Product Name: Raspberry Pi Sense HAT

Technical Specification:

- Gyroscope – angular rate sensor: +/-245/500/2000dps
- Accelerometer - Linear acceleration sensor: +/-2/4/8/16 g
- Magnetometer - Magnetic Sensor: +/- 4/8/12/16 gauss
- Barometer: 260 – 1260 hPa absolute range (accuracy depends on the temperature and pressure, +/- 0.1 hPa under normal conditions)
- Temperature sensor (Temperature accurate to +/- 2 degC in the 0-65 degC range)
- Relative Humidity sensor (accurate to +/- 4.5% in the 20-80%rH range, accurate to +/- 0.5 degC in 15-40 degC range)
- 8x8 LED matrix display
- Small 5 button joystick

(N.B. Since the board heats up, the temperature readings from these sensors are not going to accurately reflect ambient temperature)

Features:

The Raspberry Pi Sense HAT is attached on top of the Raspberry Pi via the 40 GPIO pins (which provide the data and power interface) to create an 'Astro Pi'. The Sense HAT has several integrated circuit based sensors can be used for many different types of experiments, applications, and even games.

The sensors enable you to read:

- Orientation (yaw, pitch & roll) via an accelerometer, 3D gyroscope and magnetometer
- Pressure
- Humidity
- Temperature

The Sense HAT supports a whole host of projects for the Raspberry Pi, it can measure how fast is the Pi itself travelling (i.e. measure your speed), how hot is it? how humid is it? (air humidity), which direction is the Raspberry Pi facing?

The LED Matrix enables you to display the data from the various sensors, it can show you which way is geomagnetic North by programming a compass using the magnetometer, or simply be used to play games like Tetris, Pong and Snake with the joystick. The joystick can also be used to enable a human user to interact with the programs running on the Raspberry Pi Sense HAT.

Writing programs for the Sense HAT is very simple, with a Python library available to get started quickly and easily. For a truly out of world projects check out the AstroPi website http://astro-pi.org/, containing a host of ideas and instructions for using the Raspberry Pi and Sense HAT on the International Space Station (ISS).

Getting Started:

Connect your Sense HAT to the Raspberry Pi via the 40 GPIO Pins.
You will then need to install the software:
Open up a terminal and run the following command:

```
wget -O - http://www.raspberrypi.org/files/astro-pi/astro-pi-install.sh --no-check-certificate | bash
```

(This will take approximately 5 mins to run on the Raspberry Pi 2 Model B, and approximately 20 minutes on earlier models of the Raspberry Pi)

When the install has finished you will need to reboot your Raspberry Pi

Compatible With:

- Raspberry Pi 2 Model B
- Raspberry Pi Model B+
- Raspberry Pi Model A+

Cross Sell:

- Raspberry Pi Camera
- Raspberry Pi NoIR Camera

Other Useful Sources of Info:

www.element14.com/raspberrypi

http://astro-pi.org/

https://www.raspberrypi.org/competitions/astro-pi/