

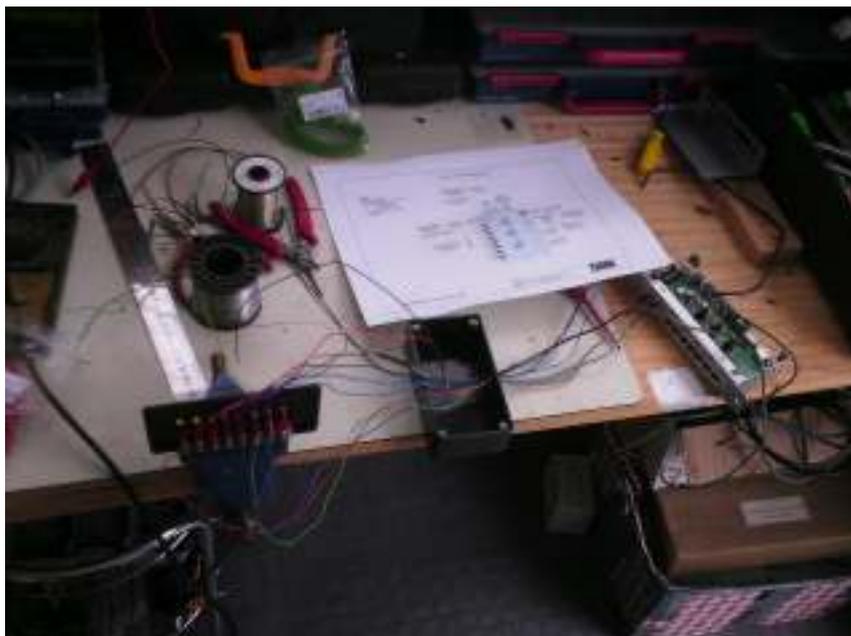
Fun with robot I/O - by c6jones720

The White Box 914 has an I/O board built into it. It is interfaced to the infrared sensors but it does have provision for digital inputs and outputs. You know I don't think anyone has ever fully exploited the potential of this board. Its funny when you consider all those things you could do with it...

I got to thinking what can I do with BRIAN and a White Box I/O board?



I pulled the I/O board out of my robot and had a look at the diagram provided by White Box.



Seeing that it was relatively simple to work with I ran down to Maplin's to get some LEDs and some switches.

And then I wired them into my robot.



Don't worry I've already been told off about scratching my dinner table!
So now we have access to digital I/O what are we going to do with it?

Build a line following add on of course! Following lines is one of those really simple robot navigation methods that often gets forgotten about.

I'll bet lines could have useful applications in robotics such as:

- Defining a boundary that the robot must not cross.
- Defining the boundary between one room and another
- Leading the way to something important

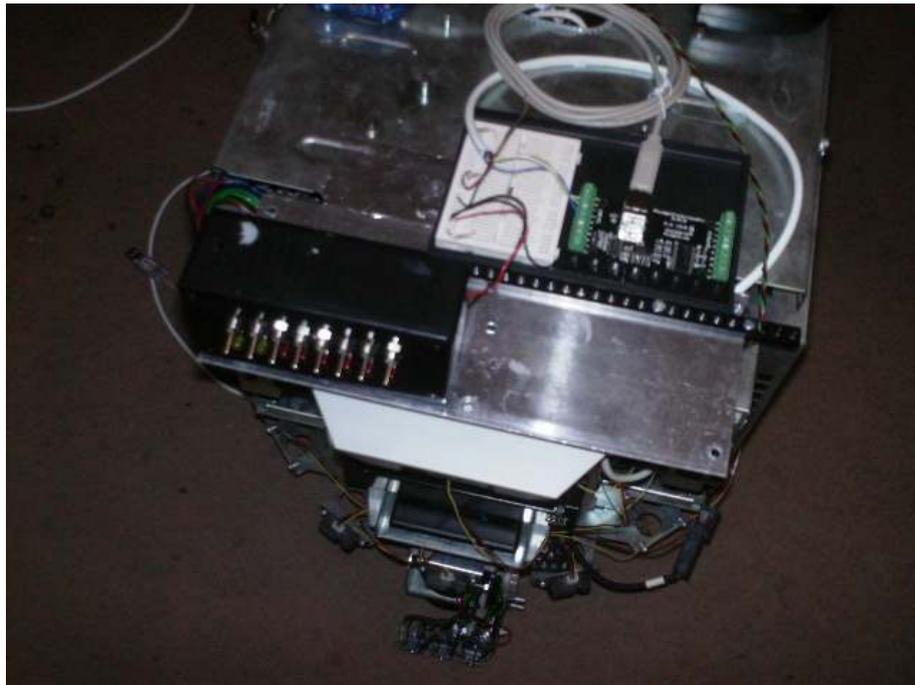
I thought I'd build a sensor system to look for lines and interface it to the IO board. I used Inventa, which is like Lego to mount three infrared sensors. There would be one to detect the left of the line, one for the centre of the line and one for the right of the line. The sensors were mounted side by side as shown below.



