNano - A mini Genuino Arduino 101 Board

TEL0110 CurieCore intel® Curie Neuron Module

DFR0478 FireBeetle ESP32 IOT Microcontroller(V3.0) Supports Wi-Fi & Bluetooth

DFR0483 FireBeetle Covers-Gravity I O Expansion Shield

FireBeetle Covers-24×8 LED Matrix

TEL0121 FireBeetle Covers-LoRa Radio 433MHz

TEL0122 FireBeetle Covers-LoRa Radio 915MHz

TEL0125 FireBeetle Covers LoRa Radio 868MHz

DFR0489 FireBeetle ESP8266 IOT Microcontroller

DFR0492 FireBeetle Board-328P with BLE4.1

DFR0498 FireBeetle Covers-Camera&Audio Media Board

DFR0507 FireBeetle Covers-OLED12864 Display

DFR0508 FireBeetle Covers-DC Motor & Stepper Driver

DFR0511 FireBeetle Covers-ePaper Black&White Display Module

DFR0531 FireBeetle Covers-ePaper Black&White&Red Display Module

DFR0536 Micro bit Gamepad Expansion Board

DFR0548 Micro bit Driver Expansion Board

can upload the code and let them work as standalone smart devices.

3. Wide Range Add-on Component Support

The build-in component list allows you to one-click add electronic modules to your project. You may choose from sensors, actuators, display or communication modules to make your project fun and powerful.

4. Convert Blocks into Coding Languages

The build-in interpreter in Mind+ converts blocks into Python or C language, creating a steady but progressive learning path for learning how to code.

For more ways to play, welcome to Mind+ column.

Features

- 18 Modules with functions involving Bluetooth, WiFi, display, etc.
- 25 Interesting projects to explore IoT, smart home, etc.
- The teaching contents are instructed in detail from the perspectives of materials, hardware connections, hardware working principles, and programming, enabling beginners to master how to use Arduino and integrally learn network Internet and data analysis. Then draw inferences about it.

Specification

- Controller: DFRduino UNO R3
- Power Supply: 6 AA batteries or 6-12V power adapter
- Programming Platform： Mindplus，Arduino IDE
- Weight：

Introduction to Teaching Contents and Projects

Teaching Contents

Click to download the detailed contents：KIT0152-EN-MindPlus Coding Kit for Arduino-MindPlus-Tutorial.pdf

Chapter 1: Hello World

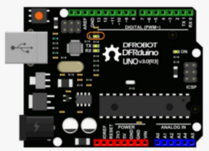
Project 1: Lighting up Onboard LED Light

Mind+
DFROBOT
DFRduino
UNO
PROJECT 1
Lighting up Onboard LED Light

ROB0148 micro: Maqueen for micro:bit
ROB0150 Micro bit Circular RGB LED Expansion Board
MBT0005 micro IO-BOX
SEN0159 CO2 Sensor
DFR0049 DFRobot Gas Sensor
TOY0058 Barometric Pressure Sensor
SEN0220 Infrared CO2 Sensor 0-50000ppm
SEN0219 Gravity Analog Infrared CO2 Sensor For Arduino
SEN0226 Gravity I2C BMP280 Barometer Sensor
SEN0231 Gravity HCHO Sensor
SEN0251 Gravity BMP280 Barometric Pressure Sensors
SEN0132 Carbon Monoxide Gas Sensor MQ7
SEN0032 Triple Axis Accelerometer Breakout - ADXL345
DFR0143 Triple Axis Accelerometer MMA7361
Triple Axis Accelerometer FXLN83XX Series
SEN0072 CMPS09 - Tilt Compensated Magnetic Compass
SEN0073 9 Degrees of Freedom - Razor IMU
DFR0188 Flymaple V1.1
SEN0224 Gravity I2C Triple Axis Accelerometer - LIS2DH
SEN0140 10 DOF Mems IMU Sensor V2.0
SEN0250 Gravity BMI160 6-Axis Inertial Motion Sensor
SEN0253 Gravity BNO055 + BMP280 intelligent 10DOF AHRS

Introduction:

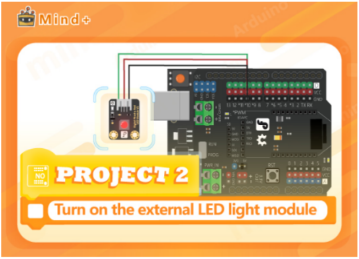
First let's write one of the simplest codes to light up the onboard LED lights, which are the LED small lights labeled L on the UNO board (pin13). This step can help us learn how to download the program and test if our Arduino main-board works properly. Our first task is to make this LED light blink.



