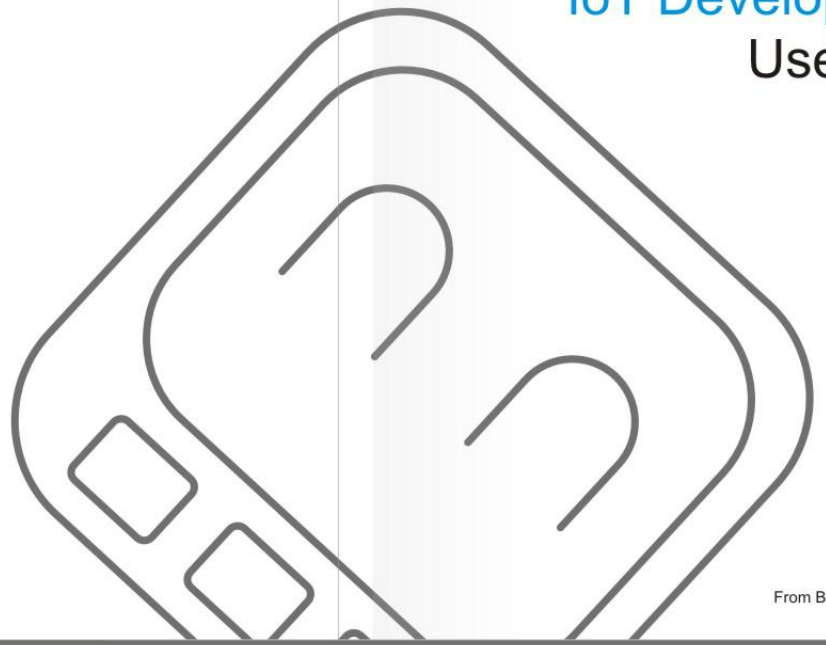
M5STACK

M5GO
IoT Development Kit
User Manual



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From Beginner to IoT expert in no time

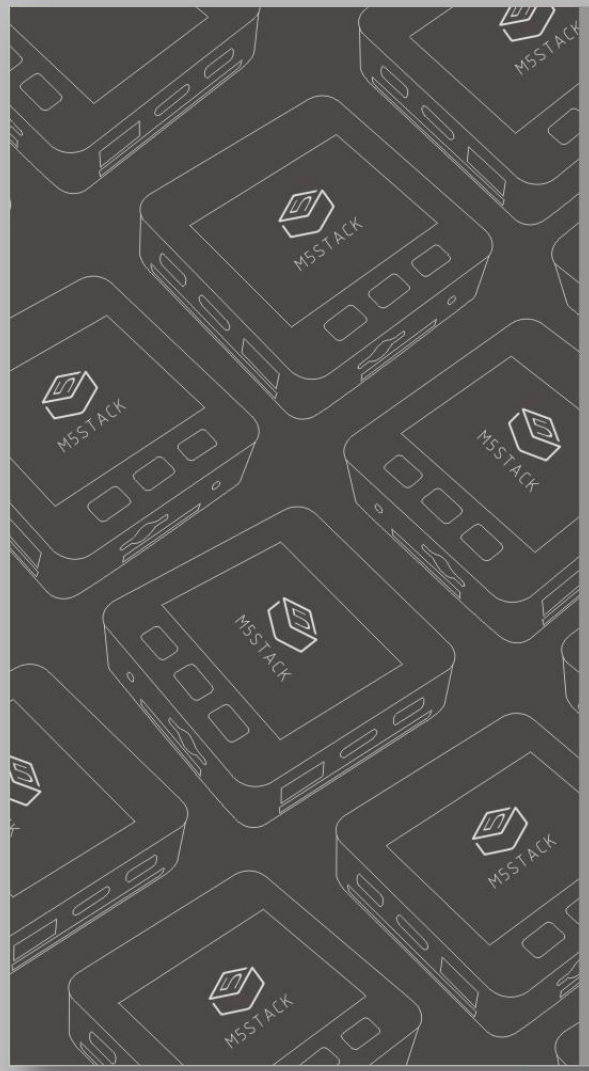
To the budding Inventor

This is our latest STEAM education product M5GO, Education is a education suite specially designed for school-age teenagers to learn programming and develop the Internet of things. It has three characteristics:

1、Easy to develop: Compared with the existing peer products, M5GO has a brand new experience. It does not need to connect data lines or install software apps. Scan two-dimensional code can enter the development environment, and it does not even need to have programming basis.

2、Multi-resources: there are not only a large number of Arduino cases in the software, but also the support of MicroPython, the dynamic scripting language we have carefully built; ESP32 system on hardware, with strong performance and rich expansion function; In terms of structure, M5GO is more compatible with the stack system of lego and M5Stack. M5GO proficient in software and hardware has unlimited application possibilities.

3、High finish: M5GO has a complete product attributes, it break through the limitation of the traditional development board can only make verification, when use, only need to write a good program for it, connected to the related module, you can build a complete iot products, and used directly in the scene, in the actual application in stimulating students' creativity and cultivate the students "work doing what" good development principles, M5GO it is not a toy, is the programming tool every teenager should have.



