

Bartybee has a go at: Building an Arduino 'Pro Micro' MPU-9150 Head Tracker

I have basically collated instructions, helpful notes and advice given in the EDTracker.org.uk website and brumster100s You Tube links, (brumster100 is a star and font of all knowledge).

The notes have been collated with a view to building a more compact version on a cut down section of the prototype board supplied, rather than a using a tried and tested specifically produced PCB, (which would have saved time, effort and tricky wiring).

This version worked first time and I have had no issues with it to date.

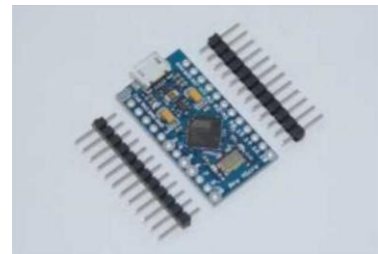
Components

With the exception of wiring and case, I purchased all parts online from Hobby components as the 'Headtracker Kit with upgraded module', (just under 20 quid for the lot including VAT and delivery).

Maybe I could have sourced the components cheaper elsewhere separately, but in my honest opinion, these were reasonably priced for a complete kit bundle.

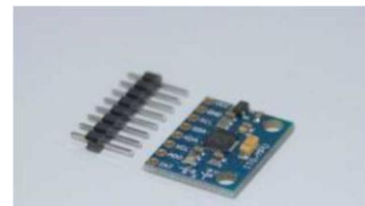
Arduino 'Pro Micro' board,
plus 2 off 12 pin strips.

Note: The 'Pro micro' is the one with 12 connection holes per edge not 8.



MPU-9150 board,
plus 1 off 8pin strip.

Note: The GY 521 MPU-6050 is a lot cheaper, but does not have the built in magnetometer.



Prototype board 3 x 7cm

Note: I cut the 24 x 10 array to 7 x 13 holes using a junior hacksaw.



Miniature push switch



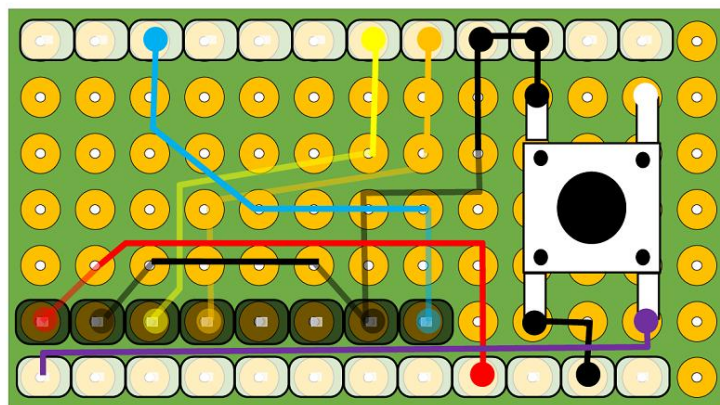
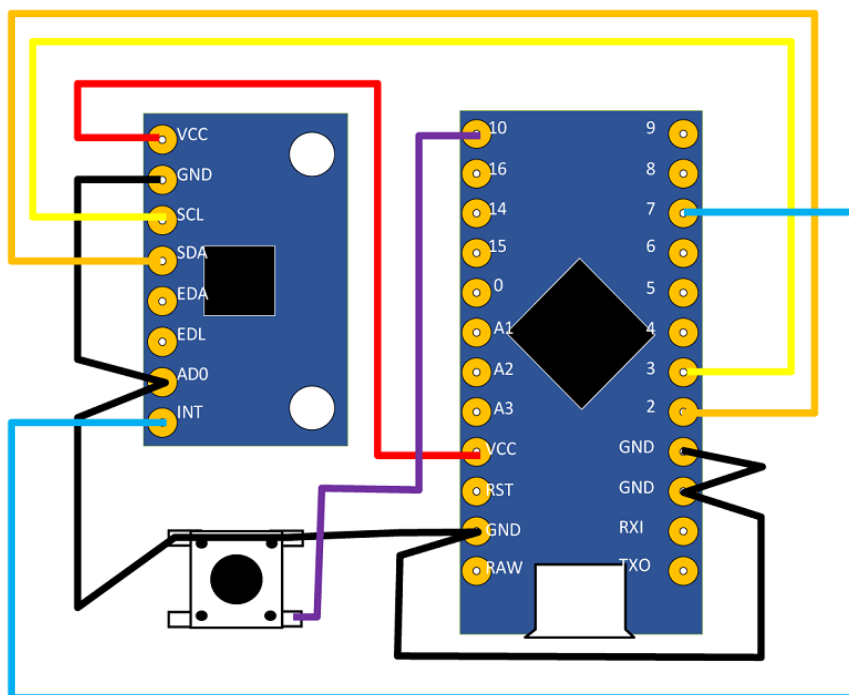
Wiring (not supplied in the kit)

I used one side of some spare twin dolls house lighting wire I had lying about, (this can actually fit through the prototype board holes).