Learning Contents:

1. Experience the programming steps of Mind+
2. Learn sequential structure and loop structure

Project 2: Turn on the external LED light module


Mind+
PROJECT 2
Turn on the external LED light module

Introduction:

In Project I, we learned how to light up the UNO onboard LED light, and then we will learn how to control an external LED light.

Learning Contents:

1. Learn variables and constants
2. Make an LED light that flickers at an increasing rate.

Chapter 2: Magic Buttons

Project 3: Magic Button Switches

SEN0001 URM37 V5.0 Ultrasonic Sensor

SEN0002 URM04 V2.0

SEN0004 SRF01 Ultrasonic sensor

SEN0005 SRF02 Ultrasonic sensor

SEN0006 SRF05 Ultrasonic sensor

SEN0007 SRF08 Ultrasonic Sensor

SEN0008 SRF10 Ultrasonic sensor

SEN0149 URM06-RS485 Ultrasonic

SEN0150 URM06-UART Ultrasonic

SEN0151 URM06-PULSE Ultrasonic

SEN0152 URM06-ANALOG Ultrasonic

SEN0153 URM07-UART Ultrasonic Sensor

SEN0246 URM08-RS485 Waterproof Sonar Range Finder

SEN0304 URM09 Ultrasonic Sensor (Gravity-I2C) (V1.0)

SEN0304 URM09 Ultrasonic Sensor (Gravity-I2C) (V1.0)

SEN0300 Water-proof Ultrasonic Sensor ULS

SEN0301 Water-proof Ultrasonic Sensor ULA

SEN0307 URM09 Ultrasonic Sensor Gravity Analog

SEN0311 A02YYUW Waterproof Ultrasonic Sensor

SEN0312 ME007YS Waterproof Ultrasonic Sensor

SEN0313 A01NYUB Waterproof Ultrasonic Sensor

DFR0066 SHT1x Humidity and Temperature Sensor

DFR0067 DHT11 Temperature and Humidity Sensor

SEN0137 DHT22 Temperature and humidity module

DFR0023 DFRobot LM35 Linear Temperature Sensor

Mind+
NO
PROJECT 3
Magic Button Switches

Introduction:

Button switches, also known as key switches, were called sensitive switches in the early days. They are widely applied in lights, socket master switches, doorbells, and car consoles, etc. Button switches add another protective layer to the usage of electricity. As they facilitate the controls of electrical appearance, they also further the protection of electrical components. As we learn Arduino, we will be exposed to a variety of input devices. Among them, the button switch is the simplest and most widely used one. Here we will use Arduino to control the LED lights to make button pressing switch the light on and off every other time.

Learning Contents:

1. Learn the basics of digital input and conditional statement structure
2. Turn on the LED with the button

Project 4: Simple Timer Light

Mind+
2s
NO
PROJECT 4
Simple Timer Light

Introduction:

What does a timer light do? Imagine this: it's getting late and you are going to bed. However, the lamp is some distance away from your bed. After turning it off, you have to feel your way in utter darkness to your bed. Students who sleep on the top beds in the dormitory have the same trouble. In the previous project, we learned how to use buttons to control LED lights. Next, we will further apply the conditional statement structure to learn how to make simple timer lights.

DFR0024 Gravity DS18B20 Temperature Sensor Arduino Compatible V2

DFR0024 Gravity DS18B20 Temperature Sensor Arduino Compatible V2

SEN0114 Moisture Sensor

TOY0045 TMP100 Temperature Sensor

TOY0054 SI7021 Temperature and humidity sensor

SEN0206 IR Thermometer Sensor MLX90614

SEN0227 SHT20 I2C Temperature & Humidity Sensor Waterproof Probe

SEN0236 Gravity I2C BME280 Environmental Sensor Temperature, Humidity, Barometer

SEN0248 Gravity I2C BME680 Environmental Sensor VOC, Temperature, Humidity, Barometer

DFR0558 Gravity Digital High Temperature Sensor K-type

SEN0308 Waterproof Capacitive Soil Moisture Sensor

SEN0019 Adjustable Infrared Sensor Switch

SEN0042 DFRobot Infrared sensor breakout

SEN0143 SHARP GP2Y0A41SK0F IR ranger sensor 4-30cm

SEN0013 Sharp GP2Y0A02YK IR ranger sensor 150cm

SEN0014 Sharp GP2Y0A21 Distance Sensor 10-80cm

SEN0085 Sharp GP2Y0A710K Distance Sensor 100-550cm

DFR0094 Digital IR Receiver Module

DFR0095 DIGITAL IR Transmitter Module

SEN0018 Digital Infrared motion sensor

DFR0107 IR Kit

SEN0264 TS01 IR Thermal Sensor (4-20mA)

SEN0169 Analog pH Meter Pro

Learning Contents:

1. What is a conditional statement structure?
2. Make a timer LED light.

Project 5: Make a Button Switch

Mind+
PROJECT 5
Make a Button Switch

Introduction:

In the first project, we utilized a button to make LED on when the button is pressed and off when button released. However, in reality, the first button press switches on a light and the subsequent press turns it off -- this is how light switches work in our daily life. If you want to keep LED on without keeping the button pressed, then you should check out this chapter, which turns the button into a real light switch.

