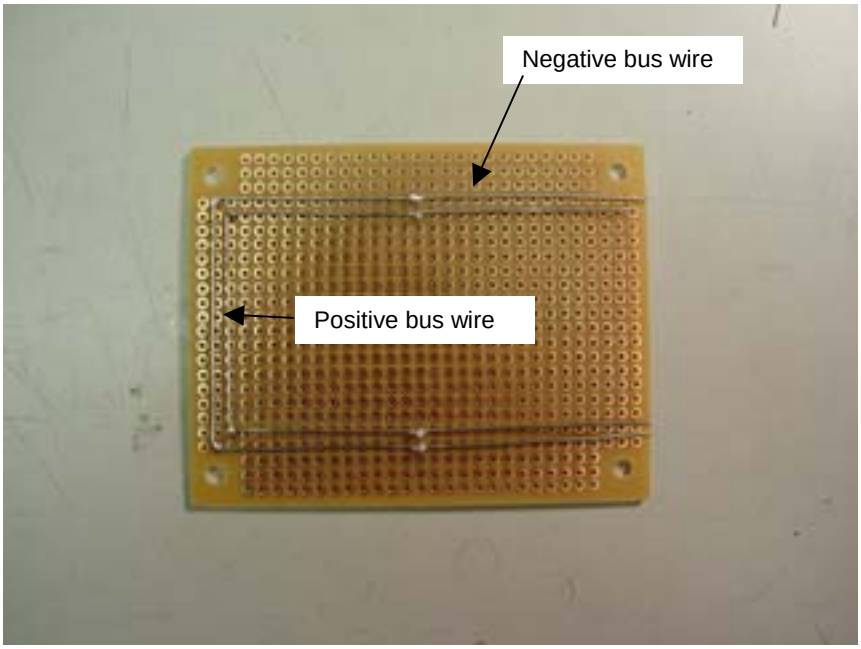
MP3 Player Timer Board Assembly

First, read this instruction completely. Get all the parts and lay them out neatly, and get the tools you'll need:

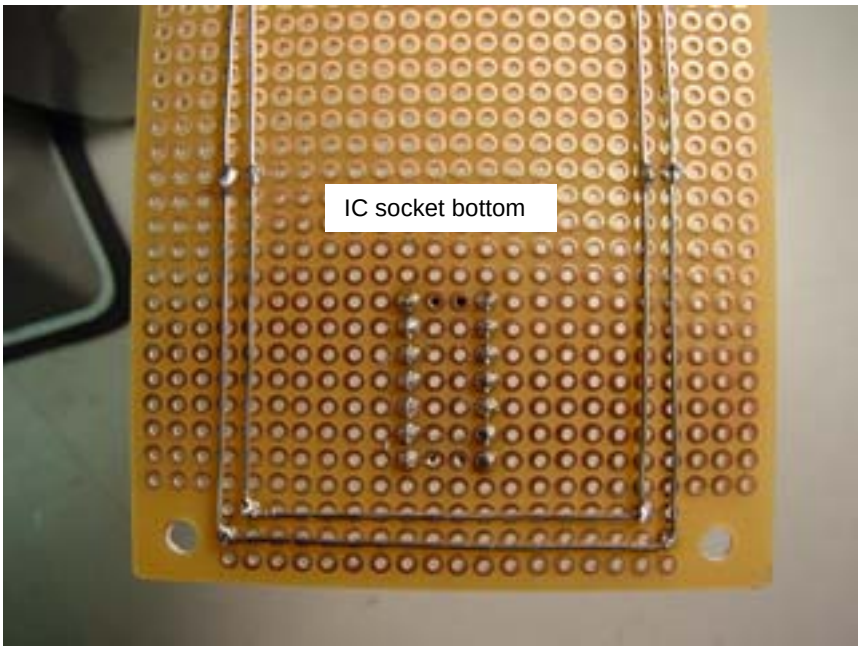
A small diagonal cutter
A small longnose plier
Soldering iron with a fine point tip
22 or 24 gauge wire
Bus wire

The locations of the components are customized for the PC-3 perf board from All Electronics. I have built this circuit on a much smaller board, but it wasn't very easy.

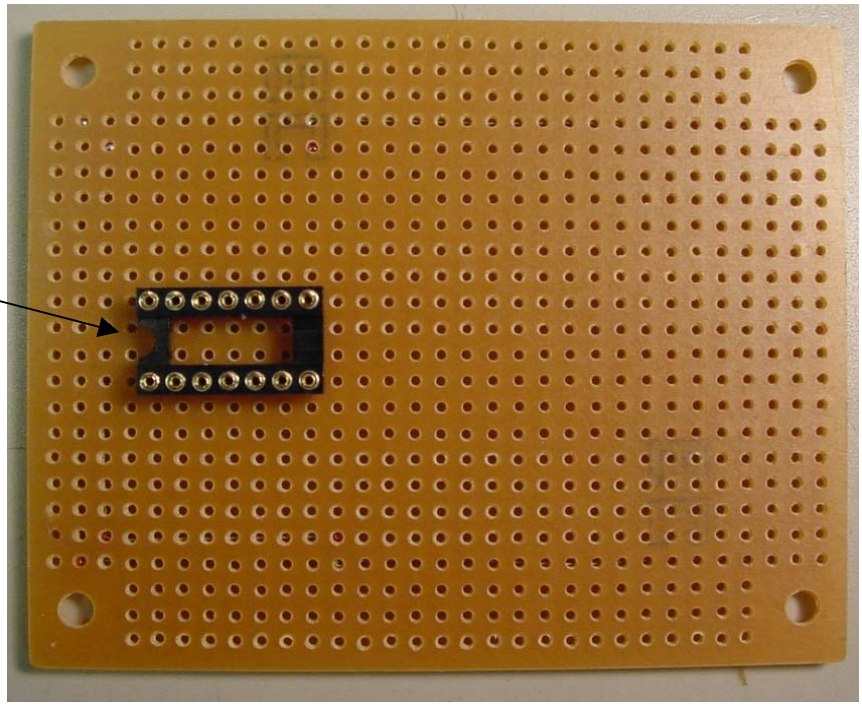
1. Lay out the positive and negative bus wires. Bend the wires to make the corners and tack in place with solder.



