

# M5StickC

SKU:K016-C



## Tutorial&Quick-Start

Choose the development platform you want to use, view the corresponding tutorial&quick-Start.

[UIFlow](#)

[Arduino](#)

[AWS FreeRTOS](#)

## Description

**M5StickC** is a mini M5Stack, powered by ESP32. It is a portable, easy-to-use, open source, IoT development board. What it can do? This tiny block is able to realize your idea, enlighten your creativity, and help with your IoT prototyping in a very short time. It will take away a lot of pains from the development process. M5stickC is one of the core devices in M5Stack product series.

It is built in a continually growing hardware and software ecosystem. It has a lot of compatible modules and units, as well as the open source code & engineering communities that will help you maximize your benefits in every step of the developing process.

### Power switch operation:

- Power on : Press power button for 2 seconds
- Power off : Press power button for 6 seconds
- The input range of VBUS\_VIN and VBUS\_USB is limited to 4.8-5.5V, and the internal battery will be charged through AXP192 power management when VBUS is powered.

### Notice:

- Baud rate supported by M5StickC: 1200 ~115200, 250K, 500K, 750K, 1500K

## Product Features

- ESP32-based
- Built-in 6-Axis IMU
- Red LED

- IR transmitter
- Microphone
- Buttons, LCD(0.96 inch)
- Built-in Lipo Battery
- Extendable Socket
- Wearable & Wall mounted
- Development Platform [UIFlow](#), [MicroPython](#), [Arduino](#)

## Include

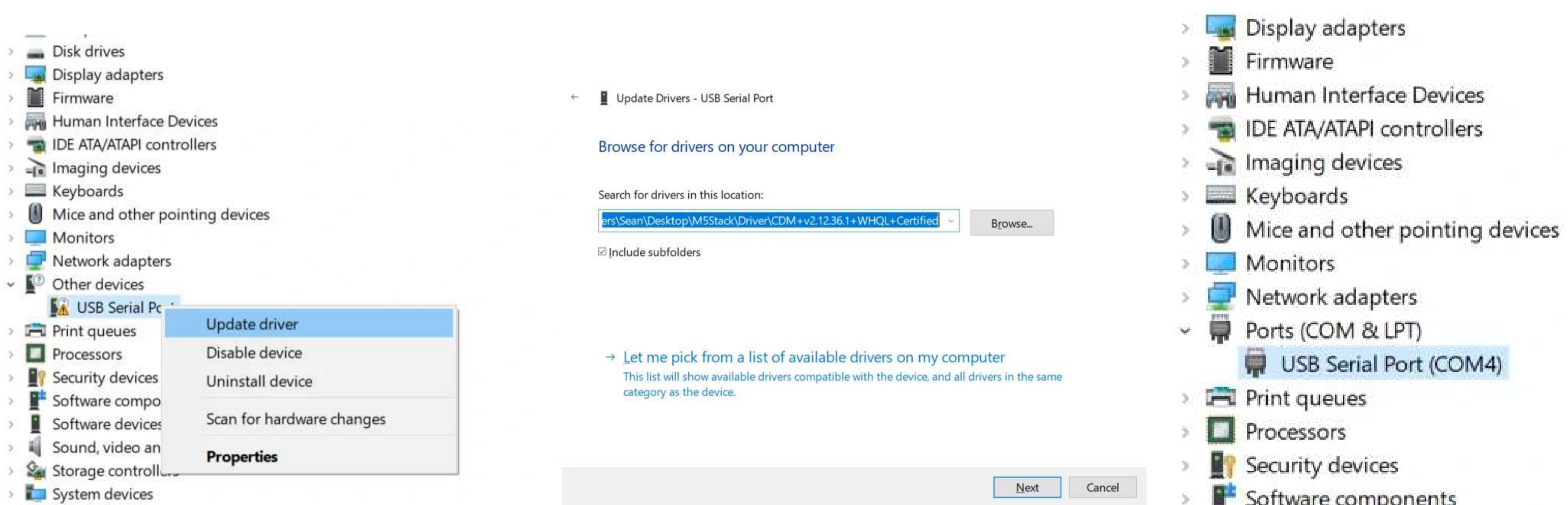
- 1x M5StickC
- 1x USB Type-C(20cm)

## Applications

- Internet of things terminal controller
- Wearable devices
- Stem education product
- DIY creation

## USB Drive problems

UnitV/M5StickV/M5StickC/ATOM may not work without driver in some systems. Users can manually install **FTDI driver** to fix this problem. Take the win10 environment as an example, download the driver file that matches the operating system, decompress it, and install it through the device manager. (Note: In some system environments, the driver needs to be installed twice for the driver to take effect. The unrecognized device name is usually **M5Stack** or **USB Serial** . Windows recommends using the driver file to install directly in the device manager (custom Update), the executable file installation method may not work properly).