Learning Contents:

1. How to eliminate button jittery?
2. Make a button switch

Chapter 3: Controllable Lights

Project 6: Breathing Lights

Mind+
PROJECT 6
Breathing Lights

Introduction:

As its names suggests, breathing lights consist of lights that go from dim to bright and back to dim by the rhythm of breathing. Breathing lights have been applied in many areas, including missed calls / SMS notifications on mobile phones, mouse breathing lights, keyboard backlights, external batteries charging lights, and cosmetic lightings on sound systems, etc.

DFR0300-H Gravity: Analog Electrical Conductivity Sensor(K=10)
DFR0300 Gravity Analog Electrical Conductivity Sensor Meter V2 K=1
SEN0165 Analog ORP Meter
SEN0161-V2 Gravity Analog pH Sensor Meter Kit V2
SEN0161 PH meter
SEN0237 Gravity Analog Dissolved Oxygen Sensor
SEN0204 Non-contact Liquid Level Sensor XKC-Y25-T12V
SEN0205 Liquid Level Sensor-FS-IR02
SEN0244 Gravity Analog TDS Sensor Meter For Arduino
SEN0249 Gravity Analog Spear Tip pH Sensor Meter Kit For Soil And Food Applications
SEN0121 Steam Sensor
SEN0097 Light Sensor
DFR0026 DFRobot Ambient Light Sensor
TOY0044 UV Sensor
SEN0172 LX1972 ambient light sensor
SEN0043 TEMT6000 ambient light sensor
SEN0175 UV Sensor v1.0-ML8511

Learning Contents

1. What is a function?
2. Make a breathing light

Project 7: 3-step Adjustable Light

Mind+
NO
PROJECT 7
3-step Adjustable Light

Introduction:

In the making of breathing light in the previous section, we achieved the effect of fade-in and fade-off through function calls. In this section, we will use buttons to control the LED module to achieve multi-step brightness feature. Multi-step control is often used in car's air-conditioning keys, desk lamp, stage lighting, sound system, etc.

Learning Contents:

1. What is a PWM output?
2. Make a 3-step adjustable light

Project 8: Knob Adjustable Light

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DFR0100 DFRduino Beginner Kit For Arduino V3
DFR0267 Bluno
DFR0282 Beetle
DFR0283 Dreamer Maple V1.0
DFR0296 Bluno Nano
DFR0302 MiniQ 2WD Plus

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Chapter 7 Getting to

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SKU:KIT0152

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DFR0305 RoMeo BLE

DFR0351 Romeo BLE mini V2.0

DFR0306 Bluno Mega 1280

DFR0321 Wido-WIFI IoT Node

DFR0323 Bluno Mega 2560

DFR0329 Bluno M3

DFR0339 Bluno Beetle

DFR0343 UHex Low-power Controller

DFR0355 SIM808 with Leonardo mainboard

DFR0392 DFRduino M0 Mainboard Arduino Compatible

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DFR0575 Beetle ESP32

DFR0133 X-Board

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DFR0494 Raspberry Pi UPS HAT

DFR0514 DFR0603 IIC 16X2 RGB LCD KeyPad HAT V1.0

DFR0524 5.5 HDMI OLED-Display with Capacitive Touchscreen V2.0

DFR0550 5" TFT-Display with Touchscreen V1.0

DFR0591 raspberry pi e-ink display module V1.0

DFR0592 DC Motor Driver HAT

DFR0604 I O Expansion HAT for Pi zero V1.0

DFR0566 IO Expansion HAT for Raspberry Pi

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DFR0331 Romeo for Edison Controller

DFR0453 DFRobot CurieNano - A mini Genuino Arduino 101 Board

TEL0110 CurieCore intel® Curie

Know the IoT (Internet of Things)
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Features

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Neuron Module

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DFR0483 FireBeetle Covers-Gravity I O Expansion Shield

