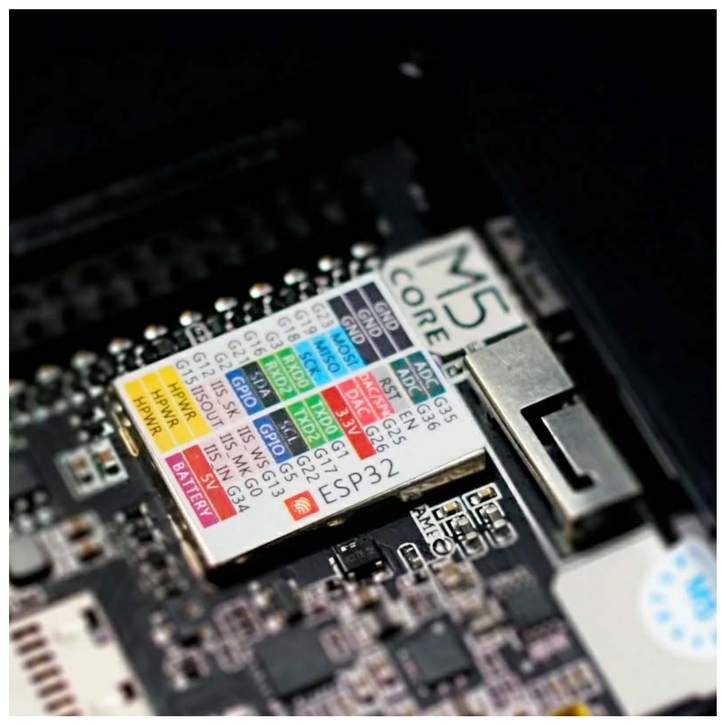
BASIC v2.6

SKU:K001-V26



Tutorials & Quick Start

Select the development platform you want to use, view the corresponding tutorials & get started quickly.

UIFlow Arduino Micropython

Description

BASIC is a cost-effective entry-level IoT main controller. It adopts Espressif ESP32 chipset, equipped with 2 low-power Xtensa® 32-bit LX6 microprocessors with main frequency up to 240MHz. Built-in **16M FLASH** memory, integrated **2.0-inch full-color HD IPS display panel** , **speaker** , **TFCard slot** and other peripherals. The full-coverage housing ensures circuit stability even in complex industrial applications. Internal provides a variety interface resources (ADC/DAC/I2C/UART/SPI, etc.) and 15x IO pins at the bottom, which is highly developable. Ideal for a variety of product prototyping, industrial control, intelligent building application.

- **High productization** :
  - Exquisite designs, Prototyping right into products
  - Product-grade full-coverage cover for more stable circuit operation
- **Low Code Development** :
  - Support UIFlow graphical programming platform, scripting-free, cloud push
  - Fully compatible with mainstream development platforms such as Arduino and ESP32-IDF
  - Support FreeRTOS, with dual-core and multitasking mechanism, it can perform the tasks efficiently, Program optimization.
- **High Integration** :
  - 2.0 inch IPS display panel, speakers, custom buttons x3
  - Built-in lithium battery power, integrated power management chip, support TypeC

interface
    - Finely tuned RF circuit for stable and reliable wireless communication
- **Strong Expandability** :
    - 15x IO leads
    - Easy access to M5Stack's hardware and software ecology system, stackable module design, plug-and-play rich sensors expansion

> **Power on/off operation**:
> **Power on**: Click the red power button on the left
> **Shutdown**: Quickly double-click the red power button on the left
> **USB power supply**: By default, when USB is powered, it cannot be shut down

Driver Installation

> Click the link below to download the driver that matches the operating system. There are currently two driver chip versions, CP210X (for `CP2104` version)/CP34X (for `CH9102` version) driver compressed package. After decompressing the compressed package, select the installation package corresponding to the number of operating systems to install. (If you are not sure which USB chip your device uses, you can install two drivers at the same time. During the installation process of `CH9102_VCP_SER_MacOS` , an error may occur, but the installation is actually completed, just ignore it.)