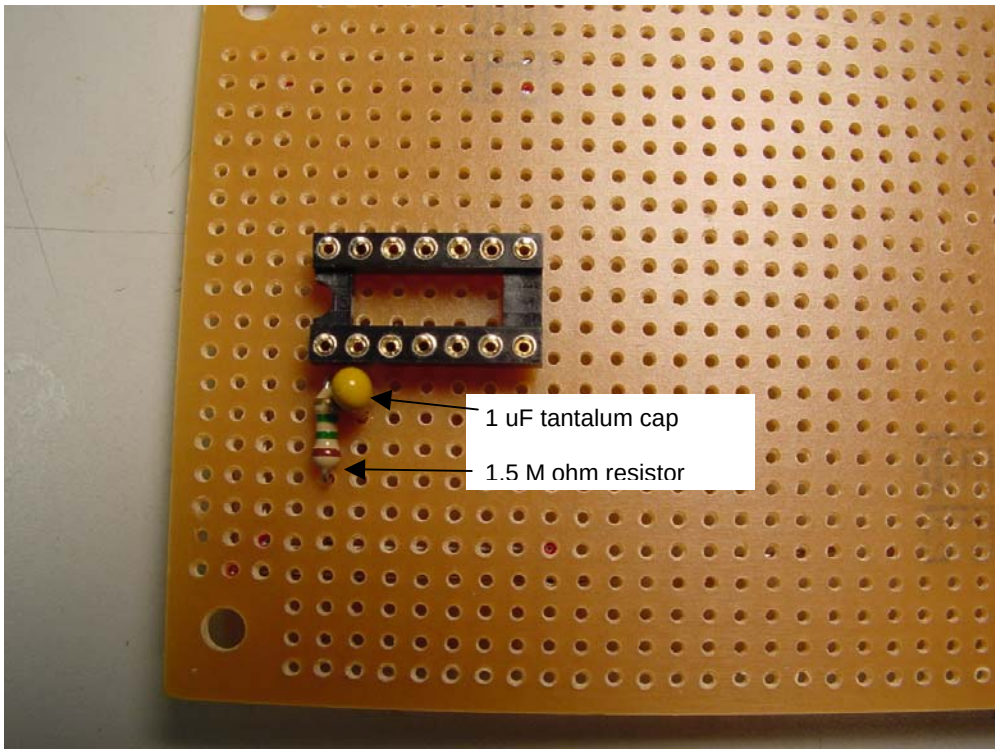
2. Install the IC socket. Note the location of the notch. Solder each pin but do not bridge any of them. Don't install the 556 chip – soldering temps will damage it.