FireBeetle Covers-24×8 LED Matrix

TEL0121 FireBeetle Covers-LoRa Radio 433MHz

TEL0122 FireBeetle Covers-LoRa Radio 915MHz

TEL0125 FireBeetle Covers LoRa Radio 868MHz

DFR0489 FireBeetle ESP8266 IOT Microcontroller

DFR0492 FireBeetle Board-328P with BLE4.1

DFR0498 FireBeetle Covers-Camera&Audio Media Board

DFR0507 FireBeetle Covers-OLED12864 Display

DFR0508 FireBeetle Covers-DC Motor & Stepper Driver

DFR0511 FireBeetle Covers-ePaper Black&White Display Module

DFR0531 FireBeetle Covers-ePaper Black&White&Red Display Module

DFR0536 Micro bit Gamepad Expansion Board

DFR0548 Micro bit Driver Expansion Board

ROB0148 micro: Maqueen for micro:bit

ROB0150 Micro bit Circular RGB LED Expansion Board

MBT0005 micro IO-BOX

SEN0159 CO2 Sensor

DFR0049 DFRobot Gas Sensor

TOY0058 Barometric Pressure Sensor

SEN0220 Infrared CO2 Sensor 0-50000ppm

SEN0219 Gravity Analog Infrared CO2 Sensor For Arduino

SEN0226 Gravity I2C BMP280 Barometer Sensor

- 25 Interesting projects to explore IoT, smart home, etc.
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Specification

- Controller: DFRduino UNO R3
- Power Supply: 6 AA batteries or 6-12V power adapter
- Programming Platform： Mindplus，Arduino IDE
- Weight：

Introduction to Teaching Contents and Projects

Teaching Contents

Click to download the detailed contents：KIT0152-EN-MindPlus Coding Kit for Arduino-MindPlus-Tutorial.pdf

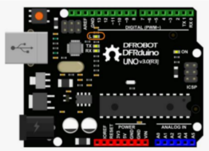
Chapter 1: Hello World

Project 1: Lighting up Onboard LED Light

Mind+
DFROBOT
DFRduino
UNO
NO
PROJECT 1
Lighting up Onboard LED Light

Introduction:

First let's write one of the simplest codes to light up the onboard LED lights, which are the LED small lights labeled L on the UNO board (pin13). This step can help us learn how to download the program and test if our Arduino main-board works properly. Our first task is to make this LED light blink.



Learning Contents:

SEN0231 Gravity HCHO Sensor
SEN0251 Gravity BMP280 Barometric Pressure Sensors
SEN0132 Carbon Monoxide Gas Sensor MQ7
SEN0032 Triple Axis Accelerometer Breakout - ADXL345
DFR0143 Triple Axis Accelerometer MMA7361
Triple Axis Accelerometer FXLN83XX Series
SEN0072 CMPS09 - Tilt Compensated Magnetic Compass
SEN0073 9 Degrees of Freedom - Razor IMU
DFR0188 Flymaple V1.1
SEN0224 Gravity I2C Triple Axis Accelerometer - LIS2DH
SEN0140 10 DOF Mems IMU Sensor V2.0
SEN0250 Gravity BMI160 6-Axis Inertial Motion Sensor
SEN0253 Gravity BNO055 + BMP280 intelligent 10DOF AHRS
SEN0001 URM37 V5.0 Ultrasonic Sensor
SEN0002 URM04 V2.0
SEN0004 SRF01 Ultrasonic sensor
SEN0005 SRF02 Ultrasonic sensor
SEN0006 SRF05 Ultrasonic sensor
SEN0007 SRF08 Ultrasonic Sensor
SEN0008 SRF10 Ultrasonic sensor
SEN0149 URM06-RS485 Ultrasonic
SEN0150 URM06-UART Ultrasonic
SEN0151 URM06-PULSE Ultrasonic
SEN0152 URM06-ANALOG Ultrasonic
SEN0153 URM07-UART

1. Experience the programming steps of Mind+
2. Learn sequential structure and loop structure

Project 2: Turn on the external LED light module

Mind+
PROJECT 2
Turn on the external LED light module

Introduction:

In Project I, we learned how to light up the UNO onboard LED light, and then we will learn how to control an external LED light.

Learning Contents:

1. Learn variables and constants
2. Make an LED light that flickers at an increasing rate.

Chapter 2: Magic Buttons

Project 3: Magic Button Switches

Mind+
PROJECT 3
Magic Button Switches

Introduction:

Button switches, also known as key switches, were called sensitive switches in the early days. They are widely applied in lights, socket master switches, doorbells, and car consoles, etc. Button switches add another protective layer to the usage of electricity. As they facilitate the controls of electrical appearance, they also further the protection of electrical components. As we learn Arduino, we will be exposed to a variety of input devices. Among them, the button switch is the simplest and most widely used one. Here we will use Arduino to control the LED lights to make button pressing switch the light on and off every other time.

