PMW3901 Optical Flow Sensor Breakout

PIM453

This fancy optical flow sensor detects motion of surfaces in front of it, from ~80mm to infinity! It's great for DIY drone builds, and it's compatible with our new Breakout Garden HAT with SPI.

The PMW3901 is a crafty little sensor that uses a low-resolution camera and some clever algorithms to detect motion of surfaces. A great use for it is detecting and correcting for drift of a drone by looking for x/y motion of the ground below.

You can use this breakout completely solder-free with our new Breakout Garden HAT with SPI!

Features

- PMW3901 optical flow sensor
- Two white LEDs on-board for illumination
- Frame rate: 121 FPS (frames per second)
- Speed: 7.4 rad/s (radians per second)
- Field of view: 42°
- Range: ~80mm to infinity
- 6mA typical current draw
- SPI interface
- 3.3V or 5V compatible
- Reverse polarity protection
- Compatible with all models of Raspberry Pi and Arduino
- Python library

Software

We've put together a Python library to use with your Optical Flow Sensor Breakout. It makes reading the x/y motion values and their magnitude really straightforward.

Connecting to your Raspberry Pi

If you're not using our Breakout Garden HAT with SPI, then this is how to connect your Optical Flow Sensor Breakout up to your Raspberry Pi.

Our library is set up to use SPI 0 on the Pi: BCM 8 for CS, BCM 11 for SCK, BCM 10 for MOSI, BCM 9 for MISO, and BCM 18 for the INT pin.
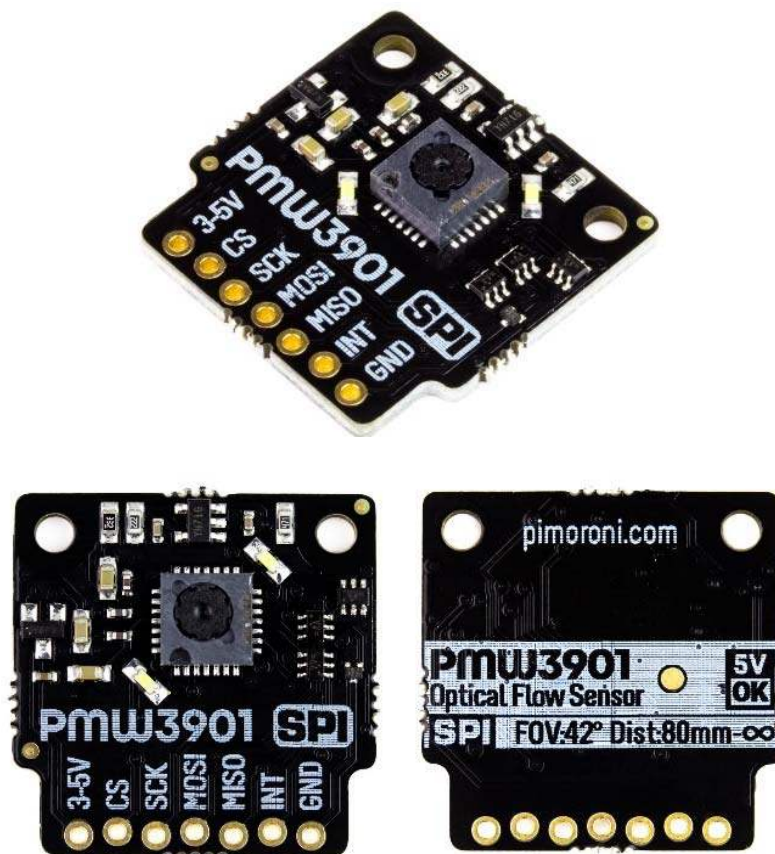
Here's which pins to connect between your Optical Flow Sensor Breakout and your Pi's GPIO (**note that it's BCM pin numbering**):

- 3-5V to any 5V or 3V pin
- CS to BCM 8
- SCK to BCM 11
- MOSI to BCM 10
- MISO to BCM 9
- INT to BCM 18
- GND to any ground pin
  You can of course use other pins with your MISO to BCM 9, but you'll have to change them accordingly when you instantiate the sensor in your code.

Notes

Dimensions: 24x24x5mm

https://shop.pimoroni.com/products/pmw3901-optical-flow-sensor-breakout/6-13-19