IC socket top – Note location of notch

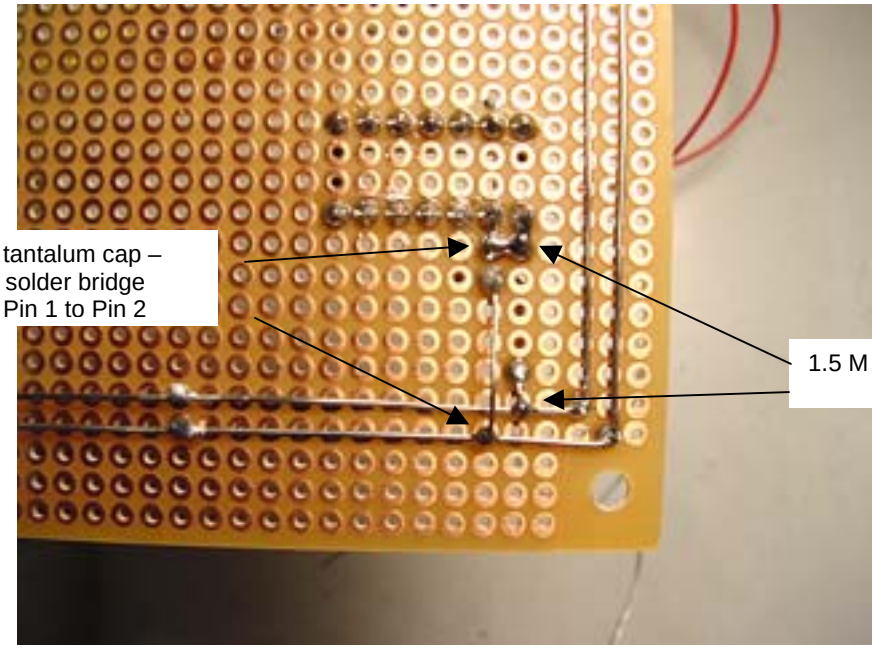


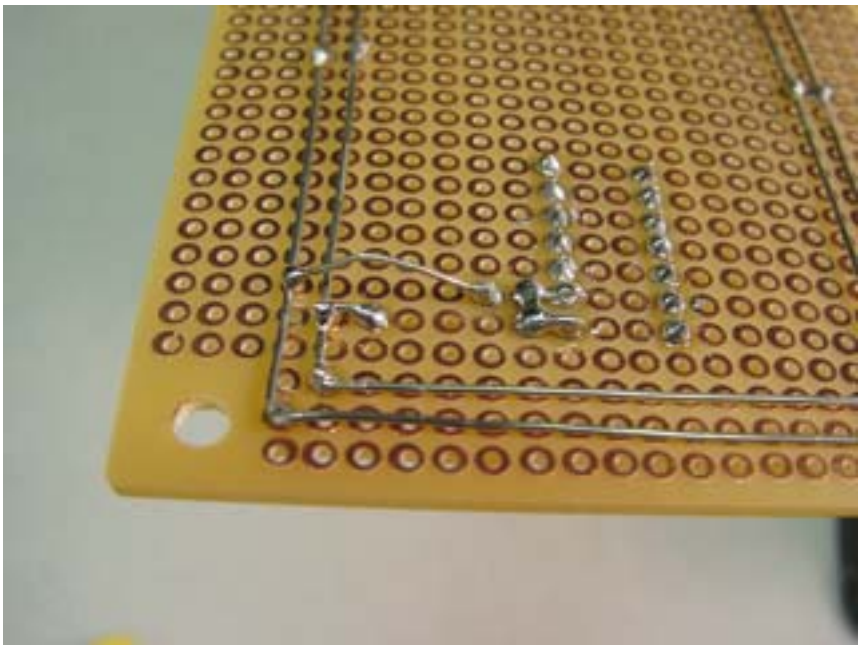
3. Install the 1 uF tantalum cap and the 1.5 M ohm resistor. Note: this resistor is the one that sets the time required for activating the player. This cap/resistor combination sets a time of ~1.65 secs. This time period worked for all 3 of the MP3 players I tested, but it may not work for the one(s) you have. If this should occur, email me and we'll work through the fix.



4. Bottom view of the cap and resistor connections. Bend the negative leg of the cap to contact the negative bus wire and solder. There is also a solder bridge connecting pins 1 and 2. Solder the resistor to pin 1 and the positive bus wire.

Note: Polarity counts with this capacitor. Verify that the positive side of the cap is soldered to the #2 pin. Look for a small "+" sign on one side of the cap – that side is the positive leg.