Driver name	Applicable driver chip	Download link
CP210x_VCP_Windows	CP2104	Download
CP210x_VCP_MacOS	CP2104	Download
CP210x_VCP_Linux	CP2104	Download
CH9102_VCP_SER_Windows	CH9102	Download
CH9102_VCP_SER_MacOS	CH9102	Download

Product Features

- Based on ESP32 development
- 16M FLASH
- Integrated full-color high-definition IPS display panel and a variety of hardware peripherals
- Rich resources interface, compatible with M5Stack stacking modules and sensors, highly expandable.
- Use M5CORE BOTTOM base built-in lithium battery, 15x IO leads.
- Compatible with multi-platform development:
  - UIFlow
  - MicroPython
  - Arduino

Included

- 1x BASIC
- 10x Dupont line
- 1x Type-C USB(20cm)
- 1x manual
- 1x sticker

Application

- IoT Controller
- DIY creator works
- Smart home control

Specifications

Specifications	Parameters
ESP32-D0WDQ6-V3	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi, dual mode Bluetooth
Flash	16MB
Input power	5V @ 500mA
Interface	TypeC x1, I2C x1
IO	G21, G22, G23, G19, G18, G3, G1, G16, G17, G2, G5, G25, G26, G35, G36

Specifications	Parameters
Button	Physical button x 3
LCD screen	2.0"@320*240 ILI9342C IPS panel, maximum brightness 853nit
Speaker	1W-0928
USB chip	CH9102F
Antenna	2.4G 3D Antenna
Battery	110mAh @ 3.7V
Net weight	47.2g
Gross weight	93g
Product size	54mm x 54mm x 18mm
Packing size	95 x 65 x 25mm
Cover Material	Plastic (PC)

EasyLoader

EasyLoader is a simple and fast program burner, which has a built-in product-related case program, which can be burned to the main control through simple steps to perform a series of functional verification.

Download Windows Version Easyloader　Download MacOS Version Easyloader

Case description:

This case will perform hardware running tests such as speakers, wifi, buttons, accelerometers, TF-card (microSD) cards, and screens.

Pinmap

LCD screen & TF card

LCD pixels: 320x240 TF card supports up to 16GB

ESP32 Chip	GPIO2 3	GPIO1 9	GPIO1 8	GPIO1 4	GPIO2 7	GPIO3 3
TF Card	MOSI	MISO	CLK	/	/	/

Button & Speaker

ESP32 Chip	GPIO39	GPIO38	GPIO37	GPIO25
Button pin	BUTTON A	BUTTON B	BUTTON C	
Speaker	/	/	/	Speaker pin

GROVE interface A & IP5306

The power management chip (IP5306) is a customized I2C version, and its I2C address is 0x75. Click here to view Register manual of IP5306.

ESP32 Chip	GPIO22	GPIO21	5V	GND
GROVE A	SCL	SDA	5V	GND
IP5306	SCL	SDA	5V	GND

IP5306充/放电,电压参数

充电			放电
0.00 ~ 3.40V -> 0%			4.20 ~ 4.07V -> 100%
3.40 ~ 3.61V -> 25%			4.07 ~ 3.81V -> 75%
3.61 ~ 3.88V -> 50%			3.81 ~ 3.55V -> 50%
3.88 ~ 4.12V -> 75%			3.55 ~ 3.33V -> 25%
4.12 ~ / -> 100%			3.33 ~ 0.00V -> 0%

M5CORE常用端口定义

PORT	PIN	备注:
PORT-A(红色)	G21/22	I2C
PORT-B(黑色)	G26/36	DAC/ADC
PORT-C(蓝色)	G16/17	UART

ESP32 ADC/DAC

ADC1	ADC2	DAC1	DAC2
8 channels	10 channels	2 channels	2 channels
G32-39	G0/2/4/12-15/25-27	G25	G26

M-BUS

GPIO TYPE	Analog Function	M-BUS LINE 0		M-BUS LINE 1		Analog Function	GPIO TYPE
		GND		ADC	G35	ADC1_CH7	I
		GND		ADC	G36	ADC1_CH0	I
		GND		RST	EN		
I/O/T		G23	MOSI	DAC/SPK	G25	ADC2_CH8	I/O/T
I/O/T		G19	MISO	DAC	G26	ADC2_CH9	I/O/T
I/O/T		G18	SCK	3.3V			
I/O/T		G3	RXD1	TXD1	G1		I/O/T
I/O/T		G16	RXD2	TXD2	G17		I/O/T
I/O/T		G21	SDA	SCL	G22		I/O/T
I/O/T	ADC2_CH2/T2	G2	GPIO	GPIO	G5		I/O/T
I/O/T	ADC2_CH5	G12	IIS_SK	IIS_WS	G13	ADC2_CH4/T4	I/O/T
I/O/T	ADC2_CH3/T3	G15	IIS_OUT	IIS_MK	G0	ADC2_CH1/T1	I/O/T
		HPWR		IIS_IN	G34	ADC1_CH6	I
		HPWR		5V			
		HPWR		BATTERY			

