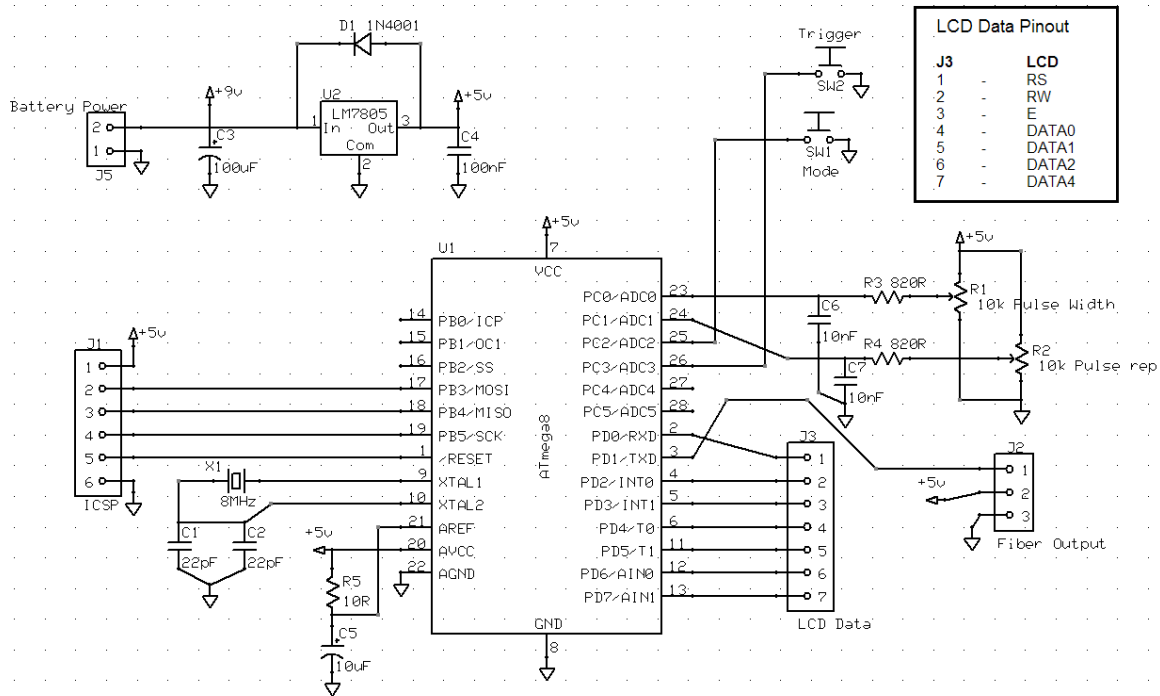


# PROGRAMMABLE INTERRUPTER/ TIMER

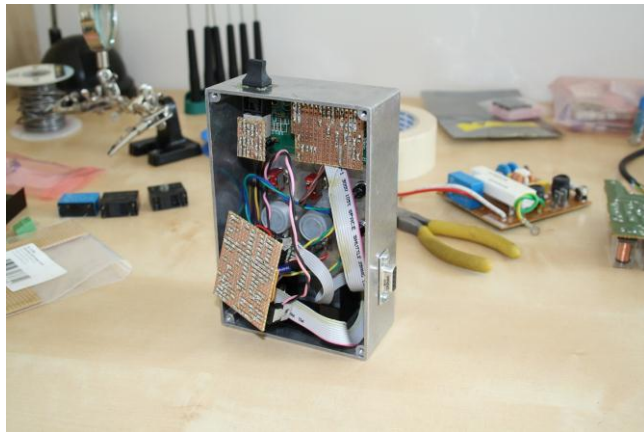
While doing some x-ray experiments I suddenly found the need for a remotely operated relay. That led to thinking of a way to over engineer the problem, and I found I could solve several problems at once by making a universal fiber optic system of sorts. The basic idea I came up with is to have one module with all the needed hardware; LCD, potentiometers, buttons and fiber optic output. This module could then be programmed easily with different firmware depending on the needed application. I've made three different firmware packages so far, a SSTC interrupter, a DRSSTC interrupter and a timer for my x-ray experiments. I imagine there are several other uses for such a module as well. The USART Tx pin has been connected to the fiber optic output, so using the module to send serial commands over a fiber optic link should be a cake walk.



A straight forward circuit with no frills, the real magic happens in the firmware.

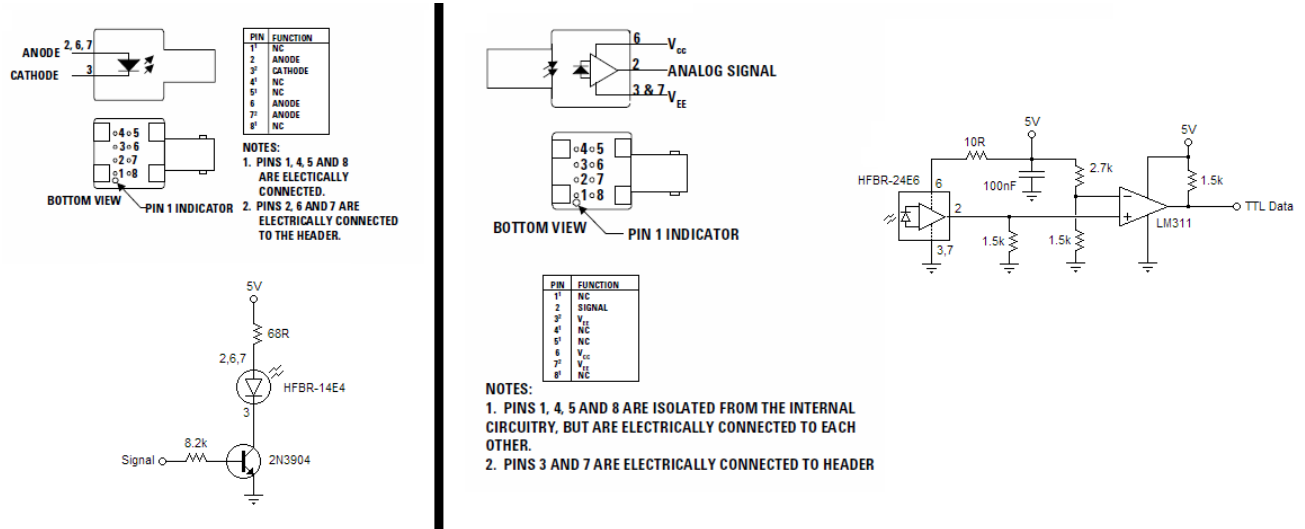
For the ISP socket I used a 9-pin D-sub connector, this allows for rapid reprogramming without even taking the back cover off. I built the interrupter in a diecast aluminum project box, to prevent any possible issues with interference from Tesla coils.





The fiber optic modules I used are HFBR-14E4 and HFBR-24E6 which I was able to acquire in a large quantity. They use regular SC-SC cable, at pretty much any fiber diameter from what I gather, but thicker is better. I use a 62.5um/125 fiber patch cord, multimode, simplex, which only cost 7USD on eBay. So far I've tested these modules in two SSTCs. The receiver worked just fine in my second PLL SSTC, but in my 4.096MHz Class E coil there were problems with noise.

The noise issues were completely fixed by simply placing some tin foil over the receiver. So if you use the receiver module in a diecast project box or similar, noise will not be an issue.



Source: <http://uzzors2k.4hv.org/index.php?page=interrupter>