Circuit Connections

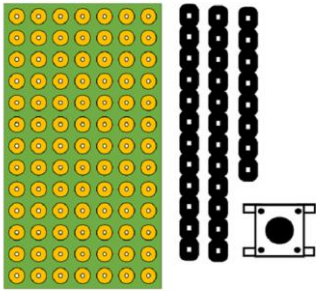
Arduino	MPU 9150 (or 6050)	Switch
VCC	VCC	
Pin 2	SDA	
Pin 3	SCL	
Pin 7	INT	
Pin 10		One side
Common connections		
GND	AD0	
GND	GND	
GND		Other side



Wiring layout diagram (some wires pass through board)

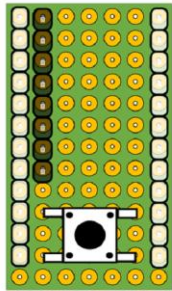
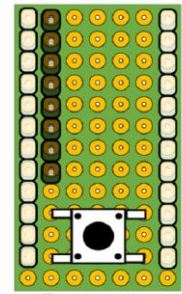
Solid wire colours denote this side of the board, translucent wire colours, depict the underside.

Circuit Assembly



Step 1

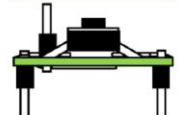
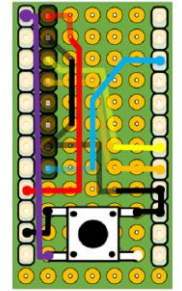
Solder the pin strips and switch to the prototype board.



Step 2

Solder the wires as per the layout diagram passing them through the board as necessary.

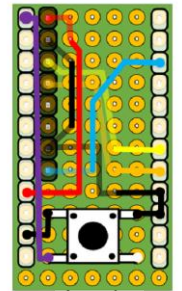
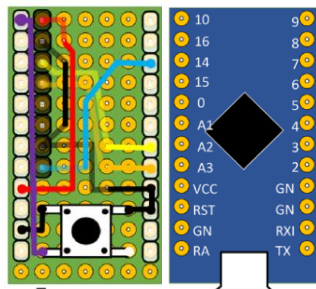
Note: All my wiring has white sleeving rather than coloured as depicted.



Step 3

Trim off any surplus from the soldered pins/wiring so that they will not foul the circuit boards when fitted.

Note: Now is a good time to check the wiring circuit connections as after the next bit it will be 'tricky'.

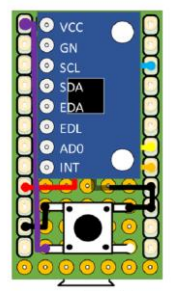
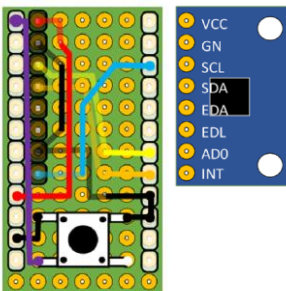


Step 4

Check the Arduino board for fit and clearance from the already soldered and trimmed parts then carefully solder it into position and trim off any excess pin material.

Step 5

Carefully solder the MPU 9150 (or 6050) board into position and trim off any excess pin material.



Step 6

The circuit assembly stage is now complete and the device is ready to test with software prior to finally putting it in a case.

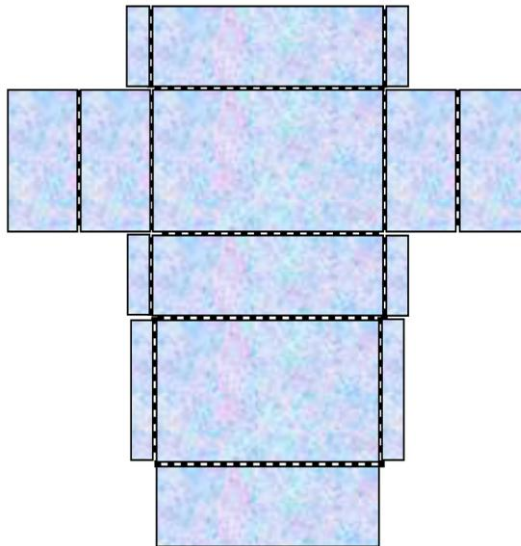
Case assembly

Make the case a suitable size to fit the device with the lid fitted.

Note: I tried printing out and folding a paper template first, to get a good fit.

When you are happy with the fit, cut from plastic packaging or modelling card, then fold to shape and superglue. When set, cut a hole for USB port access.

I cut my shape from some clear plastic packaging because I like the overall appearance, (it looks a bit like a mini 'ORAC for anyone old enough to remember Blake 7).



General shape, adjust dimensions to fit your device.

Here are some photos of my final effort.



Cheers

Bartybee