For more information on pin assignment and pin remapping, please refer to ESP32 datasheet

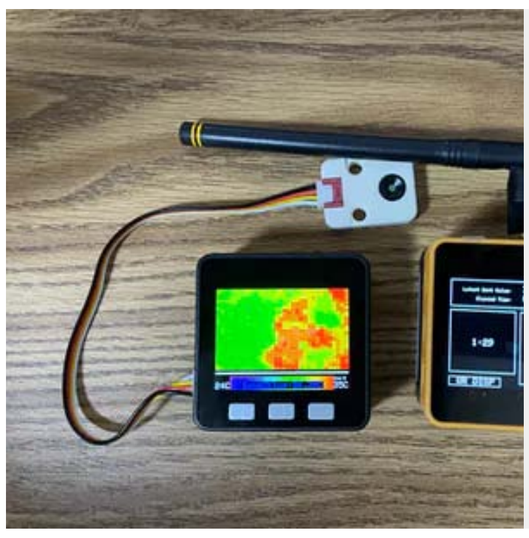
Related Links

- **Datasheet** - ESP32 - IP5306
  - **API**
    - Arduino API

Schematics

- Schematics

Learn



Body Temperature Information Exchange Support Device

It is a device that assists in verifying body temperature information so that people can meet with ease at the Corona disaster.

M5stack based PFD (Primary Flight Display)

An attempt to create a realtime "Artificial Horizon" on the M5.

JFBrew

Brew your own beer in a fridge with M5Stack.

M5Stack PM2.5 Meter

A portable PM meter.

Play WAV Files on Your M5Stack

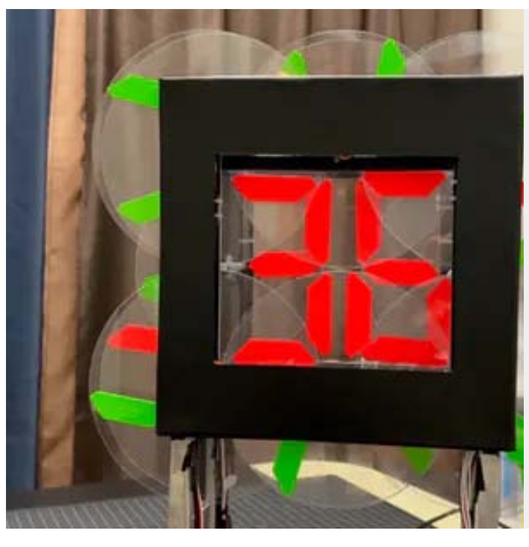
There are bound to be times when you need to add music or SFX to your M5Stack projects. Here's how to do so with MicroPython.

LoRaWAN

LoRaWAN module is supported by UIFlow!

Homepoint - MQTT & HomeKit Touchscreen for ESP32

A customisable ESP32-based touchscreen project to control MQTT switches or HomeKit accessories (through the Home App).



Clock that melt time

This is the clock developed to take away the viewer's time

M5Stack MicroPython Simple Web Server

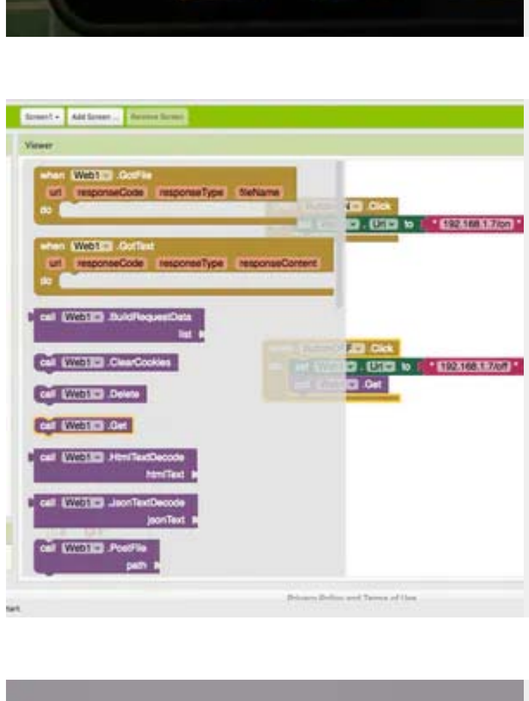
Use MicroPython to connect your M5Stack to Wi-Fi or a device to AP and create a simple web page to control some functions of the M5Stack.