Ultrasonic Sensor

SEN0246 URM08-RS485 Waterproof Sonar Range Finder

SEN0304 URM09 Ultrasonic Sensor (Gravity-I2C) (V1.0)

SEN0304 URM09 Ultrasonic Sensor (Gravity-I2C) (V1.0)

SEN0300 Water-proof Ultrasonic Sensor ULS

SEN0301 Water-proof Ultrasonic Sensor ULA

SEN0307 URM09 Ultrasonic Sensor Gravity Analog

SEN0311 A02YYUW Waterproof Ultrasonic Sensor

SEN0312 ME007YS Waterproof Ultrasonic Sensor

SEN0313 A01NYUB Waterproof Ultrasonic Sensor

DFR0066 SHT1x Humidity and Temperature Sensor

DFR0067 DHT11 Temperature and Humidity Sensor

SEN0137 DHT22 Temperature and humidity module

DFR0023 DFRobot LM35 Linear Temperature Sensor

DFR0024 Gravity DS18B20 Temperature Sensor Arduino Compatible V2

DFR0024 Gravity DS18B20 Temperature Sensor Arduino Compatible V2

SEN0114 Moisture Sensor

TOY0045 TMP100 Temperature Sensor

TOY0054 SI7021 Temperature and humidity sensor

SEN0206 IR Thermometer Sensor MLX90614

SEN0227 SHT20 I2C Temperature & Humidity Sensor Waterproof Probe

SEN0236 Gravity I2C BME280 Environmental Sensor Temperature, Humidity, Barometer

SEN0248 Gravity I2C BME680 Environmental Sensor VOC, Temperature, Humidity, Barometer

Learning Contents:

1. Learn the basics of digital input and conditional statement structure
2. Turn on the LED with the button

Project 4: Simple Timer Light

Mind+
2s
PROJECT 4
Simple Timer Light

Introduction:

What does a timer light do? Imagine this: it's getting late and you are going to bed. However, the lamp is some distance away from your bed. After turning it off, you have to feel your way in utter darkness to your bed. Students who sleep on the top beds in the dormitory have the same trouble. In the previous project, we learned how to use buttons to control LED lights. Next, we will further apply the conditional statement structure to learn how to make simple timer lights.

Learning Contents:

1. What is a conditional statement structure?
2. Make a timer LED light.

Project 5: Make a Button Switch

Mind+
PROJECT 5
Make a Button Switch

Introduction:

In the first project, we utilized a button to make LED on when the button is pressed and off when button released. However, in reality, the first button press switches on a light and the subsequent press turns it off -- this is how light switches work in our daily life. If you want to keep LED on without keeping

DFR0558 Gravity Digital High Temperature Sensor K-type

SEN0308 Waterproof Capacitive Soil Moisture Sensor

SEN0019 Adjustable Infrared Sensor Switch

SEN0042 DFRobot Infrared sensor breakout

SEN0143 SHARP GP2Y0A41SK0F IR ranger sensor 4-30cm

SEN0013 Sharp GP2Y0A02YK IR ranger sensor 150cm

SEN0014 Sharp GP2Y0A21 Distance Sensor 10-80cm

SEN0085 Sharp GP2Y0A710K Distance Sensor 100-550cm

DFR0094 Digital IR Receiver Module

DFR0095 DIGITAL IR Transmitter Module

SEN0018 Digital Infrared motion sensor

DFR0107 IR Kit

SEN0264 TS01 IR Thermal Sensor (4-20mA)

SEN0169 Analog pH Meter Pro

DFR0300-H Gravity: Analog Electrical Conductivity Sensor(K=10)

DFR0300 Gravity Analog Electrical Conductivity Sensor Meter V2 K=1

SEN0165 Analog ORP Meter

SEN0161-V2 Gravity Analog pH Sensor Meter Kit V2

SEN0161 PH meter

SEN0237 Gravity Analog Dissolved Oxygen Sensor

SEN0204 Non-contact Liquid Level Sensor XKC-Y25-T12V

SEN0205 Liquid Level Sensor-FS-IR02

SEN0244 Gravity Analog TDS Sensor Meter For Arduino

SEN0249 Gravity Analog Spear Tip pH Sensor Meter Kit For Soil And Food Applications

SEN0121 Steam Sensor

the button pressed, then you should check out this chapter, which turns the button into a real light switch.