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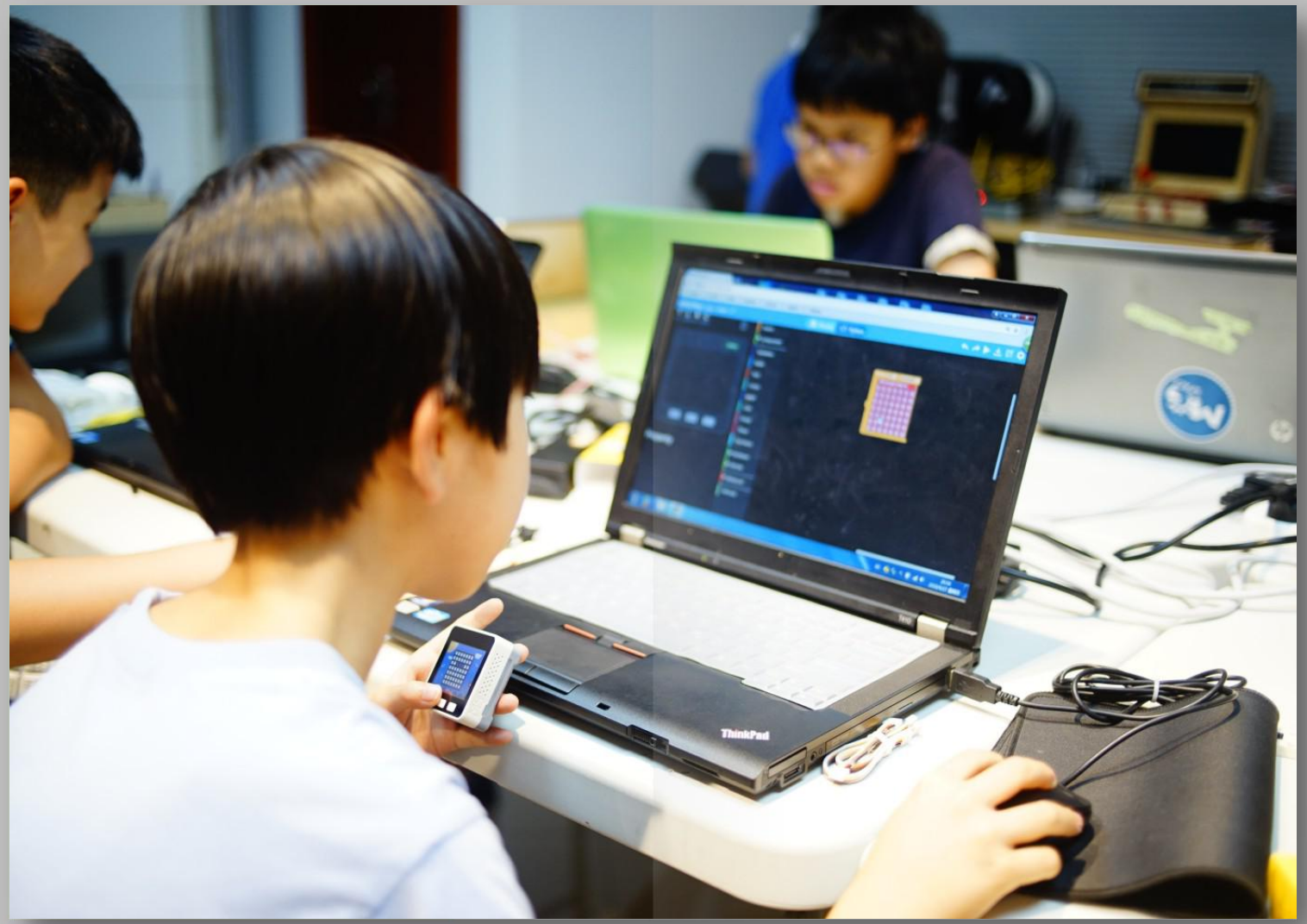

ThinkPad

M5GO introduction

M5GO is a kit which can be used to teach the concepts behind building IoT devices
It allows students to explore the interconnected world of programmable electronics.



What can M5GO Do?

Internet of things

Python

STEAM

Smart products

Hardware development

M5GO has been tested in countless classrooms and has had the input of A great many teachers in order to make it the simple to use IoT development tool it is today.

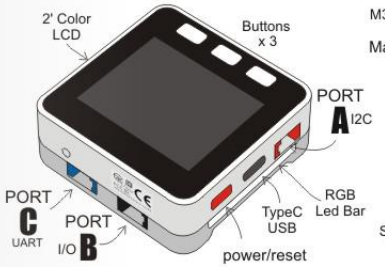


M5GO has wifi and bluetooth capabilities straight out of the box which are essential for IoT.

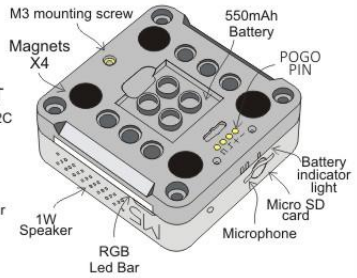
M5GO Core

M5GO uses the powerful ESP32 a chip which has been purpose built for IoT
It uses cutting edge technology to ensure fast processing with minimum power requirements and the aforementioned wifi and bluetooth capabilities

M5GO hardware introduction



俯视图



底视图

GROVE PORT	CABLE			
A I2C	GND	5V	SDA	SCL
B I/O	GND	5V	G26 In/Out	G36 Input
C UART	GND	5V	TXD	RXD

Built-in Wifi and bluetooth

3-axis gyro allows you to keep track of movement and angle of the m5

550ma Battery allows you to stay untethered from the computer

High quality speaker for audio playback

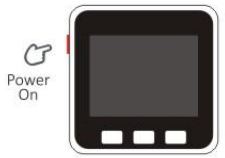
Unit and Demo Program overview

In this section we'll discuss the basic operation of the M5GO, how the units are connected and how they interact with the M5GO

How to access the demo program

Turn on the M5

Single press the red button on the side of the M5GO to turn it on, you will hear a Brief beep to denote power on. Any subsequent single presses of the power buttonWill reset the device. To turn off the M5GO, double press the red button, if you do not hear the beep you have successfully turned your M5GO off.



Startup Screen

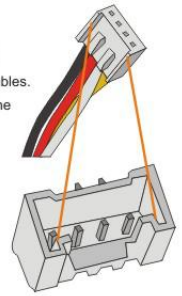
On startup you have 3 options to select. Pressing the left button below "upload" will take you to the uiflow program flashing page, be aware that this requires you to be connected To a network first. If you press the center button on the startup screen you will enter a list Of apps stored in the M5GO's flash memory, any programs you download from uiflow in future Will be stored here. Finally the right button will take you to a list of wifi networks and setup options For wifi. If you wish to setup wifi now refer to page13.

Demo Program

On booting up the M5GO for the first time the Demo program should automatically Run after a few seconds. You can press the left and right buttons to cycle through The pages of the demo program. After reseting you can return to the demo program by pressing the center button on boot screen and selecting M5GO from the list.

How to connect Units

M5GO has 3 color coded ports labelled A,B and C for connecting different kinds of Unit. A unit with a red port for example should be connected to the red port of the M5GO With the supplied grove cables. Please note that the two protruding plastic pieces on the Plug of the cable should face the bottom when plugging in.