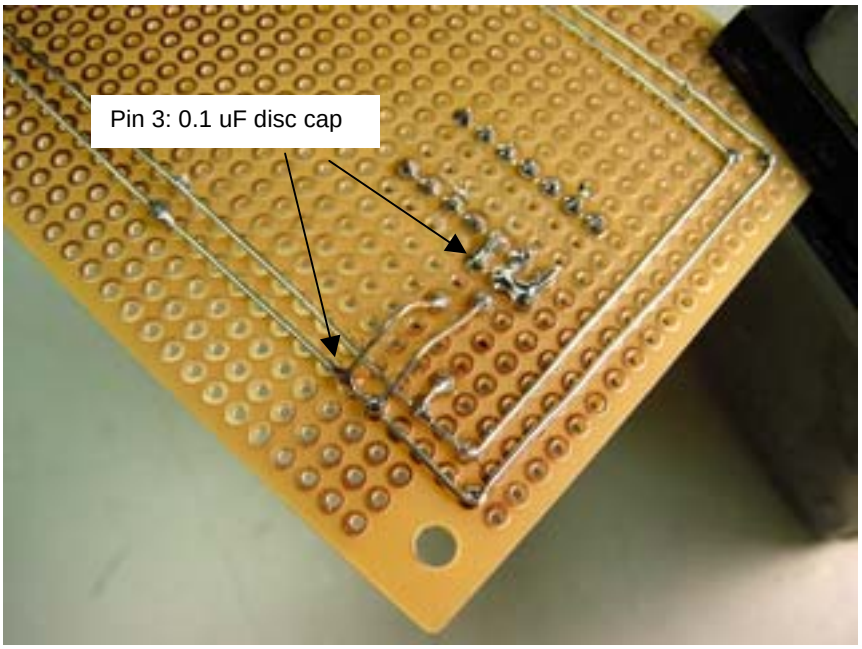


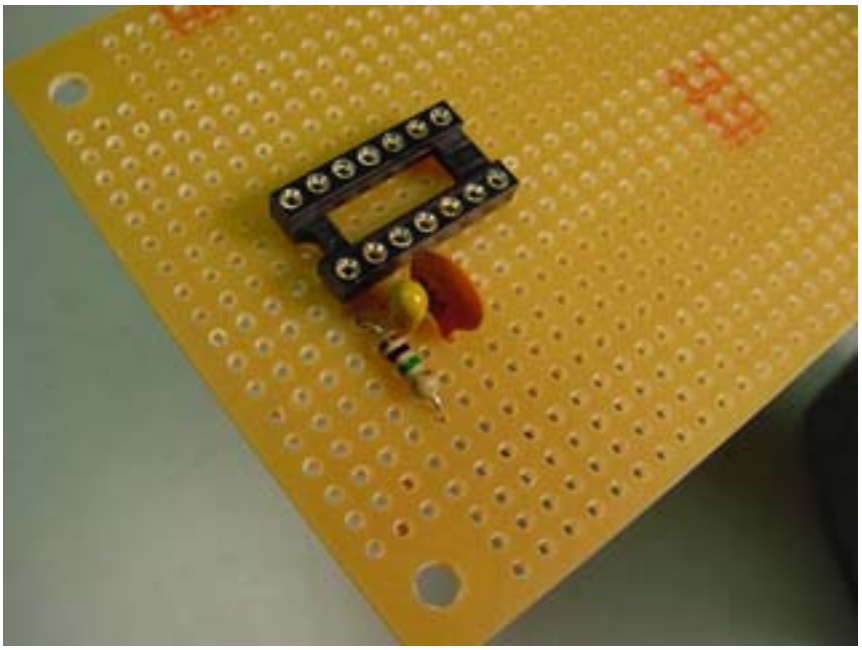


Side view showing bus wire bridge

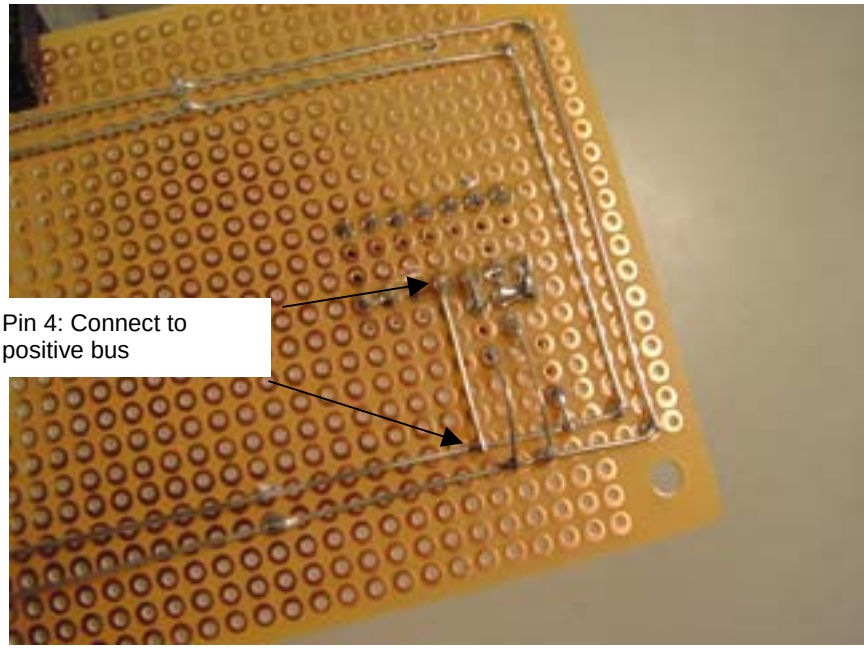
5. Install the 0.1 uF disc capacitor on pin 3. This cap does not have a polarity requirement. Solder one wire to the pin and the other to the negative bus wire.

Bottom view of the board

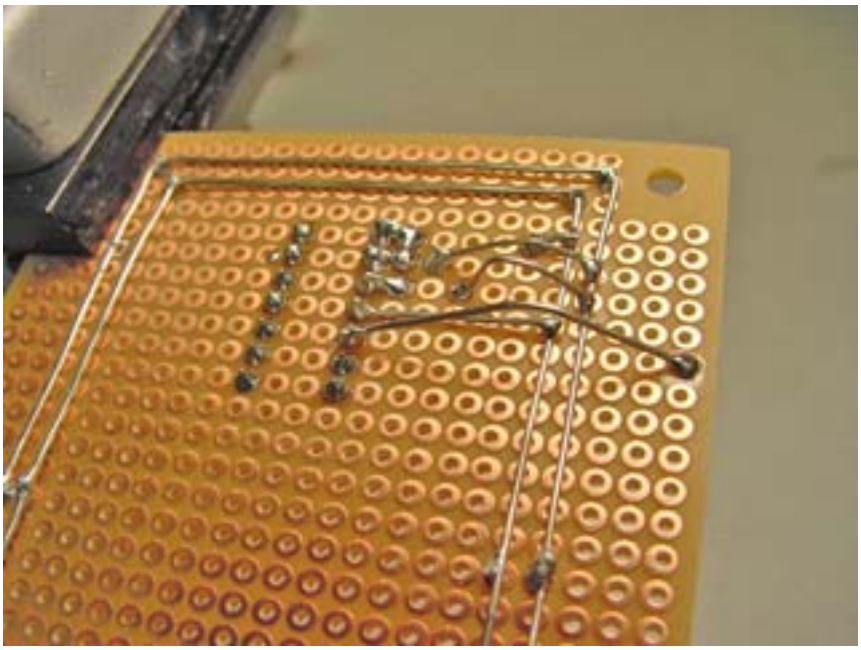




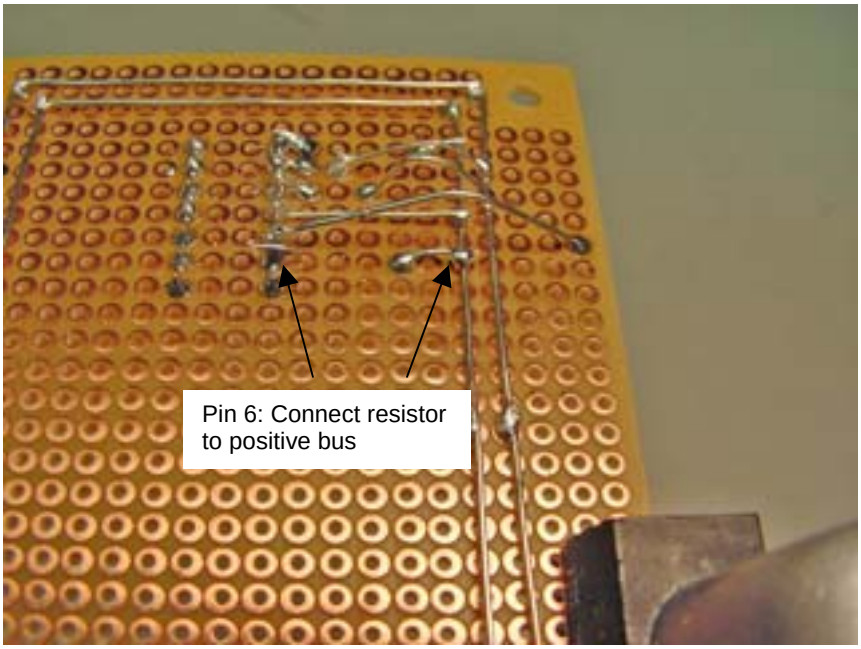
6. Connect pin 4 to the positive bus wire. Cut a piece of bus wire to make the jumper.

