

Raspberry Pi - P-HAB (High-Altitude Balloon)

1. 04 Jun 2014 Balloon Launch
2. 06 Jul 2014 Balloon launch more photos from sky
3. 13 Jul 2014 Balloon launch function test fly
4. 20 Jul 2014 Balloon launch function test fly
5. 27 Jul 2014 Balloon launch function test fly

1. 04 Jun 2014 Balloon Launch

The aim of the project was to incorporate a simple to use, simple to install, and simple to run hardware and software bundle that is capable of being tracked through high altitudes attached to a weather balloon. The hardware itself compromises of a Transmitter, GPS receiver (For location positioning), Power regulators so you can power it with batteries, Temperature and Humidity sensors to transmit whilst in flight, and connectors for the Antenna and GPS. When bundled together the Pi will load up the software and is ready to transmit all the data you need to track your balloon throughout the world. The software that has been written to work with the board is an easy to understand, well commented script that will receive GPS signals, then take only the data it needs (Latitude, Longitude, Altitude) and then attach Temperature, Humidity, Flight mode, and whether the balloon has reached the altitude set in the script (You can change this, default is 12,000m). Once the balloon has reached this altitude it will heat up nichrome wire which will enable the pi to be cut loose from the balloon and stop it from gaining more altitude and then bursting onto the parachute / Pi enclosure which will render the parachute unusable.

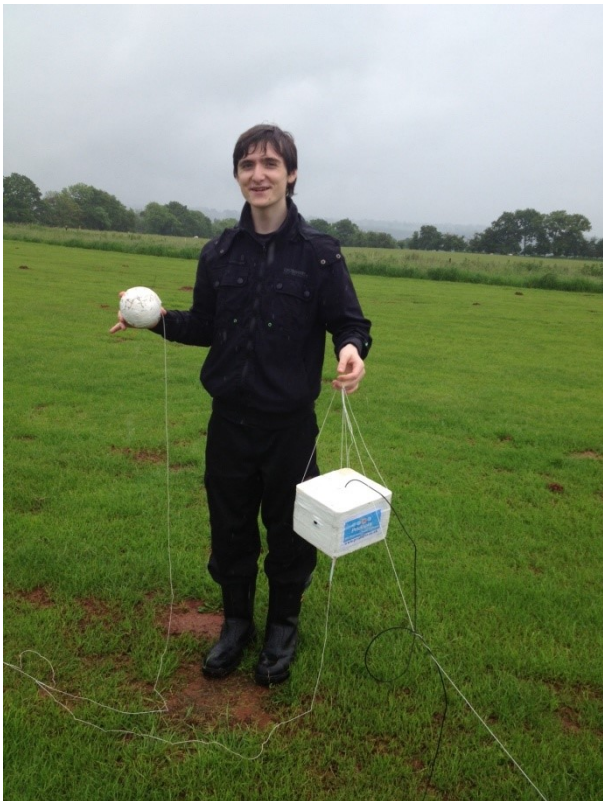
There are full instructions on how to set up the Raspberry Pi and the receiver. There is software on the PC which will read the signal from your receiver (normally USB reader) and it will show you the data on the screen and you can also use this to connect it to www.spacenear.us/tracker which is useful for the map and it will show who is tracking your balloon and where it is located as well as other data on the Raspberry Pi.

If you have a Pi Camera attached to the Raspberry Pi and you have it enabled, you can take pictures. By default it is enabled and can be changed by editing the start-up script to start without a -p for Picture, this will disable taking pictures. You can also change your call sign (What will show up after \$\$\$\$), This will be how you identify your Balloon from all the others. Other people can still track your balloon if they tune into the right frequency, There is a popular IRC that is very active, you can connect to it through "webchat.freenode.net" and the channel is called #highaltitude which you can join by typing /join #highaltitude. There are always people on-line and they will always help and are very smart on the subject and they all test and fly HAB's.

If you need anymore help feel free to contact us by sending us an email.



