Name: SparkFun Auto pHAT for Raspberry Pi
Single Line Description: The SparkFun Auto pHAT is an all in one package that focuses on quickly adding robot functionality and advanced support to your Raspberry Pi, Jetson Nano, and more.
SKU: ROB-16328
UPC/GTIN: 845156010424
Product Page URL: https://www.sparkfun.com/products/16328
HS Tariff Code: 8542.39.0001 **ECCN:** 3A991.a.3
MSRP: $29.95 **Distro Price:** $24.00
Information Under Embargo Until: April 17, 2020

Description:
The SparkFun Auto pHAT for Raspberry Pi is an all in one robotics package that focuses on quickly adding robot functionality and support to your Raspberry Pi or other single-board computer. The Auto pHAT can drive two small DC motors with or without encoders and up to four servo motors in a straightforward manner via an I2C connection. The servo control is based on the SparkFun servo pHAT and thanks to its I2C capabilities, this PWM add-on saves the Raspberry Pi's GPIO pins, allowing you to use them for other purposes. We have also provided a Qwiic connector for easy interfacing with the I2C bus using the Qwiic system. Whether you use the Auto pHAT with a Raspberry Pi, NVIDIA, Jetson Nano, Google Coral, or other SBC, it makes for a unique robotics addition for and board with a 2x20 GPIO.

The DC motor control comes from the same 4245 PSOC and 2-channel motor ports system used on the SparkFun Qwiic Motor Driver. This provides 1.2A steady state drive per channel (1.5A peak) and 127 levels of DC drive strength. The SparkFun Auto pHAT also supports up to two motor encoders thanks to the onboard ATTINY84A to provide more precise movement to your creation!

Additionally, the Auto pHAT has an on-board ICM-20948 9DOF IMU for all your motion sensing needs. This enables your robot to access the 3-Axis Gyroscope with four selectable ranges, 3-Axis Accelerometer, again with four selectable ranges, and 3-axis magnetometer with an FSR of ±4900µT.

Power to the SparkFun Auto pHAT can be supplied through USB-C connector or external power. This will power either the motors only, or power the motors as well as the Raspberry Pi that is connected to the HAT. This USB-C connector can also be used to hook up the Pi via serial port connection to avoid having to use a monitor and keyboard for setting up the Pi. We've even added power protection circuits to the design, to avoid damage to power sources.

Features:

- 4245 PSOC and 2-channel motor ports programmable using Qwiic library
- On board ATTINY84A supports up to two DC motor encoders
- 5v pass-through from RPi
- On board ICM-20948 9DOF IMU for motion sensing accessible via Qwiic library
- PWM control for up to four servos
- Qwiic connector for expansion to full SparkFun Qwiic ecosystem
- Designed for stacking, full header support & can use additional pHATs on top of it
- Uninhibited access to the RPi camera connector & display connector.
- USB-C for power & programming
- External power PTH broken out

Documents:

- *Documents released on planned Live date, April 17, 2020*