## Specification

Resources	Parameter
ESP32	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi, dual mode Bluetooth
Flash Memory	4MB

Resources	Parameter
Power Input	5V @ 500mA
Port	TypeC x 1, GROVE(I2C+I/O+UART) x 1
LCD screen	0.96 inch, 80*160 Colorful TFT LCD, ST7735S
Button	Custom button x 2
LED	RED LED
MEMS	MPU6886
IR	Infrared transmission
MIC	SPM1423
RTC	BM8563
PMU	AXP192
Battery	95 mAh @ 3.7V
Antenna	2.4G 3D Antenna
PIN port	G0, G26, G36
Operating Temperature	0°C to 60°C
Net weight	15.1g
Gross weight	33g
Product Size	48.2*25.5*13.7mm
Package Size	55*55*20mm
Case Material	Plastic ( PC )

## EasyLoader

EasyLoader is a concise and fast program writer, which has a built-in case program related to the product. It can be burned to the main control by simple steps to perform a series of function verification.

[Download Windows Version Easyloader](#)

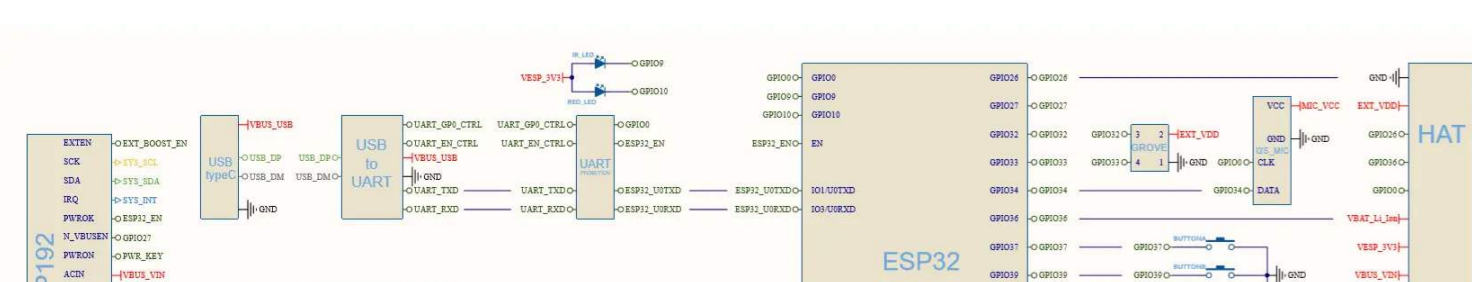
[Download MacOS Version Easyloader](#)

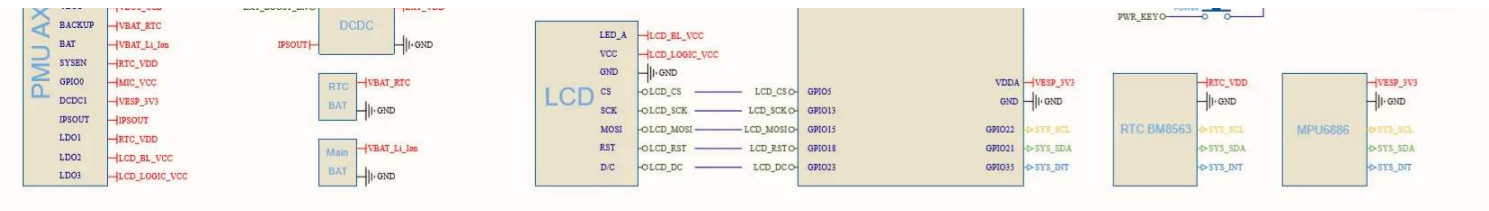


### Description:

Accelerometer, microphone, LED, IR, RTC, Bluetooth and other hardware tests. Press A or B to switch test items.