Learning Contents:

1. How to eliminate button jittery?
2. Make a button switch

Chapter 3: Controllable Lights

Project 6: Breathing Lights

Mind+
PROJECT 6
Breathing Lights

Introduction:

As its names suggests, breathing lights consist of lights that go from dim to bright and back to dim by the rhythm of breathing. Breathing lights have been applied in many areas, including missed calls / SMS notifications on mobile phones, mouse breathing lights, keyboard backlights, external batteries charging lights, and cosmetic lightings on sound systems, etc.

Learning Contents

1. What is a function?
2. Make a breathing light

Project 7: 3-step Adjustable Light

Mind+
PROJECT 7
3-step Adjustable Light

Introduction:

In the making of breathing light in the previous section, we achieved the effect of fade-in and fade-off through function calls. In this section, we will use buttons to control the LED

SEN0097 Light Sensor
DFR0026 DFRobot Ambient Light Sensor
TOY0044 UV Sensor
SEN0172 LX1972 ambient light sensor
SEN0043 TEMT6000 ambient light sensor
SEN0175 UV Sensor v1.0-ML8511

module to achieve multi-step brightness feature. Multi-step control is often used in car's air-conditioning keys, desk lamp, stage lighting, sound system, etc.

Learning Contents:

1. What is a PWM output?
2. Make a 3-step adjustable light

Project 8: Knob Adjustable Light

Mind+
Arduino

search
Controller
DFR0182 Wirless GamePad V2.0
DFR0100 DFRduino Beginner Kit For Arduino V3
DFR0267 Bluno
DFR0282 Beetle
DFR0283 Dreamer Maple V1.0
DFR0296 Bluno Nano
DFR0302 MiniQ 2WD Plus
DFR0304 BLE Wireless Gamepad V2
DFR0305 RoMeo BLE
DFR0351 Romeo BLE mini V2.0
DFR0306 Bluno Mega 1280
DFR0321 Wido-WIFI IoT Node
DFR0323 Bluno Mega 2560
DFR0329 Bluno M3
DFR0339 Bluno Beetle
DFR0343 UHex Low-power Controller
DFR0355 SIM808 with Leonardo mainboard
DFR0392 DFRduino M0 Mainboard Arduino Compatible
DFR0398 Romeo BLE Quad Robot Controller
DFR0416 Bluno M0 Mainboard
DFR0575 Beetle ESP32

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Chapter 2: Magic Buttons
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Chapter 5 Master Sound Devices
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EN

SKU:KIT0152

MindPlus Coding Kit for Arduino

Introduction

MindPlus Coding Kit for Arduino is a set of tools for programming learning. As its compatibility for Mind+, a graphical coding software for starters, and Arduino IDE, this kit is well applicable to students from the lower grade to the higher grade. It comes with an Arduino Uno R3 mainboard and a sensor expansion board V7, and 18 commonly used sensors and actuators. These sensors are equipped with Gravity interfaces, which are easy to use and allow your creativity to be realized more quickly. The course for this kit will first start from lighting up an onboard LED on Arduino to help students step into the world of coding. Then more sensors and actuators will be used to realize complicated functions in later projects. Four aspects are covered in the courses: algorithms & programming, computing system, network & internet, data analysis. Students will practically participate in the projects like Express transportation detection via IoT, Mobile smart client and so on, during which they will get to know basics about coding, internet and data as well as build logic thinking skills.

What is Mind+?

Mind+ is a graphical programming software for teenagers integrating with all kinds of mainstream mainboards and open-source hardware. As it supports AI and IoT, you can build a program by dragging and snapping coding blocks, or using advanced programming language like python, c, c++. It can help you to easily experience the joy of creation!

DFR0133 X-Board
DFR0162 X-Board V2
DFR0428 3.5 inches TFT Touchscreen for Raspberry Pi
DFR0494 Raspberry Pi UPS HAT
DFR0514 DFR0603 IIC 16X2 RGB LCD KeyPad HAT V1.0
DFR0524 5.5 HDMI OLED-Display with Capacitive Touchscreen V2.0
DFR0550 5'' TFT-Display with Touchscreen V1.0
DFR0591 raspberry pi e-ink display module V1.0
DFR0592 DC Motor Driver HAT
DFR0604 I O Expansion HAT for Pi zero V1.0
DFR0566 IO Expansion HAT for Raspberry Pi
DFR0528 UPS HAT for Raspberry Pi Zero
DFR0331 Romeo for Edison Controller
DFR0453 DFRobot CurieNano - A mini Genuino Arduino 101 Board
TEL0110 CurieCore intel® Curie Neuron Module
DFR0478 FireBeetle ESP32 IOT Microcontroller(V3.0) Supports Wi-Fi & Bluetooth
DFR0483 FireBeetle Covers-Gravity I O Expansion Shield
FireBeetle Covers-24×8 LED Matrix
TEL0121 FireBeetle Covers-LoRa Radio 433MHz
TEL0122 FireBeetle Covers-LoRa Radio 915MHz
TEL0125 FireBeetle Covers LoRa Radio 868MHz
DFR0489 FireBeetle ESP8266 IOT Microcontroller
DFR0492 FireBeetle Board-328P with BLE4.1
DFR0498 FireBeetle Covers-Camera&Audio Media Board
DFR0507 FireBeetle Covers-OLED12864 Display

1. Offline programming editor

Mind+ is a programming tool, which allows you to build a program by dragging and snapping coding blocks. With tons of tutorials, sample projects and a large community, it is one of the best tools for you to learn programing from absolutely zero!

