BALA2Fire

SKU:K014-E

Tutorial

Usage and Sensor calibration

BALA2Fire has been calibrated , and it can automatically maintain its balance after turning it on. For manual calibration, please refer to this tutorial

Description

BALA2Fire is short for 'Balance', as its name suggests, it is the second generation of M5Stack balancing robot series. **BALA2Fire** is a Self Balancing Robot consisting of M5Stack Fire and two wheels(DC motors).The base uses STM32F030C8T6 as the main control and has a two-way encoding motor driver and built-in 1200mAh battery.

This robotics product comes with preloaded software. A self-balancing robot application which balances the robot vertically using a closed-loop algorithm. You can program it to automatically move around through programming, or you can combine Wi-Fi to develop remote control functions.

This Robot is controllable by a Smartphone device or a Transmitter. The BALA2 base contains a wealth of interfaces. In addition to the conventional PortB and PortC, it also supports 8-channel servos, of which 4 channels can be directly connected, and the remaining 4 channels need to be connected from the inside of the base. Even if you have never attempted such a balancing robot program, you can quickly get the hang of it and control it through UIFlow. The self balancing

robot uses data from the Accelerometer and Gyroscope to correct its orientation and position.The 2 DC driver module communicates with M5Stack Fire through I2C(0x3A).

> **Caution: While using `PSRAM`, you `cannot` use `PortC`**

Product Features

- 6-DOF IMU
- Two-wheel drive, PID control balance
- Grove extension ports
- 8-channel servo drive, 4-channel external connection, 4-channel built-in
- Support Wi-Fi programmable
- Built-in speaker
- TF Card Support
- LEGO™ Compatible
- Programming Support
  - Python
  - UIFlow (Blockly)
  - Arduino

Include

- 1x M5Stack Fire + BALA2
- 4x Wheel connector
- 2x HY2.0-4P Cables(20cm)
- 2x Bricks
- 1x HEX KEY
- Type-C USB Cable(120cm)

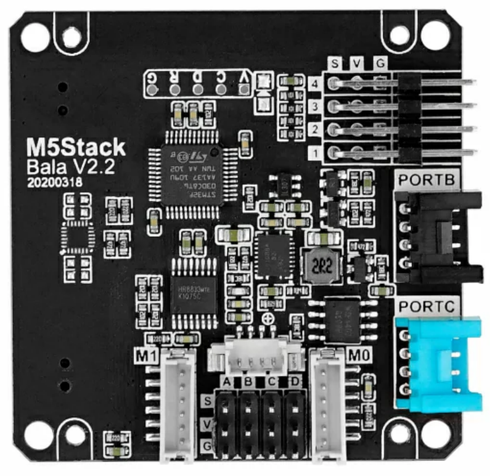
Applications

- Balancing car

Specification

Resources	Parameter

ESP32	240MHz Dual Core,600 DMIPS,520KB SRAM,Wi-Fi
Flash	16MB Flash
PSRAM	8MB PSRAM
LCD	2.0 inch, 320x240 Color TFT LCD, ILI9342C
Speaker	1W-0928
MEMS	MPU6886
Motor Driver	HR8833
Base Controller	STM32F030C8T6
Ports	GROVE I2C*1/UART*1/GPIO*1/SERVO*4(+4 Extendable Channel)
Battery Capacity	1200mAh
Net Weight	153.9g
Gross Weight	260.0g
Product Size	54*54*65*mm
Package dimensions	170*110*66mm
Case Material	Plastic



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.