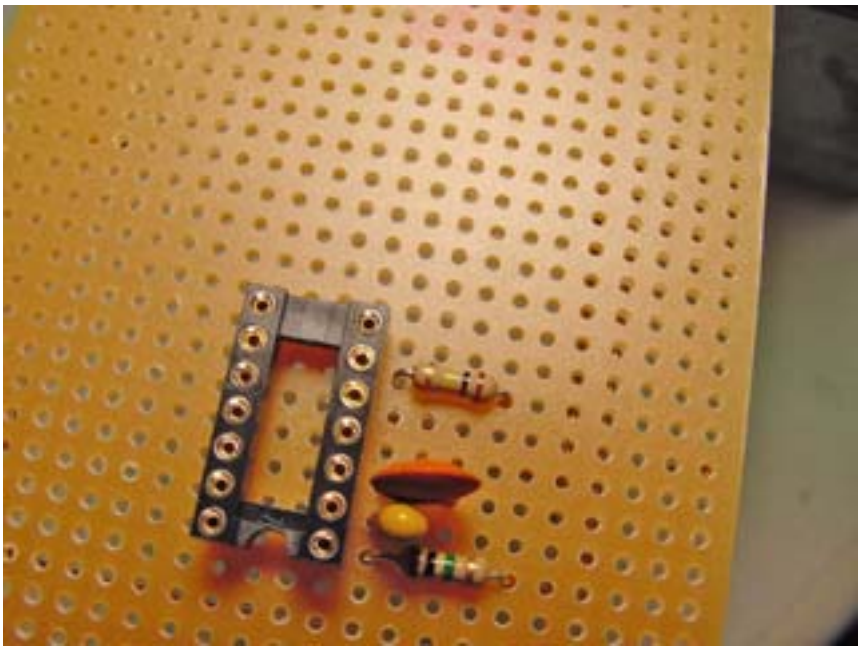


7. Jumper pin 5 to the edge of the board as shown. This is one of the IC output pins.

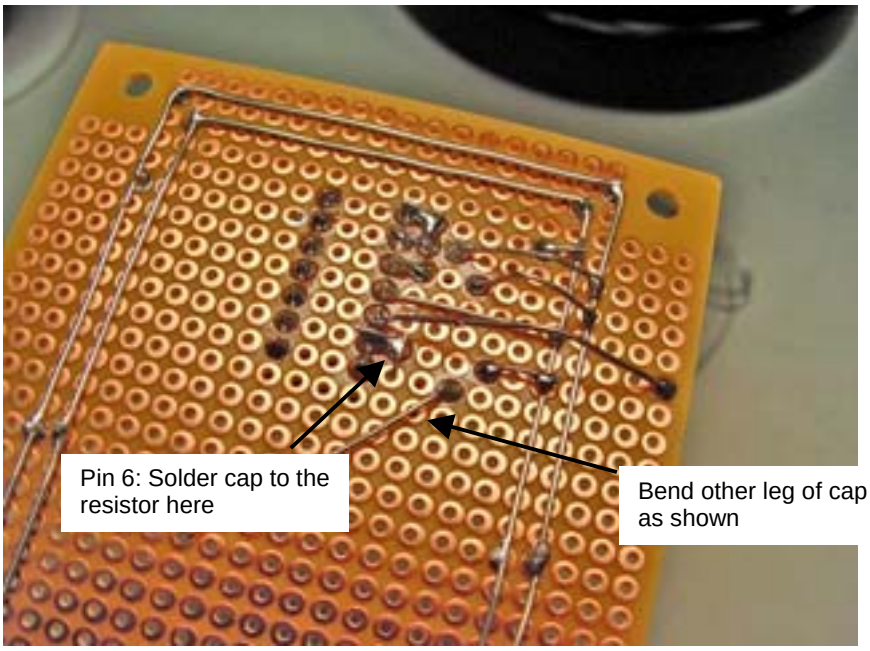


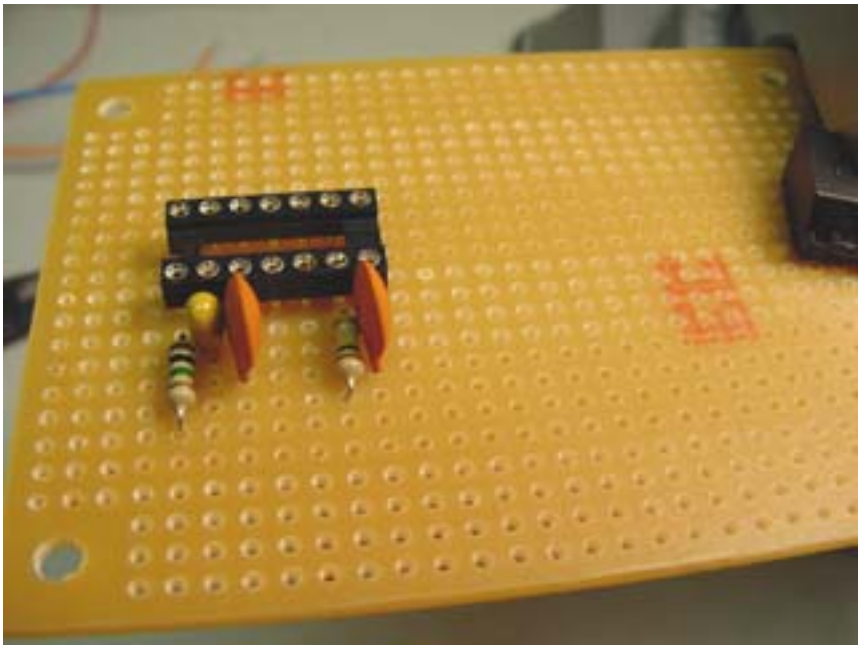
8. Install a 100K resistor at pin 6. Solder the resistor to the pin and the positive bus wire.