M5Stack Menu System: Lovyan Launcher

Tree style menu for M5Stack. Features SD updater, battery level indicator, on-screen keyboard, and more.

Analog-Style Digital Voltage Meter on M5Stack

A simple, analog-style digital tester (voltage meter, DVM) created using the compact development module M5Stack.

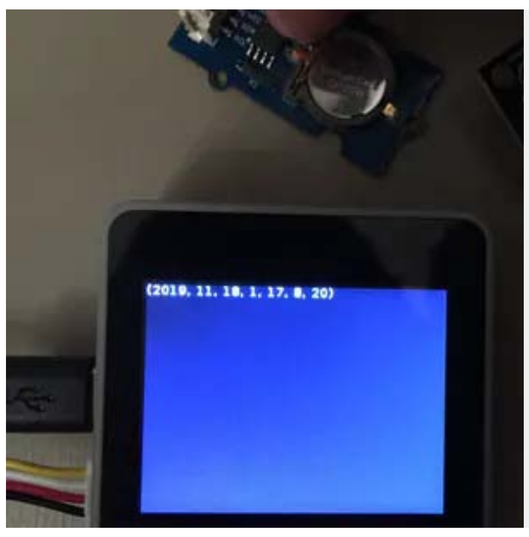


M5Stack and MIT App Inventor

Make cool App controllable projects with ease by combining M5Stack, Tuniot and MIT App inventor.

Execute Logo on M5Stack ESP32 Basic with MicroPython

Use your M5Stack ESP32 Basic to receive little Logo programs via MQTT and show the results.

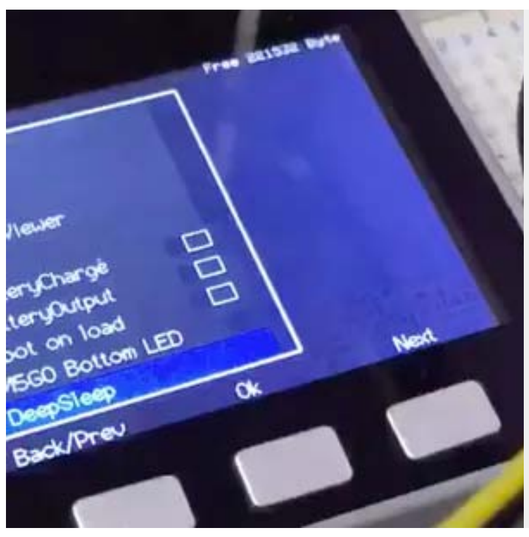


RTC Modules with M5Stack

Out of the M5Stack family only the M5StickC has an inbuilt RTC. Here's how to add one to your other M5Stack devices

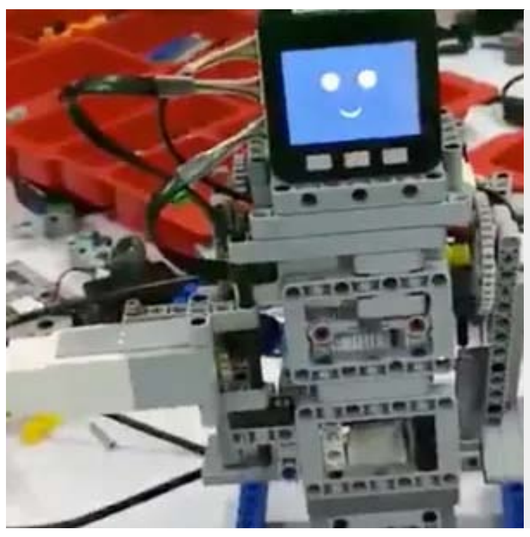
Automation with SIM800L ESP32 M5Stack

It is possible to turn a lamp or fan on and off through an SMS message.



No Reset M5Stack with EDLC

#M5Stack 3.3V端子にEDLC付けといたらUSB挿抜してもリセット掛からないぜ…！　(無理やり感)



Traffic LEGO Robot

M5 Traffic Robot

Robot Secretary

Voice notifications have been added to the tool to automatically share the timeline to family members.

QR Create & Scan by moddable

WebBluetooth経由でM5Stackに文字列送信してQRコード化、さらにそれをPWA製QRスキャナで読み取りできた！　ここまでの処理が全部JavaScriptで書けるの最高では?

M5Stack Web Radio

We developed a stereo web radio for the M5Stack with software, audio board, 3d printed enclosure and documentation.