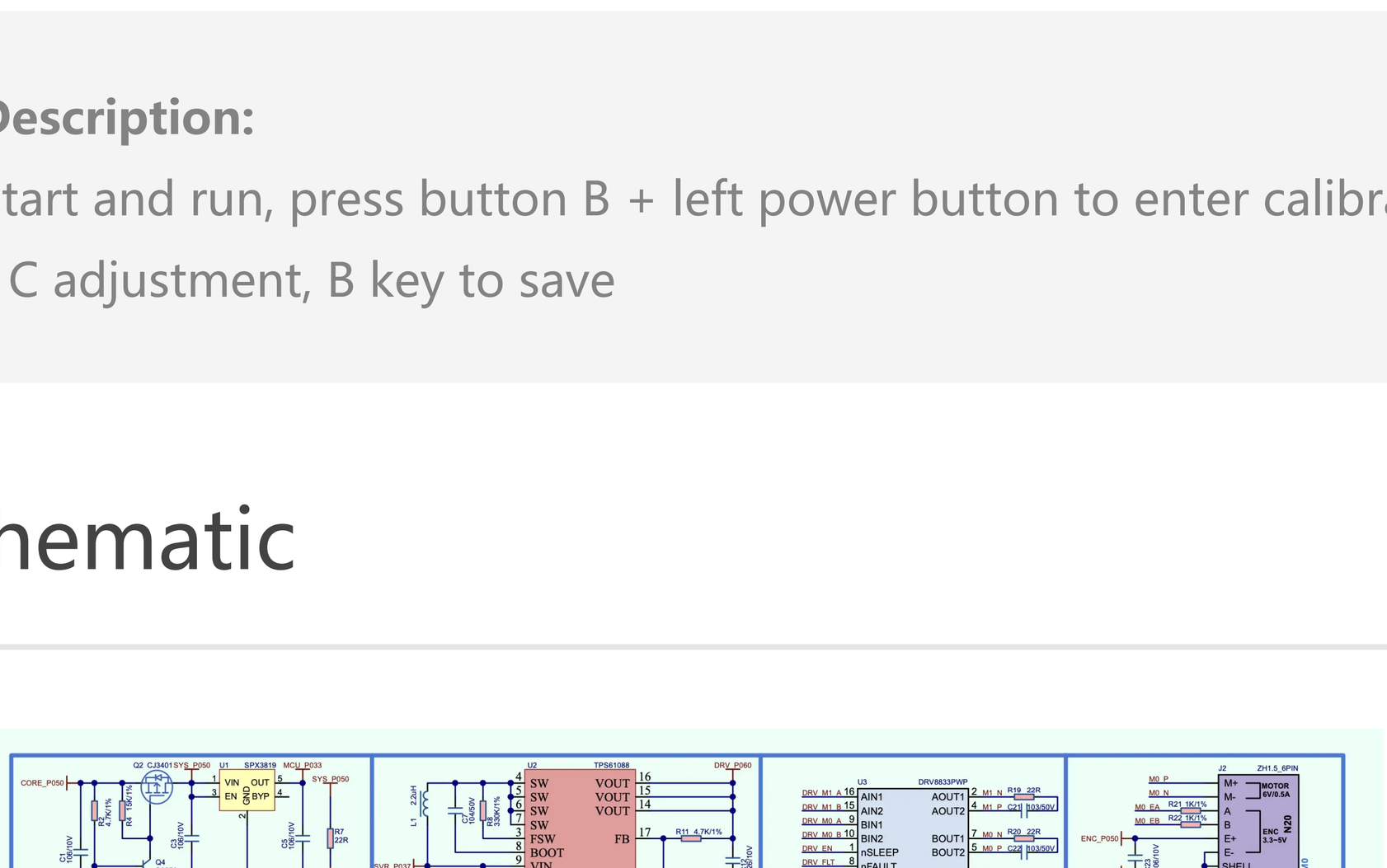
Download Windows Version Easyloader

Download MacOS Version Easyloader

Description:

Start and run, press button B + left power button to enter calibration mode, a / C adjustment, B key to save