## Schematic





PDF Download

# PinMap

GND
5V ↑
G26
G36
G0
BAT
3V3
5V ↓

M5STICK·C

BTN  
G39

BTN  
G37

IR  
G9

LED  
G10

**ESP32  
PICO(4M)**

Model Name: M5StickC  
FCC-ID:2AN3WM5STICKC

Ⓜ R 211-190415

**FC** **CE**

**M5STACK**  
Shenzhen MingZhan  
Information  
Technology Co., Ltd

**MIC LED** 80x160@0.96"  
**ST7735S**  
G15/13/23/18/5

**MIC** SPM1423  
D:G34/C:G0

6-Axis IMU  
**MPU6886**

**PMIC**  
AXP192

**RTC**  
BM8563

BPS:1200~115200/250K  
/500K/750K/1.5M

**HY2.0-4P**

G

V  
OUT

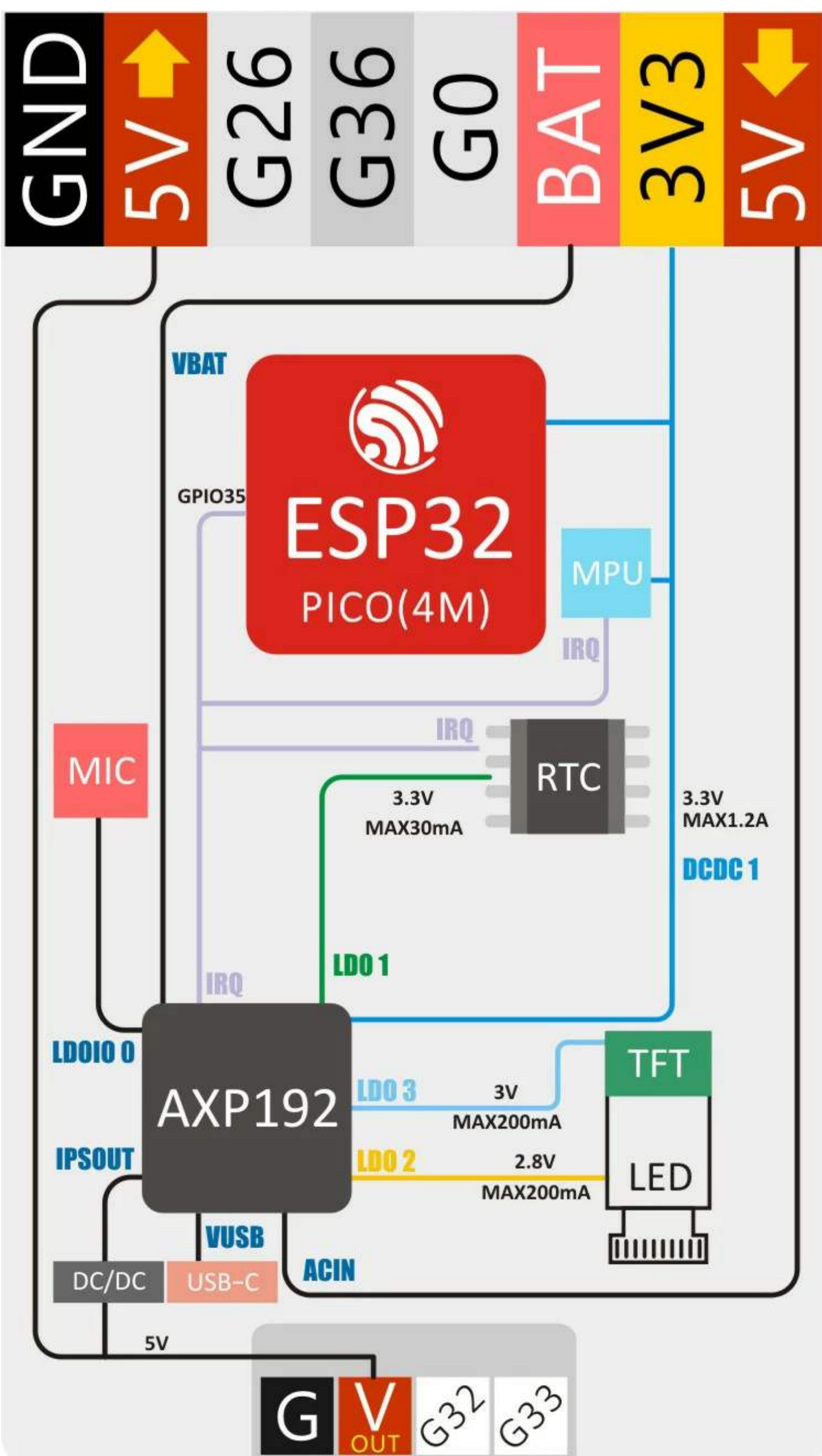
G32

G33

**PWR**  
(6S=OFF)

SDA:G21/SCL:G22/INT:G35

Power structure block diagram



RED LED & IR Transmitter & BUTTON A & BUTTON B

ESP32	GPIO10	GPIO9	GPIO37	GPIO39
RED LED	LED Pin			
IR Transmitter		Transmitter Pin		
BUTTON A			Button Pin	
BUTTON B				Button Pin

