

# pytrack - Modular Python HAB tracker

HAB tracker software for the Pi In The Sky board and LoRa expansion board.

## GPS

The GPS program is written in C, and uses WiringPi which should be installed with:

```
sudo apt-get install wiringpi
```

This part of the software needs to be compiled and linked, with:

```
cd pytrack/gps
make
```

## Tracker

This part of the software is Python 3.4, which needs to be installed on Jessie Lite:

```
sudo apt-get install python3 python3-pip
sudo pip3 install pyserial spidev picamera crcmod
sudo apt-get install python3-gpiozero
```

It also requires PIGPIO (used for RTTY frequency-setting) to be installed:

```
cd
wget abyz.co.uk/rpi/pigpio/pigpio.zip
unzip pigpio.zip
cd PIGPIO
make
sudo make install
```

and finally SSDV (used for imaging)

```
cd
git clone https://github.com/fsphil/ssdv.git
cd ssdv
sudo make install
```

## Raspbian Configuration

Enable the following with raspi-config:

```
Enable Camera
Advanced Options --> Enable SPI (if you are going to use the LoRa board)
Advanced Options --> Enable I2C (if you will at some time use the BMP085 or BMP180)
Advanced Options --> Enable One-Wire support
```

**Note that the I2C/SPI/OneWire settings have been moved to "Interfacing Options" in the latest Raspbian update.**

Allow, the serial port to be used with:

```
sudo systemctl mask serial-getty@ttyAMA0.service
```

That disables the serial port login. We also need to stop the kernel from using the serial port, by editing the cmdline.txt file:

```
sudo nano /boot/cmdline.txt
```

and remove the part that says

```
console=serial0,115200
```

Save your changes.

## Usage

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The tracker program is started with:

```
cd  
cd pytrack/tracker  
python3 pytrack.py
```

## Test programs

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There are various test\_\*.py programs in the tracker folder, to individually test GPS, LoRa etc.