M5Stack Christmas Homebrew game

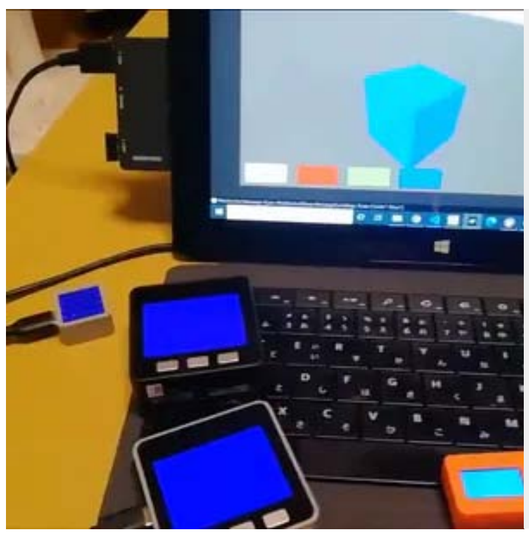
We have programmed a game to give to children.

CovidStop

A technology which increases efficiency in signing in or out during peak hour areas when entering the campus while the SafeEntry implies.

M5Stack Christmas M5 Tree

This year's Christmas, I decorated the tree with M5Stack devices.

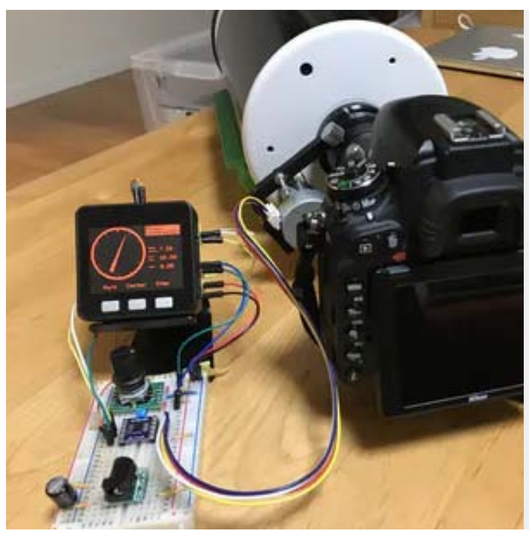


M5Stack synchronizing the colors with Unity

I tried to communicate with Unity-M5Stack via WebSocket. M5Stack is a gadget with a built-in ESP32 module that enables Wi-Fi commun

M5Stack Christmas with M5Scratch

Scratch Cat want to catch Xmas gift. So you control giftbox for Scratch Cat!! This project use M5Stack and Scratch 1.4 with M5Scratch.



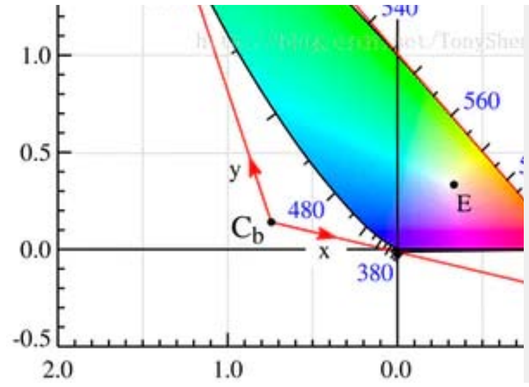
MAK127SP Stepper focuser with M5Stack

I was able to control the focus adjustment of the telescope mak127 sp by the stepping motor which connected to M5Stack.

Try to make a low temperature conditioner with M5Stack

The mechanism is simple to monitor the value of the water temperature sensor with the M5Stack, and heater power is controlled by the relay

Color recognition piano



TCS3472 color recognition module can distinguish different colors of objects, and map the colors to pitch through algorithm

M5ColorUnit-Colorimeter

Colorimeter/Color recognition/Color overlay

Ukulele Tuner

Tuner for an Ukulele/Guitar, made using a M5 Core + M5Go bottom

M5Stack Christmas Tello Drone for Santa

A Dji Tello Drone wifi controller based on M5Stack Core

M5Stack Video controller with Nodemcu and Python

Using M5Stack and Nodemcu with python to control Youtube vids remotely from a distance.

Emergency DIY Ventilator

ReaMima, is the open and free hardware design so that anyone can help by building respirators with easily available materials.

Social Distancing LED

The "Social Distancing LED" that alerts you when someone gets too close within 2m.