Demo Program

Demo1 Speaker

The first page shows off the speaker functionality of the M5GO. By pressing the center button the speaker will play a short jingle.

Demo2 Microphone

This page informs the user of the microphone functionality of the M5GO. By speaking or tapping next to the microphone located on the front of the M5GO you can see the input level displayed as a sound wave.

Demo3 Gyroscope

If we start to tilt the M5GO in different directions on this page we can see The red circle react to the movement. The M5GO has a gyro sensor much like The ones used in modern smartphones to track the rotation off the phone and Rotate the screen orientation.

Demo4 RGB LED Bar

On arriving at this page you'll notice that the RGB LED bars on both sides of the M5GO start flashing different colors. As you may have guessed RGB stands for Red, Green and Blue therefore we can program the LED bars on Either side to display any color we want by mixing these colors.

Demo5 Environment Sensor

This is the first in a series of pages that introduces the different sensors in the kit. The ENV(environment) sensor can sense ambient temperature, moisture and air pressure. On connecting the ENV sensor the values of the sensor will be displayed in the box. Try rubbing or blowing on the sensor to influence the temperature.

Demo6 PIR (Passive Infra-Red) Sensor

This sensor works like the automatic lights you may have seen near your home If a person, cat or other being passes in front, the sensor is triggered. The circle on the page will stay grey unless it is triggered and then it will turn red.

Demo7 Linkable RGB Unit

This unit is much like the RGB LED bars on the sides of your M5GO. It uses the same type of LEDs but only uses 3 of them. Make sure you attach it the right way round or the LEDs will not light up. one side of the RGB Unit is for connecting to the M5GO and the other is for linking more RGB units together, if your friends have a kit try linking all of your RGB units together.

Demo8 IR Transmitter/Reciever

Just like your TV can be turned on or the channel can be switched with a remote you can also send a signal from one M5 to another. If you have a friend with an M5GO, plug IR sensors into both devices and point them at each other. Press the center button and watch the screen of the other device. If your IR sensor was pointing at the other IR sensor you should see the lights come on. You could always try pointing your TV remote at the IR sensor and press all the buttons and See if anything happens.

Demo9 Angle Sensor

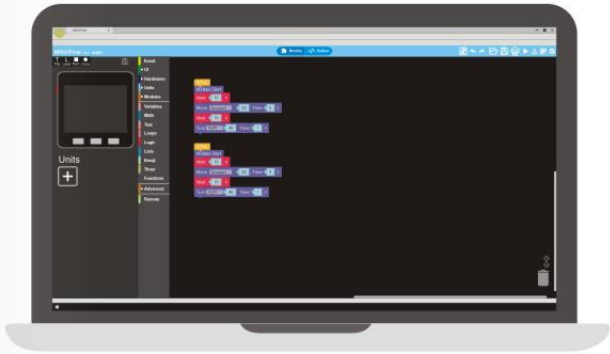
The final page of the demo allows us to control the brightness of the RGB LED bars. Once the sensor has been plugged in, you can twist the knob to see the lights dim and brighten. A percentage is also displayed on the screen.

Introducing Ui flow

Before we can get started programming the M5GO, we will need to connect it to the internet to send the code from your computer to the device. In this section you'll learn how to get started with your first program.

What is Ui flow?

Ui flow is a browser based programming tool which uses blocks of code to introduce you to the concept of programming. All of the Blocks have different functions for controlling the M5GO. Gradually you will learn the concepts of programming until you are at the level to learn Python a simple yet powerful programming language which Ui flow is based upon.



How to get started with Ui flow

Ui flow and M5GO are intended to be used together, in order to get started programming your M5GO with Ui flow you'll need to link them. First we'll start by connecting your M5GO to wifi.

M5GO Wifi Setup

Turn on the device and press the right button to Enter wifi setup

Press the center button To Select wifi setup

Connect your smartphone or computer to the wifi hotspot Displayed on the screen

Scan the QR code or enter The IP address into your browser

Enter your wifi details and press configure

If your entered your wifi details correctly the M5GO Will connect and reset to the Main screen

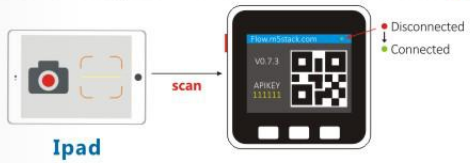
Now that you have setup your wifi, the wifi details are stored in the M5GO and it will auto connect each time you go into upload mode. To get into upload mode, press the left button once the boot screen shows up.

Linking your M5GO to Uiflow with your API Key

Upload mode

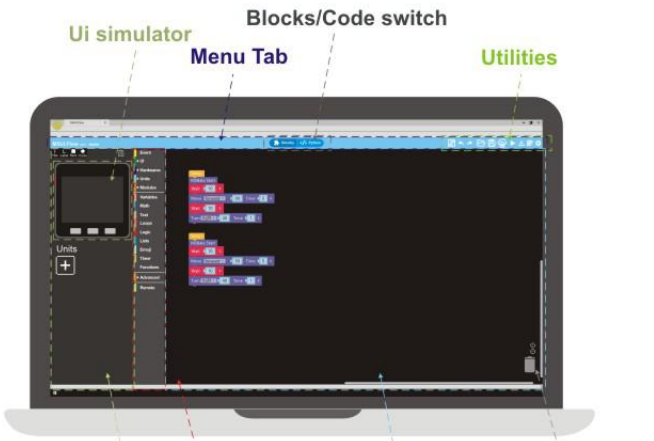
Connecting

If you wish to program your M5GO using a tablet you can scan the QR code using the camera of your device. Alternatively you can enter the Uiflow address into your browser. flow.m5stack.com

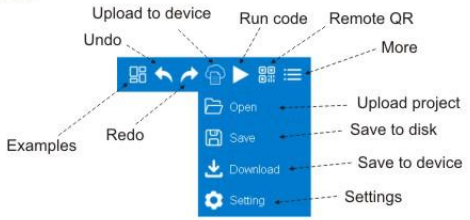


On the Ui flow page click on the gear icon at the top right of your screen;
Enter the API Key displayed on your M5GO's screen into the text field and press save