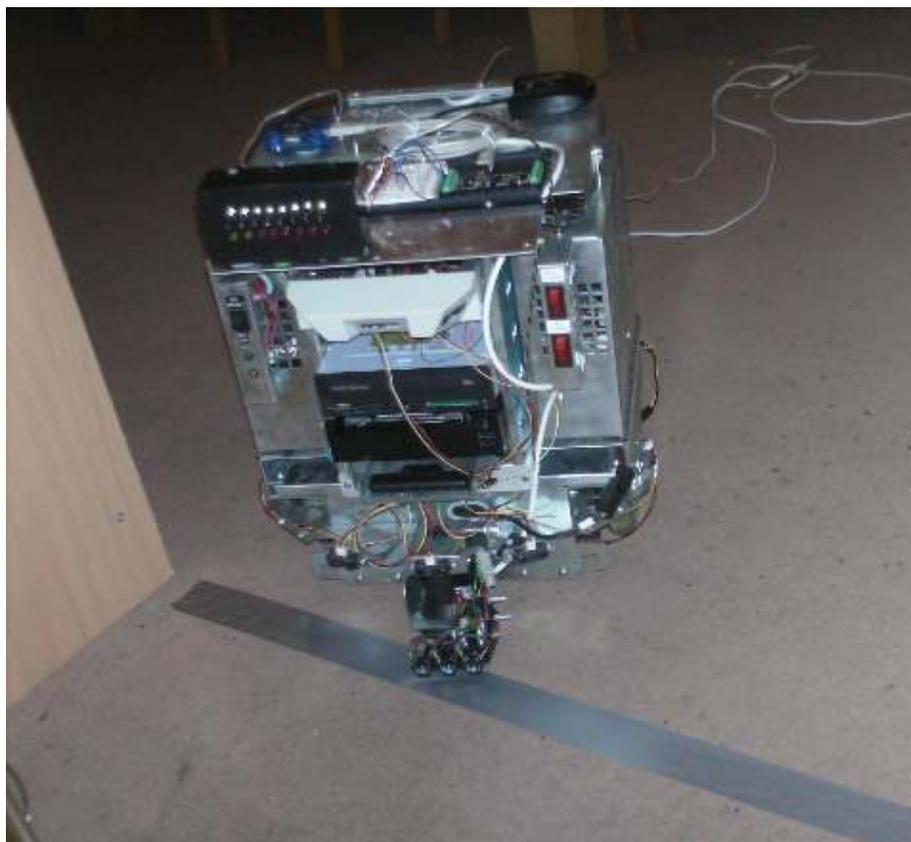
I located the sensors on the front castor wheel and just above the floor so reflections would be minimal.

I found that all you needed was to have a tape whose colour contrasted with the colour of the carpet. If the carpet is more reflective than the tape then you simply invert the logic.

It turns out that it is sufficient to just lay down duct tape on brown carpet, although aluminium tape is far better.



So there's the line follower interfaced to an I/O board (see the switches).



And there's a possible application of the line – confining the robot to a certain area. – Sorry no robots allowed in the kitchen!