Remote control from OBS and M5GO using mqtt and OBS websock

I used mqtt to control the switching of the scene of OBS moving on PC from other devices

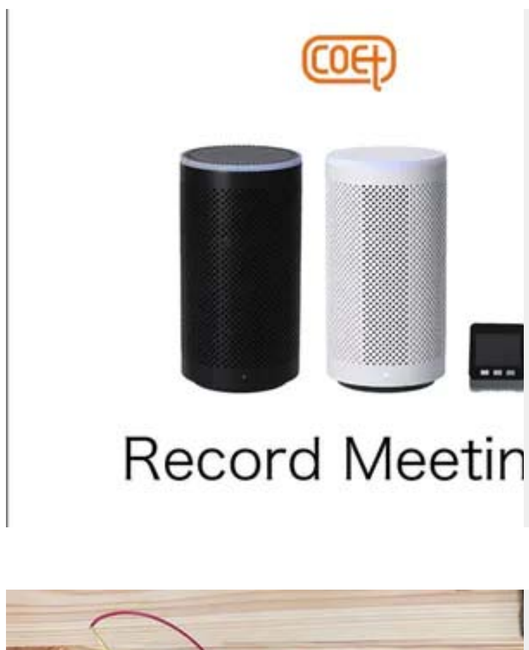
of OBS moving on PC from other devices.

Multi function AI punch the clock base on M5Stack

Realize the "offline cloud platform" interaction function of operation information based on mqtt information transmission technology

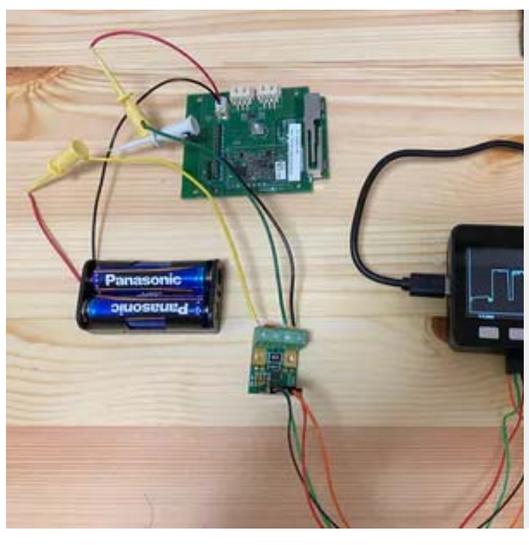
Protective Pudding

Technology to protect puddle pudding!



Using Amazon FreeRTOS in M5Stack

I checked whether Amazon FreeRTOS is the only candidate to use M5 Stack.



Use M5Stack to Measure Power Consumption

Thanks to @ghibi for providing material. This project will measure the power consumption of the Sigfox module (IFS-M01) with M5Stack.

M5Stack MULTI-TOOL

M5Stack Multi-Tool has Distances measurement, Spirit level, Voltage sensor, Find my phone, Torch, Home automation controls

M5Stack ESP32 Arduino and RICOH THETA

Control a RICOH THETA V using the M5Stack.

M5Stack PC Mouse

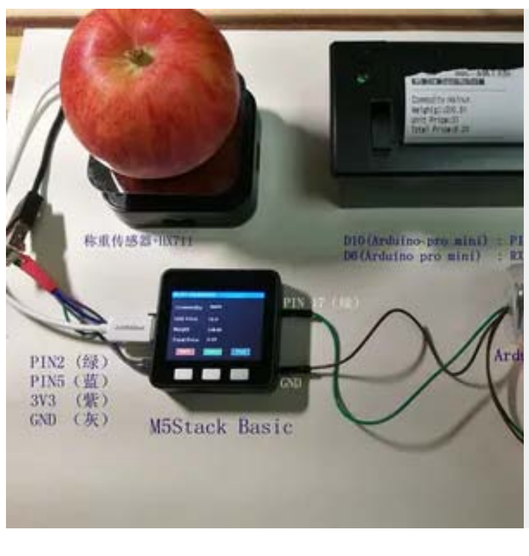
M5Stack works as a pc mouse with the help of pyautogui.

M5Stack Faces Encoder Etch A Sketch

An M5Stack version of the classic Etch A Sketch.