### TFT LCD

Driver IC: ST7735S

Resolution: 80 \* 160

ESP32	GPIO15	GPIO13	GPIO23	GPIO18	GPIO5
TFT LCD	TFT_MOSI	TFT_CLK	TFT_DC	TFT_RST	TFT_CS

### GROVE PORT

ESP32	GPIO33	GPIO32	5V	GND
GROVE port	SCL	SDA	5V	GND

### MIC (SPM1423)

ESP32	GPIO0	GPIO34
MICPHONE	SCL	SDA

### 6-Axis posture sensor (SH200Q/MPU6886) & power management IC (AXP192)

ESP32	GPIO22	GPIO21
6-Axis IMU sensor	SCL	SDA
power management IC	SCL	SDA

### AXP192

Microphone	RTC	TFT backlight	TFT IC	ESP32/3.3V MPU6886/SH200Q	5V GROVE
LDOio0	LDO1	LDO2	LDO3	DC-DC1	IPSOUT

### Charging current measured value

charging current	Fully charged current(Power OFF)	Fully charged current(Power ON)
0.488A	0.066A	0.181A

## Related Link

- [datasheet](#)

- [ESP32-PICO](#)
- [ST7735SV](#)

- BM8563
- MPU6886
- SH200Q
- AXP192

- SPM1423

- API

- Arduino API

## | structural-design-file

---

[click here for open source architecture design files](#)

## | Learn

---



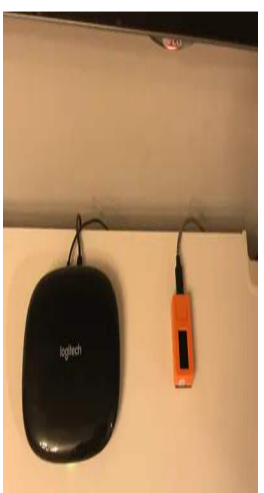
### Audio Visualization with ESP32, i2s Mic and RGB Led Strip

M5StickC (ESP32 Pico) with built-in i2s microphone is used for audio spectrum analysis (ArduinoFFT) and visualization on an RGB led strip.



### Arduino Web Radio Player

m5WebRadio is a sketch to play web streaming radio station on a M5Stick-C esp32 module: A \$13 esp32 net radio player.



### Turn M5StickC Into Universal IR Remote (Home Automation)

Take a \$9 M5StickC, few lines of YAML configuration to build ESPHome, Home Assistant and start controlling your TVs and climates in minutes.



### COVID-19 Real-Time Data Monitor

This simple project visualizes the current data of the coronavirus outbreak of different countries in real-time on an M5StickC.



### Hand washing timer with water sound detector

A hand-washing timer with water sound detection, which uses the M5StickC's built-in microphone and does not require any external components.



### M5StickC Textbuffer Scrolling Display

A library to display texts on the M5StickC in any orientation. The display scrolls and wraps text lines automatically.



### M5StickC Libra Watch & Wallet

(First?) Libra Watch & Hardware wallet. Built on M5StickC devices using KULAP libra services.



### First Steps with M5Stick-C

A wearable, sensor-packed ESP32 IoT device with TFT display.



## Nixie Tube Watch Simulated on ESP32 Using the M5Stick

To build a Nixie tube clock is a perpetual project on my mind. I wanted to see was made by software.



## Very Simple M5StickC Clock

Got a few mins to do a little clock, so here it is



## Arduino Animated GIF Player

Play any animated GIF file from SPIFFS directly onto TFT screen as-is, WITHOUT converting to RGB565 or PROGMEM as script.



## 3D Print Bed Leveling Tool Using M5StickC

A tool that helps makers and professionals level their FDM-based 3D Print Bed



## CO2 meter using M5StickC

I made a CO2 concentration meter for the purpose of room ventilation guide. The CO2 sensor is MH-Z19B, NDIR type.



## Hall Sensor and Temperature Sensor in ESP32

This is a simple project using M5Stick and MicroPython in order to obtain data from the Hall sensors and temperature embedded in the chip.