2. Create Interactive Projects with Hardware

Mind+ supports a wide range of hardware including Arduino, micro:bit or even a series of ESP32-based educational microcontrollers, which makes it possible to let the program change your real life. Not only that you can use microcontrollers to interact with PC in real time, but also you can upload the code and let them work as standalone smart devices.

3. Wide Range Add-on Component Support

The build-in component list allows you to one-click add electronic modules to your project. You may choose from sensors, actuators, display or communication modules to make your project fun and powerful.

4. Convert Blocks into Coding Languages

The build-in interpreter in Mind+ converts blocks into Python or C language, creating a steady but progressive learning path for learning how to code.

For more ways to play, welcome to Mind+ column.

Features

- 18 Modules with functions involving Bluetooth, WiFi, display, etc.
- 25 Interesting projects to explore IoT, smart home, etc.
- The teaching contents are instructed in detail from the perspectives of materials, hardware connections, hardware working principles, and programming, enabling beginners to master how to use Arduino and integrally learn network Internet and data analysis. Then draw inferences about it.

Specification

- Controller: DFRduino UNO R3
- Power Supply: 6 AA batteries or 6-12V power adapter
- Programming Platform： Mindplus，Arduino IDE
- Weight：

Introduction to Teaching Contents and Projects

Teaching Contents

Click to download the detailed contents：KIT0152-EN-MindPlus Coding Kit for Arduino-MindPlus-Tutorial.pdf

Chapter 1: Hello World

DFR0508 FireBeetle Covers-DC Motor & Stepper Driver

DFR0511 FireBeetle Covers-ePaper Black&White Display Module

DFR0531 FireBeetle Covers-ePaper Black&White&Red Display Module

DFR0536 Micro bit Gamepad Expansion Board

DFR0548 Micro bit Driver Expansion Board

ROB0148 micro: Maqueen for micro:bit

ROB0150 Micro bit Circular RGB LED Expansion Board

MBT0005 micro IO-BOX

SEN0159 CO2 Sensor

DFR0049 DFRobot Gas Sensor

TOY0058 Barometric Pressure Sensor

SEN0220 Infrared CO2 Sensor 0-50000ppm

SEN0219 Gravity Analog Infrared CO2 Sensor For Arduino

SEN0226 Gravity I2C BMP280 Barometer Sensor

SEN0231 Gravity HCHO Sensor

SEN0251 Gravity BMP280 Barometric Pressure Sensors

SEN0132 Carbon Monoxide Gas Sensor MQ7

SEN0032 Triple Axis Accelerometer Breakout - ADXL345

DFR0143 Triple Axis Accelerometer MMA7361

Triple Axis Accelerometer FXLN83XX Series

SEN0072 CMPS09 - Tilt Compensated Magnetic Compass

SEN0073 9 Degrees of Freedom - Razor IMU

DFR0188 Flymaple V1.1

SEN0224 Gravity I2C Triple Axis Accelerometer - LIS2DH

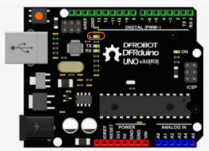
SEN0140 10 DOF Mems IMU

Project 1: Lighting up Onboard LED Light

Mind+
NO
PROJECT 1
Lighting up Onboard LED Light
DFROBOT
DFRduino
UNO

Introduction:

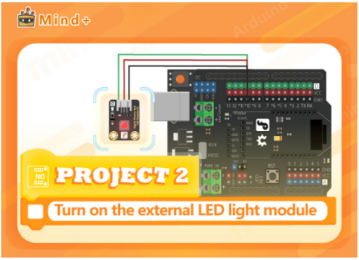
First let's write one of the simplest codes to light up the onboard LED lights, which are the LED small lights labeled L on the UNO board (pin13). This step can help us learn how to download the program and test if our Arduino main-board works properly. Our first task is to make this LED light blink.