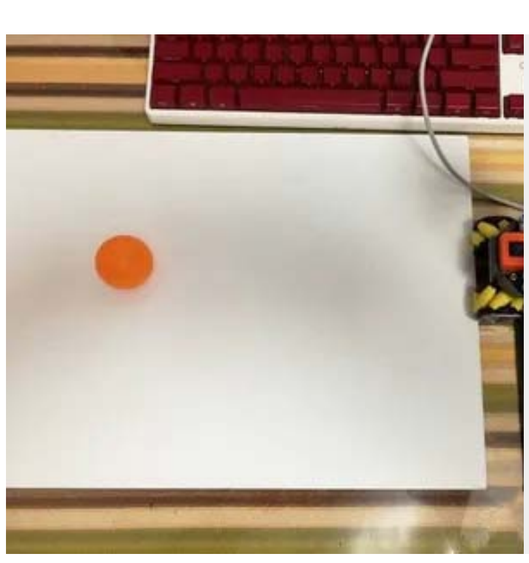
M5Stack ROBOT with NodeMCU and MPU6050

M5Stack robot car which we can control with mpu6050 module through Wi-Fi with NodeMCU



M5Stack Smart Supermarket

Thanks for the source code and project information provided by @沧海



UnitV with M5Stack Deep Learning and Object Detection

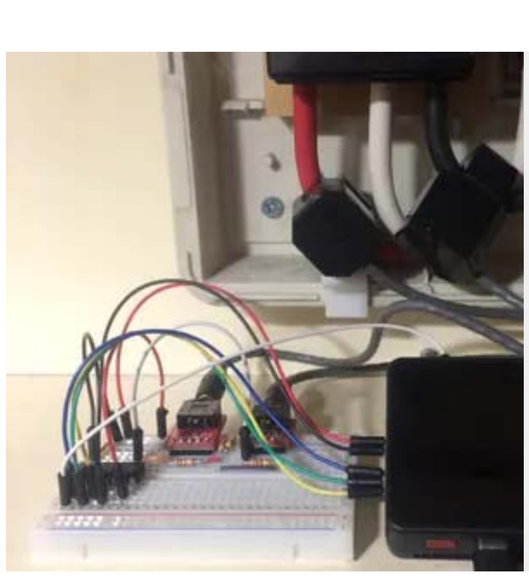
Thank the original author @Canghai

M5STACK Touch Less Entry

On hand gesture, you can open the door without touching the handle M5STACK AND NODEMCU USED.

M5Stack AREA AND DISTANCE CALCULATOR

In this project, I'm using an ultrasonic sensor to measure distance and calculate the area of a circle and square and display it on screen



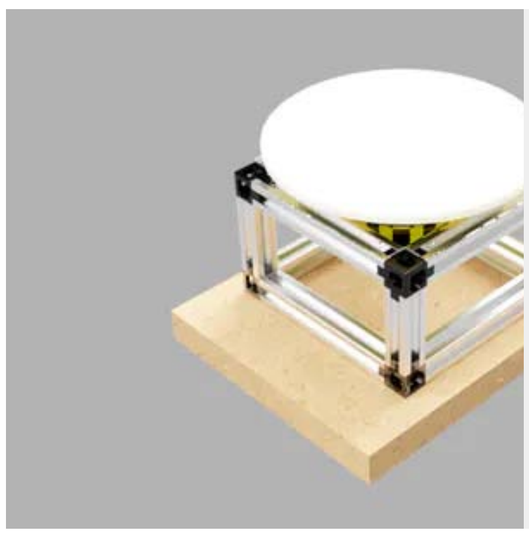
Let's Start IoT with Ambient

Measure the current value used by equipment using M5Stack and clamp type current sensor.

PuddingAlert-V

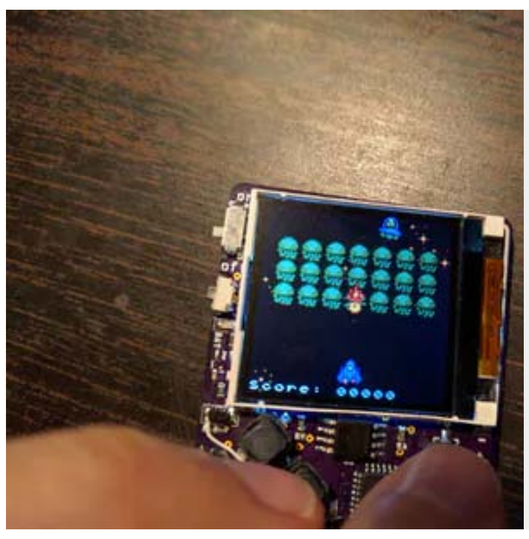
My family has eaten the pudding I have saved! Do

you have such experience? I want to keep the peace of my home. I made pudding alert-V.



M5Stack Photo Turntable

An expandable turntable created using M5Stack Products.