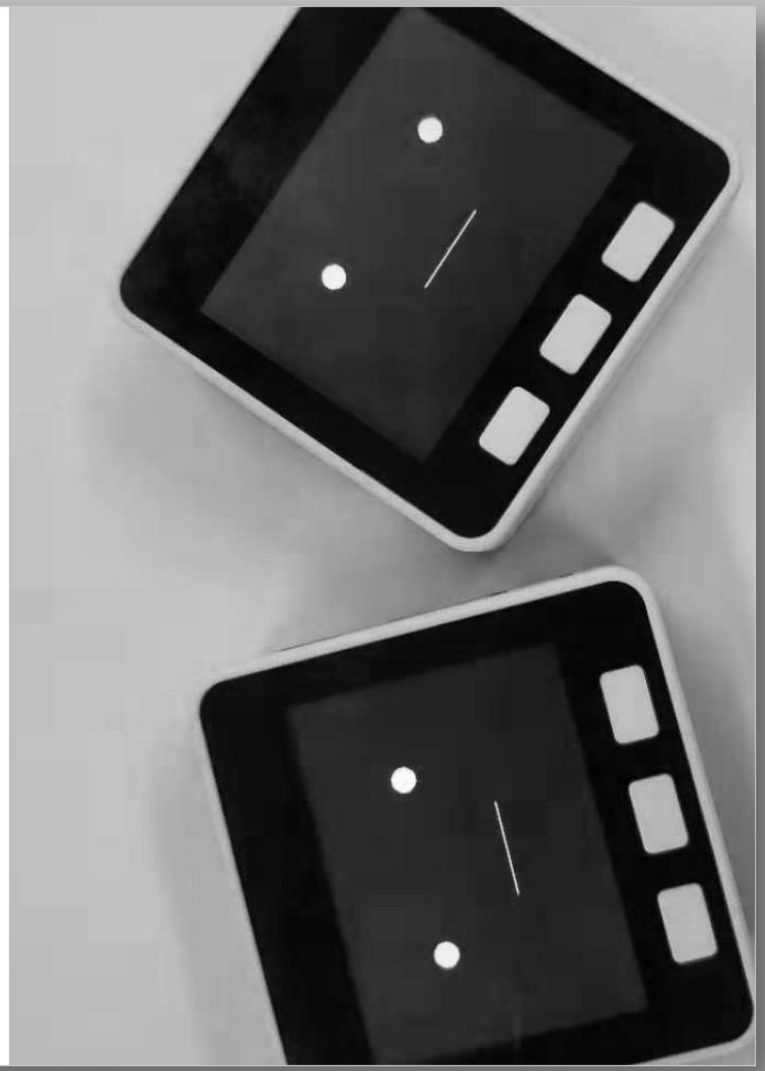
Getting to know the Ui flow interface



Utilities



flow.m5stack.com



Running your first program

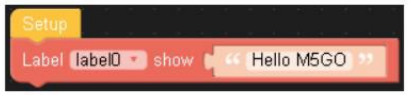
Once the M5GO is connected to the Ui flow platform we can test it out by making our first simple program.

Hello M5GO

Our very first program will be to display a message on the screen of the M5GO.
First drag a label from the top left corner onto the Ui simulator

Then select Label from the blocks list. Drag the first block from the labels section into The coding area.

The blocks are designed to snap together. Lets try to connect the label block with,The setup block. As you drag the label block below the setup block you'll notice a change in color. Release the mouse button and the blocks will snap together. Now enter your message into the text box.Finally, press play the play button on the top bar to send the code to your M5GO



There are two separate ways to upload code to your M5GO:

The first one is by Pressing the play button which will upload the code to your device, but if you Switch the M5GO off or upload a new program the previous program will be lost.

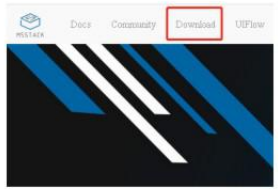
The second method uses the icon below. Pressing this icon will store the program in The M5GO's memory and you will be able to access it from the app list later.

Upgrading firmware

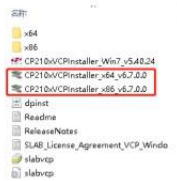
Ui flow is constantly being improved an updated. To keep up to date with the latest features you'll need to upgrade your device from time to time, here's how its done.

Installation driver

In order for your computer to be able to connect with the M5GO you'll need to install a driver. The driver can be found in the download section of our website M5Stack.com The driver is the bottom download in the list (cp210x) make sure to choose the right option for your OS.



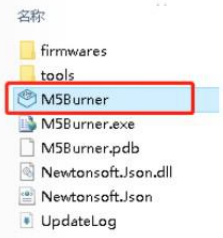
Once the driver has finished downloading, unzip the package and choose the correct install file for your OS

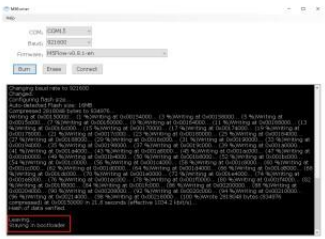


Burner software

The Burner tool can be downloaded from flow.m5stack.com by pressing the gear in the top left corner you can select the correct burner version for your OS

After unzipping the file downloaded from the Ui flow website, open the M5Burner file select the COM part your device is connected on. You can find out which com port your M5GO is connected to by opening the windows device manager and selecting com port. Once you have selected the correct com port. Set the baud rate to 115200 and select Erase, Once the erase procedure is complete select your desired firmware and press burn. The output console will print leaving console once it's done.






Units
Microphone

Programming with blocks

In this section we'll take a look at some of the main concepts behind programming with A block based language.

What are programming blocks

Uiflow is a programming interface based on a popular block programming language called Blockly. Blockly aims to take the pain out of programming for beginners, helping to avoid headaches of resolving issues with syntax, whitespace and other peculiarities of typed programming languages that can put beginners off programming all together. The blocksare designed in such a way that they can represent the majority of the functions of the typedlanguage, including all the main elements of any programming language, such as variables, arrays, functions and so on. There are specific blocks designed for interfacing with hardware that connects with the M5GO. Lets have a look at how the blocks work…

How to use programming blocks

Setup block

On opening Ui flow you'll see a single block in the coding area labelled Setup. The Setup block Will run any code attached to it once.

