

## Robo Pi HAT MM1

SKU 103990425

The Robotics Masters Robo HAT MM1 is an open source robotics controller board for Raspberry Pi.

Note: Robo HAT MM1 will available from Seeed in around the end of Apr., the price will be released in Mar.

It removes the initial barriers to starting any robotics project by providing all the hardware you need in one easy form factor. The wide compatibility with many open source software libraries such as CircuitPython, SeeSaw, and Arduino IDE gives you many options for getting your project to work. The hardware schematics and software will be fully available and open source without limitations.

### Features & Specification

Raspberry Pi Compatibility (all models with 40-pin header):

Model B+, 2B, 2B+, 3B, and 3B+

Model A+ and 3A+

Zero and Zero W

### **Dimensions:**

Standard HAT Format (width x depth): 65 mm x 56.5 mm  
height: TBC

### **Sensors:**

Accelerometer, Gyroscope, Magnetometer in IMU (MPU-9250)  
Current Sensor (INA219)  
Additional space for more sensors in the future (pressure sensor, dual IMU)

### **Processor:**

48 MHz SAM D21G  
256 KB Internal Flash  
8 MiB SPI External Flash Storage

### **Connectivity:**

24 programmable Input/Output:

- 9 x General I/O, 8 x 16-bit Servo Output (programmable up to 24-bit)
- 6 x direct to Raspberry Pi (SW programming, Control, Serial Console)
- 4 x 16-bit RC Controller Input, NEOPIXEL Output

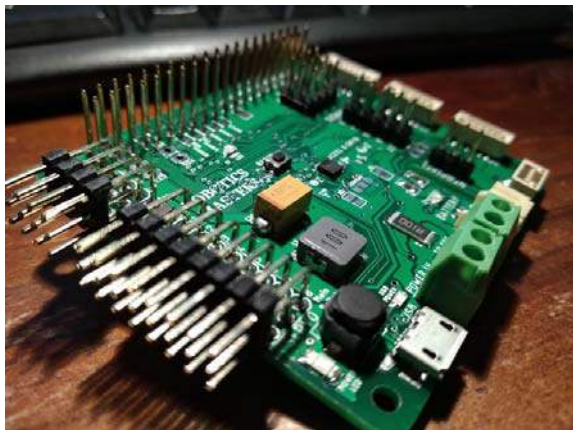
JST DroneCode Compliant Connectors:

- GPS, UART, SPI, I2C

USB to serial pass-through to communicate with Raspberry Pi 'in the field'

### **Power:**

on-board 5V Regulator (for Raspberry Pi, Servos)  
on-board small LiPo Battery Charger (for Raspberry Pi)  
battery pass-through (for Servo, ESC, Raspberry Pi)  
independent servo power rail (for back-powering from ESC)



# Software Compatibility

We wanted a wide range of software libraries to work on the Robo HAT MM1 to enable anyone to build the project that they want. This has the added benefit that the Robo HAT MM1 is able to work in a wide range of use-cases.

## Supported

- **CircuitPython** (running on the device)
- **SeeSaw** (with CircuitPython on Raspberry Pi)
- **Arduino IDE**

## In Research / Development

We believe that these libraries can be added on in the future for expanding the number of projects that you can do. We plan on starting work on these libraries in the near future.

- **Scratch** Environment (*in development*)
- **PX4 (DroneCode)** Flight Control (*researching*)
- **ArduPilot** Control (*researching*)

# Use Cases

- **Autonomous vehicles** - [Donkey Car](#), [DIY Robocar](#), [ArduPilot](#) and more.
- **Educators** - easy to use for school aged students (testing underway).
- **Makers and Hackers** - anyone looking to have fun or create something new with robotics.

## ECCN/HTS

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| ECCN   | ERA99 |
| HSCODE |       |