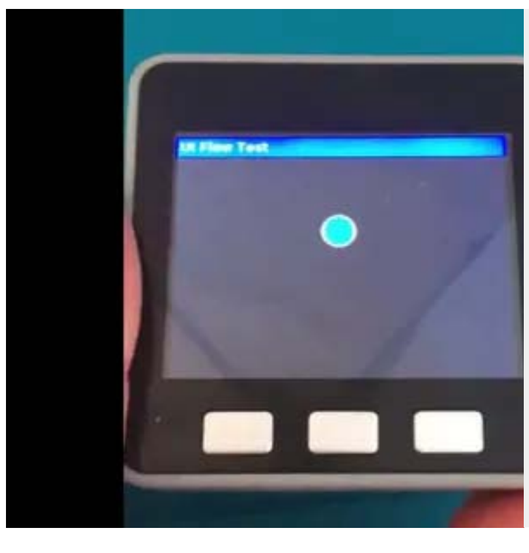


Stage, a Tile and Sprite Engine

A library for MicroPython for drawing tiles and sprites on an RGB SPI screen.

M5Stack X Micro:bit

M5Stack and Micro:bit can control each other, thanks to the M5:Bit

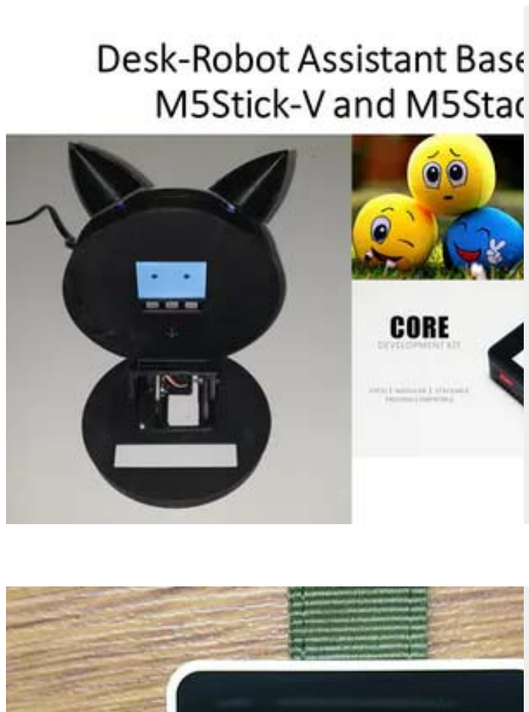


M5Stack IMU

Tilt left and right to move the ball

Simple Watch Device

Make a simple watch device using UIFlow.



Desk-Robot Assistant Based on M5Stick-V and M5Stack

This project is based on the use of the development system M5StickV, for the classification of emotions.

M5ezWatch

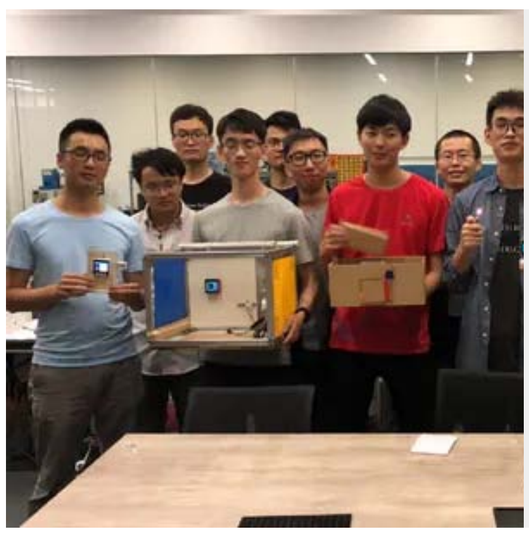
M5Stack ESP32 Basic Core based maker watch.

M5Stack with Blynk

Using UIFlow and Blynk to complete the interaction experiment

Pulse oximeter with alert function

Making a pulse oximeter with alert function based on M5Stack Basic and LPWA Network.



M5 Mini Hackathon

A inner maker competition of M5Stack.

Examples

Arduino

- M5Stack Lib 获得Arduino示例

Video

Version Change

Releas e Date	Product Changes	Notes
2017.7	First Release	/
2019.7	TN screen changed to IPS screen	Please upgrade your M5Stack library to the latest version (v0.2.8 or above) to solve the screen reflection problem

Releas 2020.3 e Date	Battery capacity changed from 150mAh to 110mAh	Notes /
2020.6	Flash size changed from 4MB to 16MB	/
2021.1 0	Upgrade v2.6, change CP2104 to CH9102, optimize structure details	/