Loop block

If we want to repeat any code continuously or while some some condition is true, we're goingto need to use loops. The most basic of these loops we can find in the events section. It runs whatever code is put inside of it over and over again, until you send some new code or switch off the device.

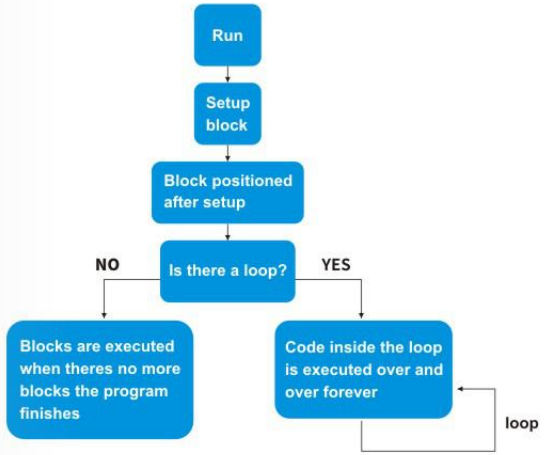
How the blocks connect

In order for the loop block to function it needs to be connected to the setup block, which can be done by dragging it close to the bottom of the setup block and releasing the mouse.All other blocks function in a similar way, and you'll notice when the blocks are not connected they will appear in a darker color, which means that they will be ignored when the code is run.

How a program executes

Programs run in a specific order from top to bottom. Anything that is put before the loop, Will be executed first and once the loop is entered only the code inside the loop will be run from then on.

Program order



Hardware Blocks

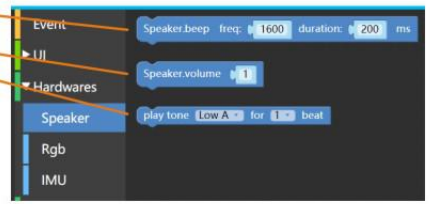
Speaker

Function Introduction

In the demo program we learnt that the M5GO has a speaker, therefore we can control this function with the speaker blocks. We can set the frequency and the duration of the sound with the first block and the speaker volume with the second block. The third type of block will be more familiar to those with a musical background. The first drop down list in the block allows you to select the musical notes, and a second list which will set the beat or duration of The note.

Block types

Frequency in Hz / Duration
Volume
Note and Beat



Extra information

To understand the difference between the frequency and the note blocks we need to understand the concept of sound. Sound is simply vibration and the rate at which it vibrates is called frequency. The higher the vibration the higher pitch the sound and the lower the vibration the lower the sound. Notes on a piano or other musical instrument produce a certain frequency, for instance the frequency of the A note is 440hz.

RGB

Function Introduction

As we discovered, the M5GO has two led bars which can light up different colors.Each LED bar is made up of 5 LED's each and each of those LEDs can be programmed individually.

Block types

Set both RGB bars to the same color
Set the left or right RGB bar to a color
Set one LED in the RGB bar to a color
Set the brightness of the RGB bar

Extra Information

RGB as we learnt stands for Red, Green and Blue the additive primary colors. These colors can be mixed from 0-255 to create a wide array of different colors.

Hardware blocks continued

Button

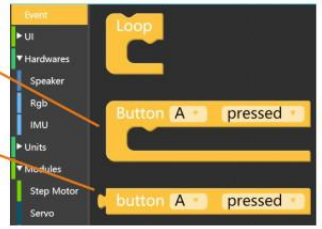
Function Introduction

As you can see on the face of the M5GO there are 3 buttons. These buttons can be programmed to control any of the functions of the M5GO.

Block types

Whatever is inserted into this block Will be executed on the button press

This block can be combined with logic blocks to create more complex conditions with



Usage

This block works similar to the loop block. We need to put other blocks inside of it, only in this Case the enclosed code will only be executed once the button is pressed.

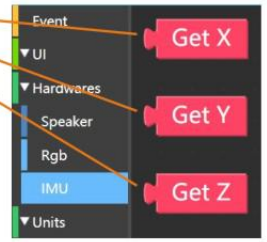
IMU(Inertial measurement unit)

Function Introduction

The IMU is a component inside the M5GO which allows it to sense in which direction it is being tilted, just as a tablet may change the screen orientation when tilted the M5GO can do the same.

Block types

Receive the X coordinate
Receive the y coordinate
Receive the z coordinate



Usage

We can get the position from the IMU and use it to control many different things, such as tilting the M5GO to control the brightness of the RGB bar or the frequency of the speaker. the best way for us to visualize the data is to use a label block and print the value to the screen, we'll discuss how to do this later.

Display blocks

Emoji

Function Introduction

Since M5GO has a screen, of course we would want to display some images on it, but how can we do this. The Emoji is the simplest way of creating an image and displaying it to the screen. The screen is made up of many small squares called pixels, since it would be difficult for us to draw an image coloring those tiny squares one by one we created the Emoji which splits the screen into a grid. By pressing the squares on the grid we can draw some simple images.

Block types

Any square we click on this grid will
Be set to the color we have chosen in the top corner color selector.

This block allows us to fill each square with a different color individually by choosing its position in a set row or line.

Usage

Create an image by ticking the squares and connect it to setup or put inside a loop

Using the Ui designer

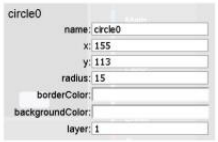
Function Introduction

On the left side of the Ui flow interface we can see an area which looks like the M5. Above this are there are a few icons, these icons can be dragged onto the M5 screen to create a Ui interface. Whenever a Ui element is dragged on to the screen an equivalent block will appear in the Ui section of the blocks list.

Display area

Before we can program the Ui elements we must have dragged at least one of them on to the screen. If you wish to remove one of the elements you can drag it to the trash bin.

If we press on any of the Ui elements a pop up menu will appear, which allows to change the name, x/y position, color, layer etc.. of the element.



