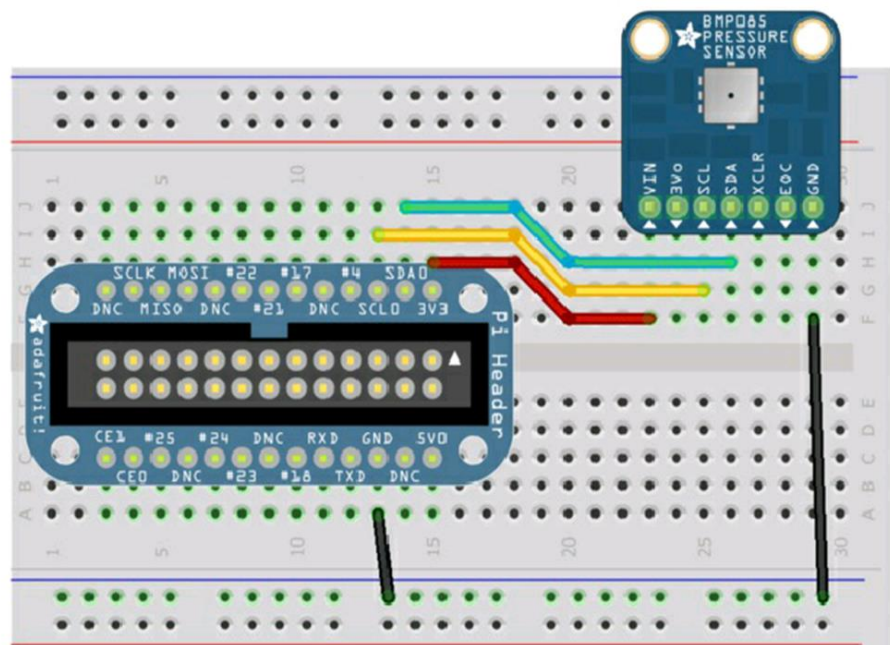
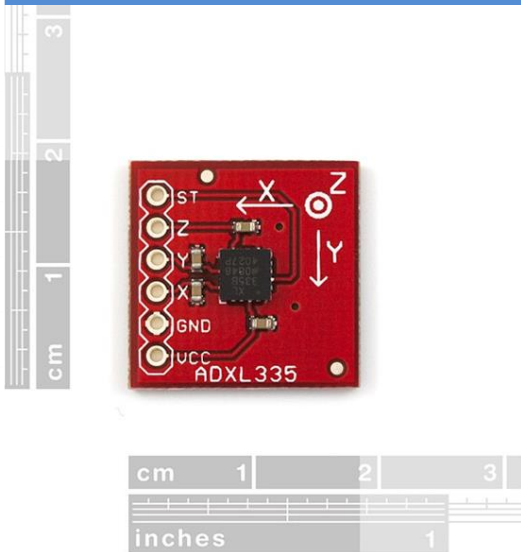


Can Sat

Sensors



Out line

1-GPS

- a) How Gps Works.
- b) Enable UART .
- c) Use GPS

1-GPS

a) How Gps Works

GPS - the machine monitors the signals from the satellites, and this signals the device can calculate the distance between him and the satellites and when there are 4 satellites we get the four distances and 4 when they solved the equations we get the place.

The basic principle of the place gps, for example, and we know S1, If we know the exact location of the satellite is very intuitive, this point we are located in a specific area of the .satellite. T1 that the time of signal transmission was

If we now add another satellite takes place bad about T1 ..mn time to deliver signals to us, we will find that when we use the data that we took from the satellites we will be able to determine our place on one of the points.

And now it has become more clear, if added a third satellite, we will find that we are present on a points .. we will find that we are on the point L2 if we add a fourth satellite will we calculate the height, the height is the distance above sea level.

B) Enable UART

* The Gps SKM 53 use UART .

The first active the UART in Raspberry pi by python code .

```
import Adafruit_BBIO.UART as UART
import serial
UART.setup("UART1")
ser = serial.Serial(port = "/dev/ttyO1", baudrate=9600)
ser.close()
ser.open()
if ser.isOpen():
    print "Serial is open!"
    ser.write("Hello World!")
ser.close()
```

secondactive and use GPS

C) Use GPS

Install GPSD

GPSD is an open source project which provides a daemon which streams GPS data via a TCP socket, allowing you to communicate with a whole host of different GPS devices (not just this one):

```
sudo apt-get install gpsd gpsd-clients python-gps
```

Run gpsd

GPSD needs to be started up, using the following command:

```
sudo gpsd /dev/ttyAMA0 -F /var/run/gpsd.sock
```

Test gpsd

There is a simple GPS client which you can run to test everything is working:

```
cgps -s
```

It may take a few seconds for data to come through, but you should see a screen like this:

```
Time:      2013-09-19T22:29:16.000Z
Latitude:   N
Longitude:  W
Altitude:  79.6 m
Speed:      1.0 kph
Heading:    328.6 deg (true)
Climb:      0.0 m/min
Status:     3D FIX (18 secs)
Longitude Err: +/- 15 m
Latitude Err: +/- 17 m
Altitude Err: +/- 20 m
Course Err:  n/a
Speed Err:  +/- 128 kph
Time offset: 0.598
Grid Square: IO82vm
```

| PRN: | Elev: | Azim: | SNR: | Used: |
|------|-------|-------|------|-------|
| 10 | 81 | 277 | 30 | Y |
| 13 | 64 | 066 | 00 | Y |
| 2 | 51 | 271 | 00 | Y |
| 7 | 45 | 152 | 29 | Y |
| 4 | 45 | 204 | 32 | Y |
| 23 | 33 | 067 | 35 | Y |
| 5 | 25 | 292 | 24 | N |
| 8 | 20 | 174 | 00 | N |
| 9 | 19 | 183 | 00 | N |
| 16 | 13 | 053 | 30 | N |
| 29 | 11 | 332 | 00 | N |
| 20 | 04 | 116 | 00 | N |
| 34 | 00 | 000 | 00 | N |

Bibliography

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