Learning Contents:

1. Experience the programming steps of Mind+
2. Learn sequential structure and loop structure

Project 2: Turn on the external LED light module



Mind+
NO
PROJECT 2
Turn on the external LED light module

Introduction:

In Project I, we learned how to light up the UNO onboard LED light, and then we will learn how to control an external LED light.

Learning Contents:

Sensor V2.0

SEN0250 Gravity BMI160 6-Axis Inertial Motion Sensor

SEN0253 Gravity BNO055 + BMP280 intelligent 10DOF AHRS

SEN0001 URM37 V5.0 Ultrasonic Sensor

SEN0002 URM04 V2.0

SEN0004 SRF01 Ultrasonic sensor

SEN0005 SRF02 Ultrasonic sensor

SEN0006 SRF05 Ultrasonic sensor

SEN0007 SRF08 Ultrasonic Sensor

SEN0008 SRF10 Ultrasonic sensor

SEN0149 URM06-RS485 Ultrasonic

SEN0150 URM06-UART Ultrasonic

SEN0151 URM06-PULSE Ultrasonic

SEN0152 URM06-ANALOG Ultrasonic

SEN0153 URM07-UART Ultrasonic Sensor

SEN0246 URM08-RS485 Waterproof Sonar Range Finder

SEN0304 URM09 Ultrasonic Sensor (Gravity-I2C) (V1.0)

SEN0304 URM09 Ultrasonic Sensor (Gravity-I2C) (V1.0)

SEN0300 Water-proof Ultrasonic Sensor ULS

SEN0301 Water-proof Ultrasonic Sensor ULA

SEN0307 URM09 Ultrasonic Sensor Gravity Analog

SEN0311 A02YYUW Waterproof Ultrasonic Sensor

SEN0312 ME007YS Waterproof Ultrasonic Sensor

SEN0313 A01NYUB Waterproof Ultrasonic Sensor

1. Learn variables and constants
2. Make an LED light that flickers at an increasing rate.

Chapter 2: Magic Buttons

Project 3: Magic Button Switches

Mind+
PROJECT 3
Magic Button Switches

Introduction:

Button switches, also known as key switches, were called sensitive switches in the early days. They are widely applied in lights, socket master switches, doorbells, and car consoles, etc. Button switches add another protective layer to the usage of electricity. As they facilitate the controls of electrical appearance, they also further the protection of electrical components. As we learn Arduino, we will be exposed to a variety of input devices. Among them, the button switch is the simplest and most widely used one. Here we will use Arduino to control the LED lights to make button pressing switch the light on and off every other time.

Learning Contents:

1. Learn the basics of digital input and conditional statement structure
2. Turn on the LED with the button

Project 4: Simple Timer Light

Mind+
2s
PROJECT 4
Simple Timer Light

Introduction:

DFR0066 SHT1x Humidity and Temperature Sensor

DFR0067 DHT11 Temperature and Humidity Sensor

SEN0137 DHT22 Temperature and humidity module

DFR0023 DFRobot LM35 Linear Temperature Sensor

DFR0024 Gravity DS18B20 Temperature Sensor Arduino Compatible V2

DFR0024 Gravity DS18B20 Temperature Sensor Arduino Compatible V2

SEN0114 Moisture Sensor

TOY0045 TMP100 Temperature Sensor

TOY0054 SI7021 Temperature and humidity sensor

SEN0206 IR Thermometer Sensor MLX90614

SEN0227 SHT20 I2C Temperature & Humidity Sensor Waterproof Probe

SEN0236 Gravity I2C BME280 Environmental Sensor Temperature, Humidity, Barometer

SEN0248 Gravity I2C BME680 Environmental Sensor VOC, Temperature, Humidity, Barometer

DFR0558 Gravity Digital High Temperature Sensor K-type

SEN0308 Waterproof Capacitive Soil Moisture Sensor

What does a timer light do? Imagine this: it's getting late and you are going to bed. However, the lamp is some distance away from your bed. After turning it off, you have to feel your way in utter darkness to your bed. Students who sleep on the top beds in the dormitory have the same trouble. In the previous project, we learned how to use buttons to control LED lights. Next, we will further apply the conditional statement structure to learn how to make simple timer lights.

Learning Contents:

1. What is a conditional statement structure?
2. Make a timer LED light.

Project 5: Make a Button Switch

Mind+
PROJECT 5
Make a Button Switch

Introduction:

In the first project, we utilized a button to make LED on when the button is pressed and off when button released. However, in reality, the first button press switches on a light and the subsequent press turns it off -- this is how light switches work in our daily life. If you want to keep LED on without keeping the button pressed, then you should check out this chapter, which turns the button into a real light switch.

Learning Contents:

Downloaded from Arrow.com.