Ui Blocks

Label

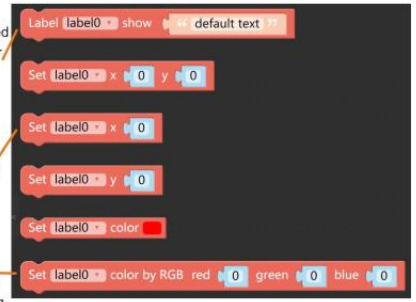
Function Introduction

Ui blocks are context sensitive and will change depending on what was dragged into the UI designer, below are the blocks for labels.

This block will set the text of the selected label to whatever is typed in the box or whatever variable or sensor value is dropped into the text slot.

These blocks allow the position of the label to be changed during the execution of the program.

Set the labels color with these blocks by either selecting a color from the color selector or entering An RGB value.



Usage

All of the blocks in the label section can be changed with a variable over time during the execution of our program, for example we can change the color of the text to red after waiting 1 second.

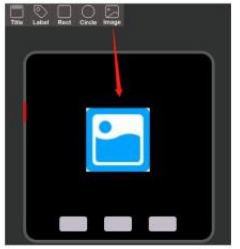
Image

Upload and display image files

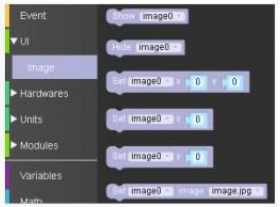
Its also possible to display a jpeg or bmp image (file size must be within 25k) on the screen by using the upload function of the Ui flow interface. The M5GO must first be connectedto Ui flow before doing so.

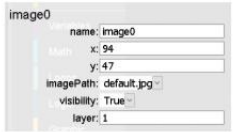
By clicking on the disk within a cloud icon we can choose to upload different kinds of files.On clicking the images tab we can press the add file button to upload an image from our computer.

Drag an image placeholder from the Ui elements tab into the Ui designer.On clicking the image placeholder the properties menu will appear where we can adjust the name, x/y position, image content of the image placeholder and its visibility.



Once an image placeholder has been dragged into the Ui manager, all the related image blocks will appear in the Ui section. With these blocks we can change various properties of the image anytime throughout the program.





Using the Function Blocks

Functions

Function Introduction

Functions are a vital part of all programming languages, put simply they wrap a bunch of code all together in a single command, so we can call that command whenever we need it in another part of our program which saves a lot of work.

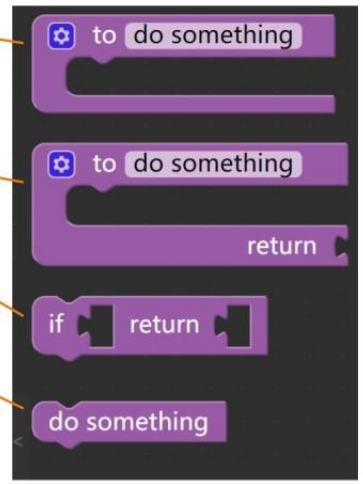
Block types

This function block acts in a similar way to the setup block, in that it only runs the code inserted inside it once and then the program will move on to whatever follows it

This block has the ability to return A value when the code inside it has finished running, True or False for instance

Based on a condition inside the function e.g. If x > 5 then return some value

This block can be inserted anywhere inside a program and will repeat the code that you put inside the function block



Wait

Function Introduction

Wait only contains one block and it does just what the label says, for the amount of time in seconds that we enter in the input box, the wait block will essentially pause the program. Sometimes programs run too fast for us to see the result, therefore in these situations it's necessary for us to add a wait block.

Block types

Connect these blocks in between other function blocks to delay the code change the seconds in the input section according to your needs.Function Introduction.

Usage

Be wary of where you put the wait blocks in the program. If we wanted to set the RGB bar to a different color after one second we would arrange the code like so.

Maths blocks

Math

Function Introduction

No matter what we do Maths is needed in some way. Programming mostly requires an ability to think abstractly but it also requires math skills. If we want to decrease or increase a variable for instance we need to subtract or add to it. Most programs only need simple maths functions but depending on the complexity there are maths blocks to suit most needs.

Block types

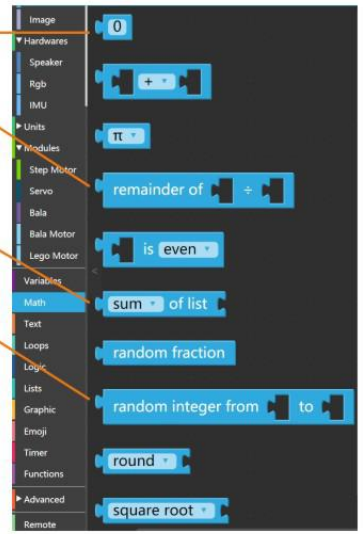
This block acts as an input for numbers and can be attached to a variable to assign a value to it or a label to print a number and much more

This function often referred to as a modulo operation, takes two numbers divides one by the other and returns the remainder.

This block sums up all of the elements In a list or array

Randomly picks a number between two determined values

The drop down lists in the other math blocks provide you with all the operators you need for simple to complex calculations.



Variables

Function Introduction

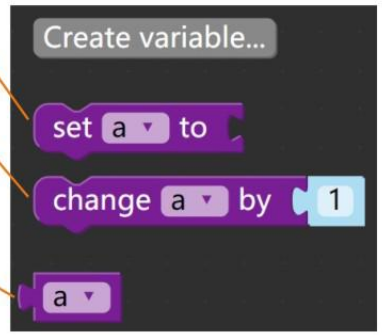
Variables are a fundamental part of all programming languages. Think of them as a container for a value that can be changed at any time during a program. They can contain a number or a line of text. We create variables by clicking the Create variable button, naming it and then assigning it a value.

Block types

Connect a maths number block or a text block to this block to create different kinds of variables

This block allows us to increment or decrement the variables value by a desired number. A negative number can be entered to decrement the value

You may have noticed jigsaw puzzle shaped slots in some of the blocks you can insert this variable block into those instead of just typing a number



Logic blocks

Loops

Function Introduction

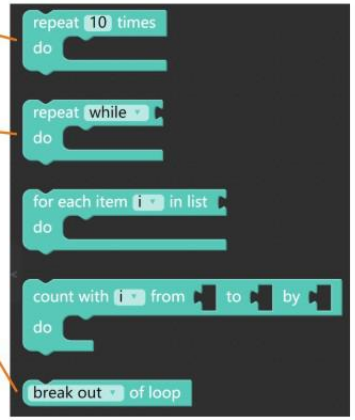
We've discussed a little about loops already, however there are specific types of loops that have different functions which can be found in the loops section. There are loops that repeat code for a specified amount of time, loops that repeat code while some condition is true and loops designed to work with lists.