James, Tony & Jed

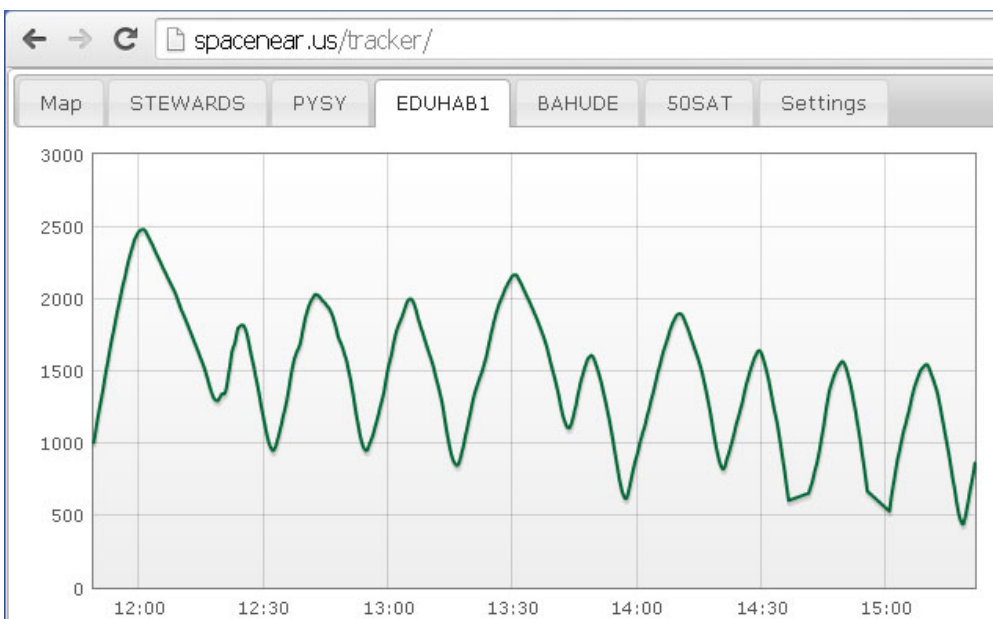
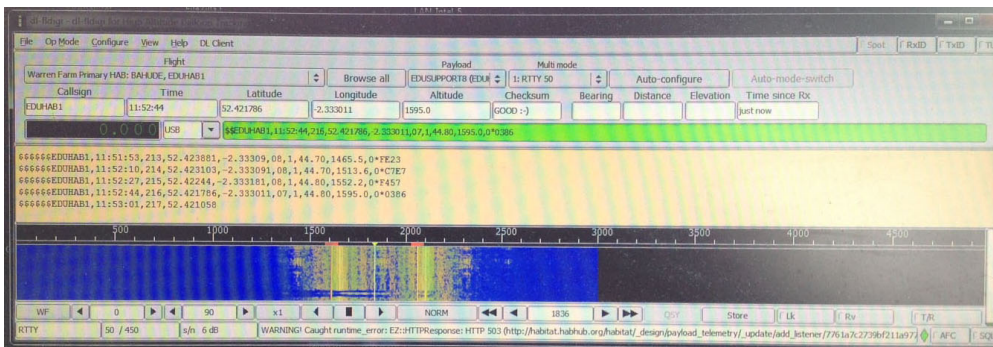


James with Pi-HAB & backup tracker

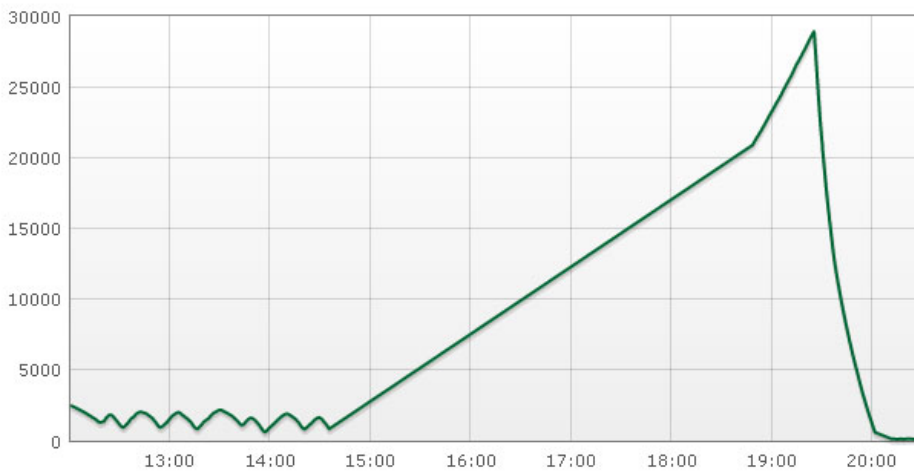


1. Balloon 2. parachute 3. Pi-HAB 4. Back-up Tracker

tracking FM signal on laptop



P-HAB signal



Back up Tracker signal back at about 19:00 reach at 28883m and drop and landed at 20:30

Track detail 14:13

Map STEWARDS EDUHAB1 BAHUDE Settings

EDUBOB
Come chat to us: #highaltitude on irc.freenode.net
Current time is: 14:14 UTC
If this page does not load correctly please try the Mobile Tracker.

STEWARDS
Time: 2014-06-03 16:59:25
Position: 52.072325,0.666625
Altitude: 616 m Rate: -11.6 m/s
Max. Altitude: 3669 m
Battery: 1.39 V
Satellites: 8
Status: 11
Temperature Rfm: 11
Receivers: GB20N, SDWXT

EDUHAB1
Time: 2014-06-04 14:13:26
Position: 52.164512,-2.332311
Altitude: 1701.1 m Rate: -1.4 m/s
Max. Altitude: 2477.1 m
Count: 713
Cutdowns: 0
Ext Temp: 53.50
Flightmode: 1
Satellites: 08
Receivers: GB2BJ, MORP1

BAHUDE
Time: 2014-06-04 14:13:34
Position: 52.16419,-2.33245
Altitude: 1696 m Rate: -1.6 m/s
Max. Altitude: 2477 m
Satellites: 9
Status: 0
Receivers: MOJCU, GB2BJ_2

Photo from P-HAB