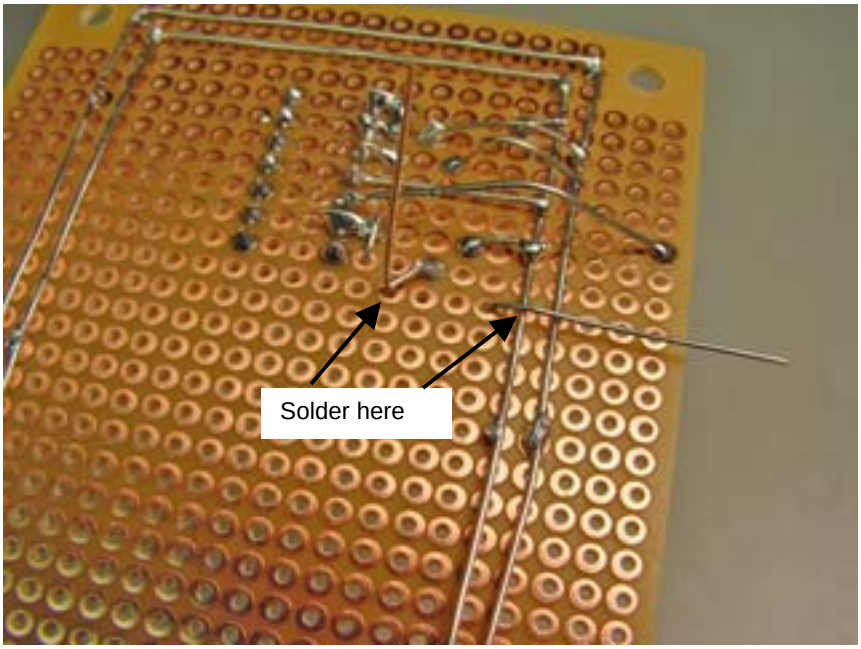


9. Install a 0.1 uF cap as shown. One leg of the cap will be soldered to the end of the resistor nearest pin 6. Bend the legs of the cap as shown.