Block types

Repeat the inserted code for a set amount of times.

Repeat the inserted code while a condition is true or until a condition is met e.g. while counter < 10

This block allows you to forcefully exit a loop or skip an iteration of a for loop



Logic

Function Introduction

Logic is an intrinsic part of any program. If you want to change the circumstances under which a certain part of your program is run you cannot do so without logic. if we want something to happen when we press a button, or a variable has reached a certain value or a condition has to be met before the program can continue, we can Add this functionality with the logic blocks.

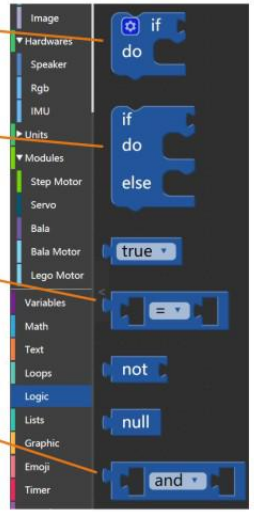
Block types

A simple if block that takes one condition and runs the code inserted in "do" if that condition is met. More conditions can be added by pressing the gear icon.

An if block that takes one condition and runs the code inserted in "do" if that condition is met or runs the code in "else" if the condition wasn't met.

This block allows us to compare 2 numbers or variables against each other the "=" symbol checks if the numbers are equal, the "≠" symbol checks if they are not equal. The "<" and ">" check if the first number is less than or more than the second number. And finally the "≤" and "≥" symbols check whether the first number is less than or equal to the second number or vice versa.

This block can be used to state multiple conditions at once with "and" or give two options with "or"



Adding Units

In our demo program we introduced the units in the kit, but we haven't got to programming with them yet. Some units are "Inputs" and some are "Outputs". For instance a "Neopixel" is an output we can program it to output light, and an "Angle" is an input which we can get a value from. Let's see how they are programmed.

Adding Units

We start by pressing the plus button under "Units" at the bottom left area of the Uiflow interface. A pop-up menu will appear allowing us to select a particular unit and select which port it is attached to. Once your happy with your selection click OK. If you accidentally pressed the Units button you can exit by pressing cancel.

Removing units

Units can be easily removed by dragging the unit symbol into the trash bin

Inputs and Ouputs

M5GO's Unit modules can be divided into two types, input and output.

Inputs

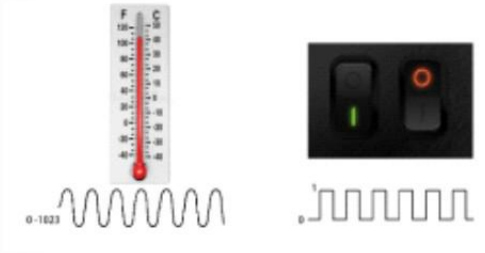
Inputs can also be called sensors, they allow the M5GO to interact with the physical world, much like the senses we humans use to interact with our environment.

Outputs

Outputs can be used as a way to signal the user of some change or as a source of feedback.
The output could be in the form of sound, light or some other visual stimulus such as the screen.

Analog and Digital

A digital input or output can only consist of a 0 or a 1, we can use the analogy of a light switch being on or off. 1 being on and 0 being off. In contrast analog input/output can be a range of numbers ranging from 0 to 1023 just like a thermometer has a range of temperature,



Input Units

ENV(Environment)

Function Introduction

The ENV sensor is very useful for getting input related to our environment. It can sense the temperature, humidity and air pressure and input them as values.
If we want to program this sensor we need to connect it first with one of the grove cables provided as we did during the demo program.

Block types

Get air pressure as a value

Get temperature as a value

Get humidity as a value

Usage

We can display the input of the ENV sensor to the screen by putting the ENV blocks inside a label block within a loop. If we don't put it within a loop it will only display the value it received from the sensor when the program started.

PIR(Passive Infra-Red)

Function Introduction

The PIR is a sensor that can sense motion and body heat. The PIR sensor is a digital sensor, therefore it will only input a 0 or 1 depending on whether it was triggered or not.If we want to program this sensor we need to connect it first with one of the grove cables provided as we did during the demo program.

Block types

Get PIR status as a value

Usage

We can display the input of the PIR sensor to the screen as we did with the env sensor.We could also use it as a switch to change some output of the M5GO, by assigning the input to an if condition and checking whether its equal to 1, in other words if it was triggered or not.

Input Units

Earth

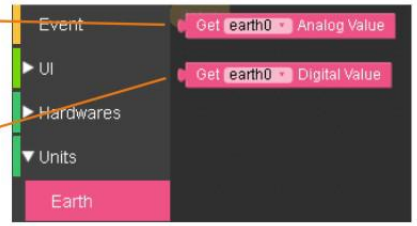
Function Introduction

Earth is a soil moisture detection module that inserts the test pin into the soil. Earth can collect soil moisture data and transmit it to M5GO in analog and digital quantities.

Block types

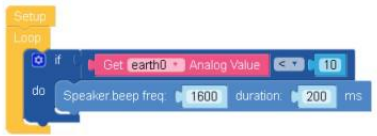
Humidity acquisition block for accurate humidity values.

Digital acquisition block, according to the default threshold humidity, output 0/1 two values.



Usage

Data type blocks can be controlled by display, operation, logic judgment, etc.
For example, when the soil moisture is less than 10, M5GO emits an audible prompt.



Light

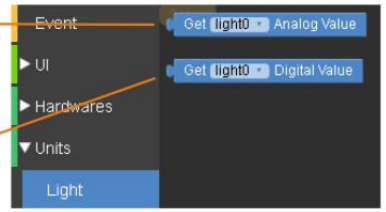
Function Introduction

Light is an optical detection module that detects the illumination of the environment and transmits it to M5GO in analog and digital form.

Block types

Illumination value acquisition block, providing you with various operations.

Digital acquisition block, according to the threshold value, input 0/1 two values.