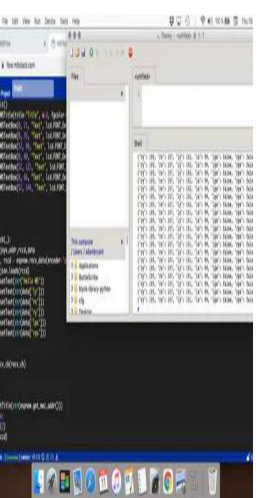
## One Watch, Multiple features, Smart Watch Using M5Stick C

In this tutorial we' ll show you the most efficient and easy to use application of M5Stick-C as smart watch.



## M5 Smart Watch-Using DEEP SLEEP function to increase Battery

A watch on wrist is worth two in the drawer. Why not your own DIY watch with #M5StickC? A watch with good battery life and smart features.



## Thonny And M5Stack UIFlow

How to program M5Stack products using UIFlow and have Thonny running to diagnose errors over USB.



## Notifications From iPhone to ESP32-Watch

We can receive iPhone notifications via BLE, ANCS. M5StickC is including BLE module, LCD, RTC, Battery. Let's make the 📱WATCH📱.



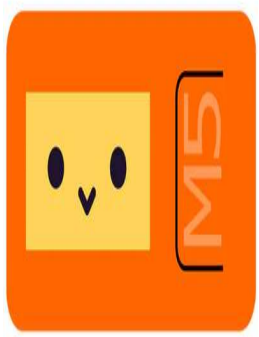
## M5StickC Watch

A simple watch (long stamina, 3 alarms, settings over Bluetooth and mobile application) with big potential. :) #M5StickC



## M5Stick-Car

I made a Blynk-controlled mini car using M5Stick-C. Pretty good!



## Chirp with M5StickC

I tried sound signal communication with Chirp using M5StickC.



## M5StickC Watch

A simple watch for M5StickC with clock and date. You can also see battery level and display images.



## Magic Wand

Utilize a 6-axis IMU sensor SH200Q, to capture a magic wand motion.



## Alexa / Google Assistant WiFi Sensor and Alarm (M5StickC)

Alexa and Google Assistant-compatible WiFi sensor and alarm. Works on any flat surfaces: fridge, door, window, garage door, etc.



## RoverC with M5Atom

Using M5StickC on RoverC and JoyC with M5Atom attached to display direction of the RoverC.



## Fun with ATOM Matrix

Simple MicroPython code for the ATOM 5 x 5 LED matrix and its built-in MPU6886 accelerometer. It works with the M5StickC + NeoFlash Hat.



## MiMaMori Alert for Your Home Security

"MiMaMori Alert" is automatic security camera for your home. Automatic learning without teacher images, and notify if something is visitor.



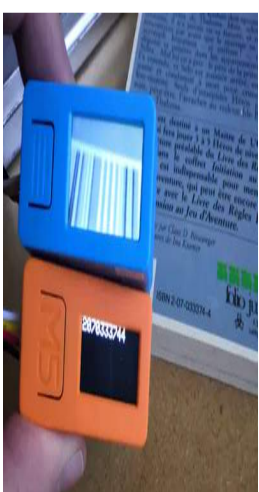
## Deep Learning Speech Commands Recognition on ESP32

Train a neural network model in 10 minutes, and use it on ESP32 with MicroPython to control a light switch. Everything done in browser.



## Bluetooth programmable mecanum wheel robot

Use Bluetooth serial to program omnidirectional movement sequences. Make a game out of it and try to guide the robot around obstacles.



## Wireless Barcode Scanner

M5StickV and M5StickC with HID Bluetooth Wireless or Atomic QR-Code reader



## Wireless Gamepad with ESP32 and BLE

Gamepad (prototype) based on M5StickC (ESP32 Pico) with I2C joystick module, dual button unit, and Bluetooth Low Energy connectivity.



## Balance Robot

A robot that standing with steel linear of motors.



# Example

---

## Arduino

- [M5StickC factory test code](#)
- [M5StickC Vending Machine](#)

## UIFlow

For a tutorial on uiflow, see [here](#)

# Video

---

# Version Change

---

Release Date	Product Change	Note:
2019.3	Initial public release	/
2019.8	SH200Q changed to MPU6886	/
2019.10	Upgrade the bottom and add copper nuts	/
2020.3	Battery capacity changed from 80mAh to 95mAh	/