Schematic



PinMap

GROVE Port A & B & C

ESP32 Chip	GPIO22	GPIO21	GPIO26	GPIO36	GPIO16	GPIO17
PORT A	SCL	SDA				
PORT B			DAC	ADC		
PORT C					RX	TX

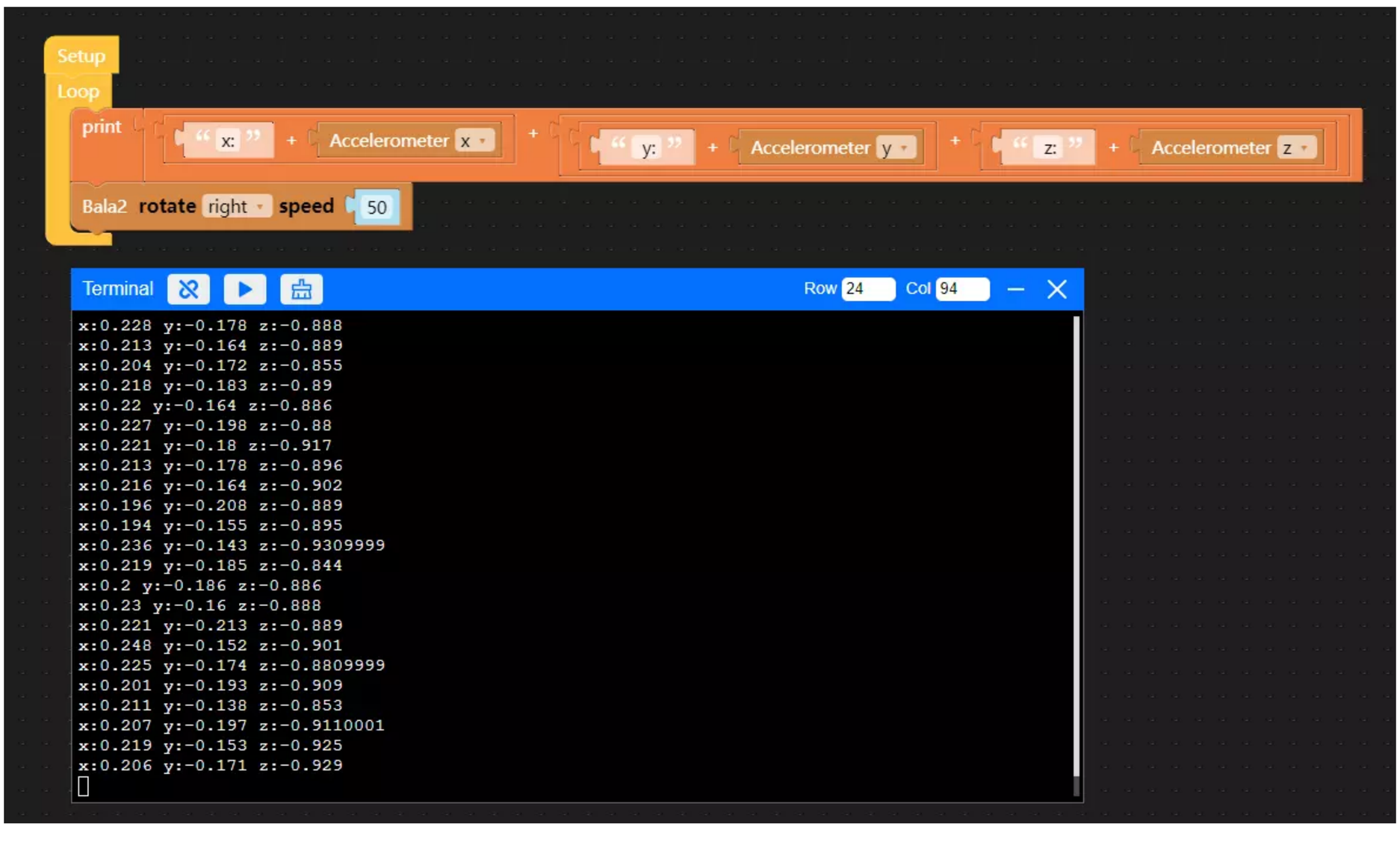
Example

Arduino IDE

To get complete code, please click, click

- **Tutorial&Quick-Start**

UIFlow



FAQ