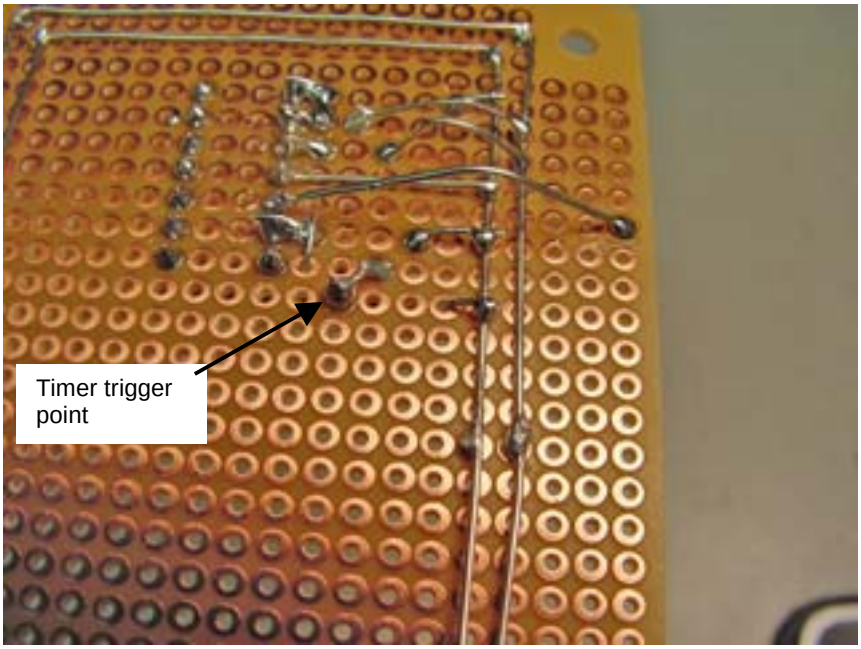


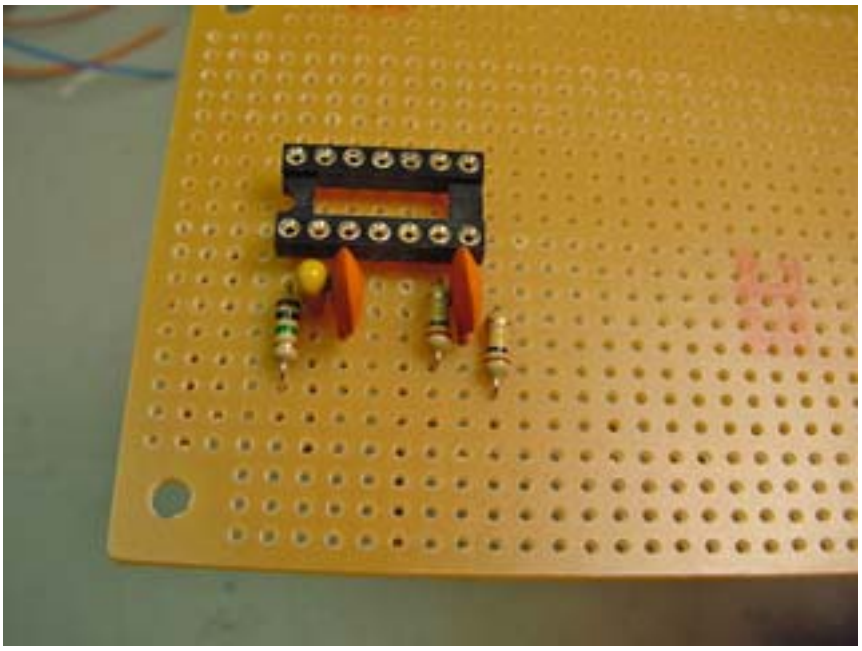


10. Solder a 100K resistor between the other side of the cap and the positive bus. Bend the legs as shown.

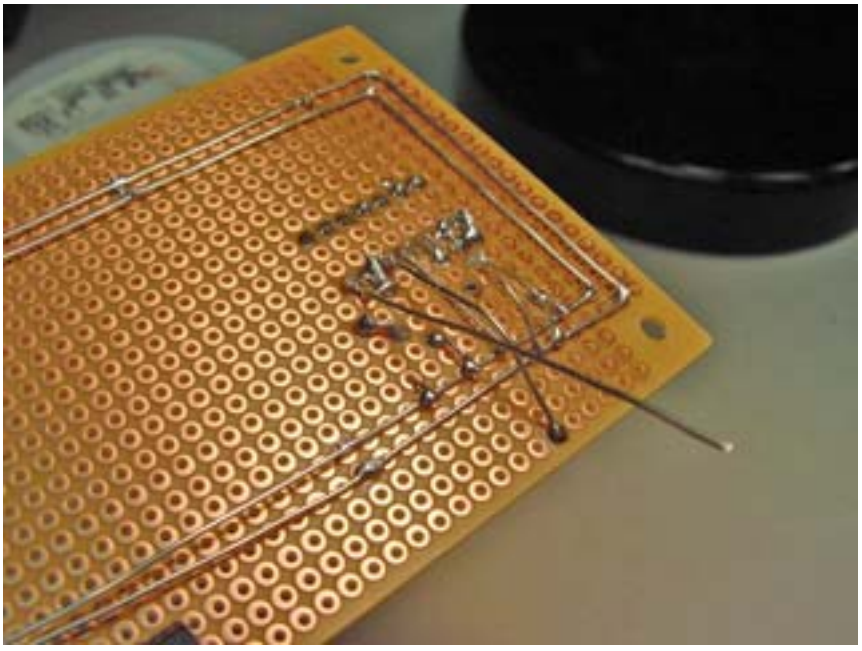


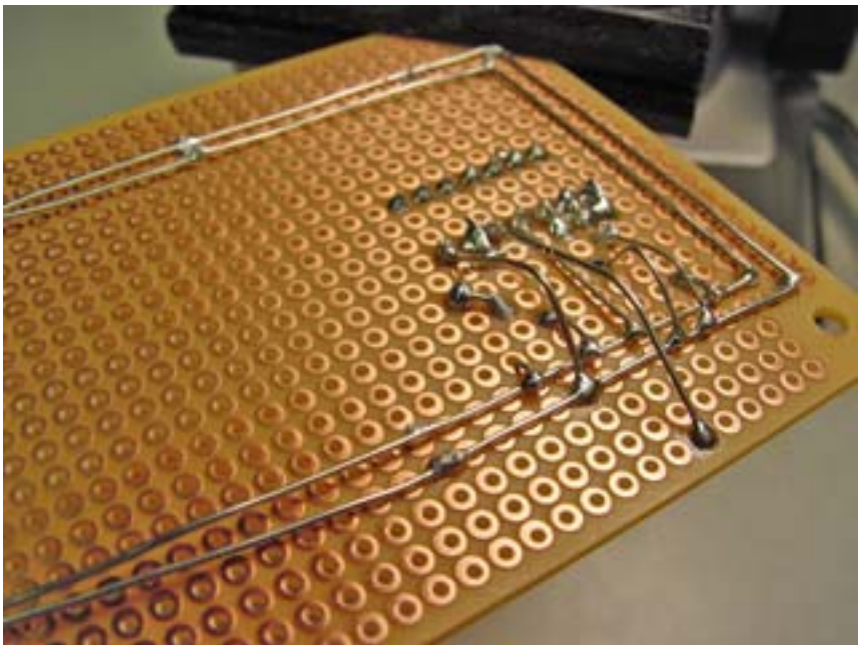
Trim the wires when finished. Note the trigger point, we'll use this later.