Usage

Data type blocks can be controlled by display, operation, logic judgment, etc.
For example, when the illumination value is less than 500, M5GO lights up the RGB light. When it is greater than 500, the RGB light goes out..

Output Units

Servo

Function Introduction

You can control the program to control the Servo to rotate a certain angle (0~180°), you can use it to control the movement of some objects.

Block types

Rotate the angle block to control the Servo rotation to specify the angle.

Pulse time block, you can control the angle more precisely by setting the pulse time.

Usage

The output type block can be directly added to the position you specify in the program, and when it is executed, the control function is executed.
For example: rotate Servo 90°

Neopixel

Function Introduction

Neopixel is a programmable control strip that can be used to control any RGB light on the strip after setting the number of strips on the strip.

Block types

Number of lights

Drive a single
Drive range
Drive all
Brightness control

Usage

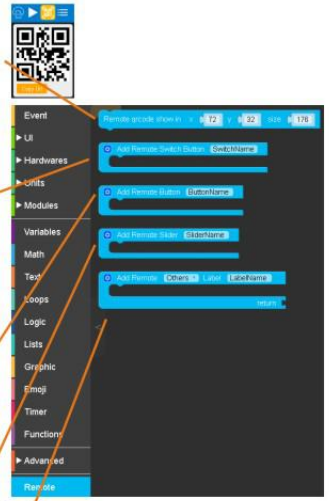
The output type block can be directly added to the position you specify in the program, and when it is executed, the control function is executed.For example: after running for one second, light 1 to 5 lights.

Remote control blocks

Remote

Block types

QR code generation block, you can enter the remote control page by scanning the QR code, or you can copy the link in the QR code option in the upper right corner of UIFlow, and directly access it.



Switch block, in the control page through the switch way to pass a variable value X, when the closure is passed 1, the default state is passed 0, you need to click the gear on the block to add the variable X before use.

Remote button block, add the program you need to control to the block, modify the button name, click on the button to execute the program on the control page.

The Slider block, in the control page, passes a variable through a slider, the range is 0~100, click the gear to create the variable X before use.

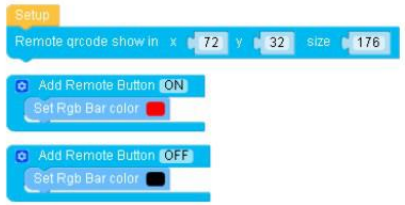
Label block, used to display a variety of information, click on the inverted triangle on the block, you can choose different display objects.

Function Introduction

Remote, this web-based control method allows you to access the control page via your phone or computer to control program execution.

Usage

There is no need to add a loop, connect the QR code block behind the Setup block, and add control functions to the remote button block, such as remotely controlling the lighting and extinction of RGB lights.



Use your phone or computer to enter the control page, click the corresponding button to control.

Programming pictures

Draw a mickey head using the geometry provided by the UI simulator.

Programming ideas

Drag the figure into the UI simulator, change the radius of the circle, zoom in and out of the circle, and finally drag it into a mickey head.

Drag the graphics

Click the circle option, drag a circle into the UI simulator, click modify radius 50 as mickey's face, and then add two circles with radius 30 as ears to splice them together.

Run the code

Click the run button in the upper right corner of the menu bar, and M5GO will display the pattern you have drawn on the screen.

Fun with Neopixels

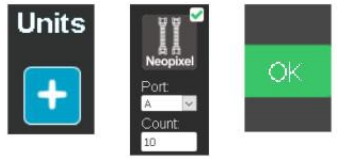
The lights under the control of the Neopixel light up in order and then go off in order, as though they were flowing.

Programming ideas

The Unit block of Neopixel contains the function block of range-driven RGB light. With repeat, the lit range is gradually increased, and after all lights are lit, the entire Neopixel is gradually extinguished after one repeat.

Add the Unit

Click the Units option to add the driver Neopixel module and note the number of lights filled in.



Program to build

Create two conditional repeats and set the parameter I to jump out after increasing the variable from 1 to 30, which means that as the variable changes, we can control lights 1 to 30 on the Neopixel, add the Neopixel driver range block to the two conditional repeats, place the variable I on the range control block, and set the control color.

Remote controlled lighting

Remote module is used to control RGB lights on and off both sides of M5GO as well as brightness control with mobile phone or computer.

Programming ideas

Remote using the Switch Switch block and Slider Slider control and brightness adjustment, respectively, through Remote incoming variables to achieve control.

Program to build

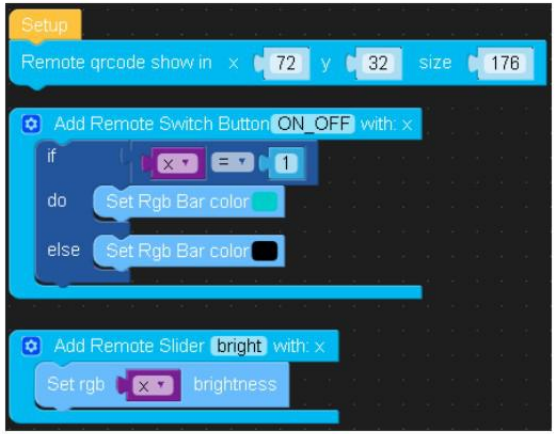
Add a two-dimensional code generation block to Setup, and when the program executes, it will generate a two-dimensional code for you to access the control page.

Switch control

After adding Switch, click the setting button on the block to add a variable X. When the Switch on the control page is closed, X is 1; when the Switch is off, X is 0. According to such conditions, logical judgment is created and execution procedures under different circumstances are set.

Brightness control

After adding the Slider block, click the Settings button on the block and add a variable X. When the Slider on the control page slides, X can input an integer of 0~100. Based on this condition, we can assign X to the brightness value of the RGB lamp.



Control page

After uploading the code, start the control by scanning the two-dimensional code on M5GO or assigning a link to access the control page from the two-dimensional code option assignment in the menu bar at the upper right corner of UiFlow.

The century is advanced, but every individual begins afresh.

I hope this manual will give you some programming inspiration and help, so that you can quickly turn your ideas into reality.M5GO will be your mentor on the road of programming.

M5Stack