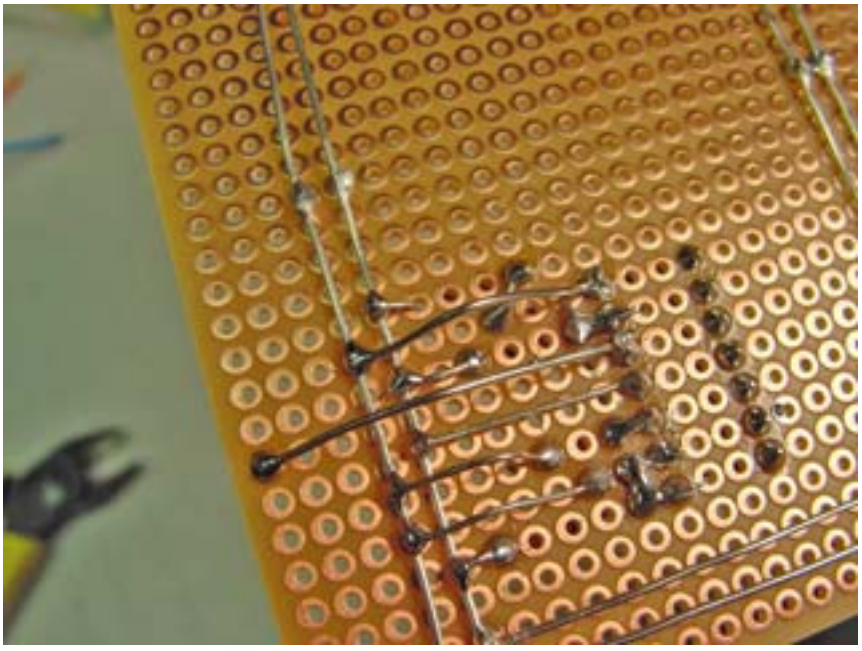




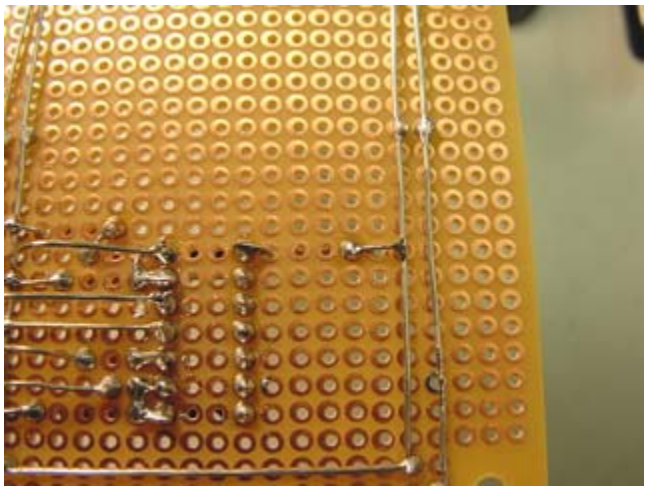
11. Bridge pin 7 to the negative bus.



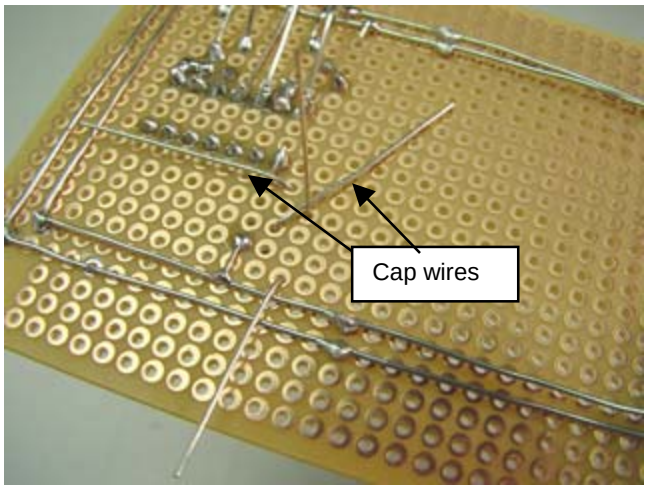




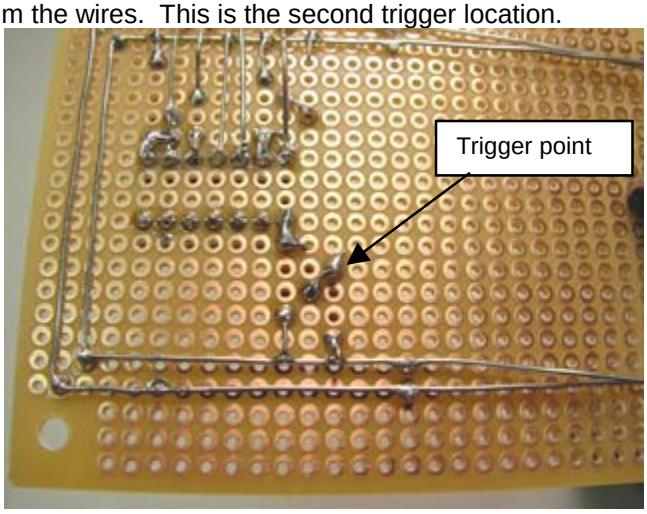
12. Now we'll duplicate the same array on the other side of the IC. Solder a 100K resistor to pin 8 and the positive bus as shown.



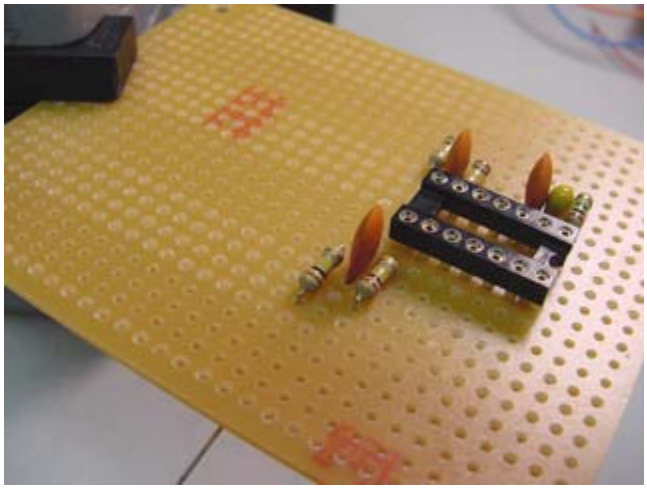
13. Insert a 0.1 uF cap and another 100K resistor. Bend the wires as shown.



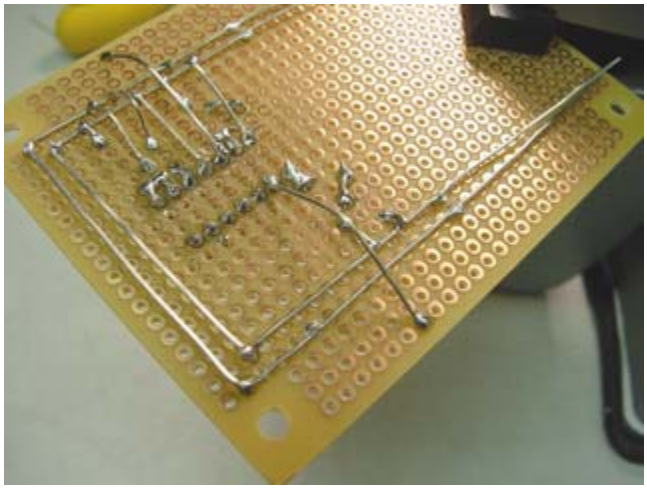
14. Solder and trim the wires. This is the second trigger location.



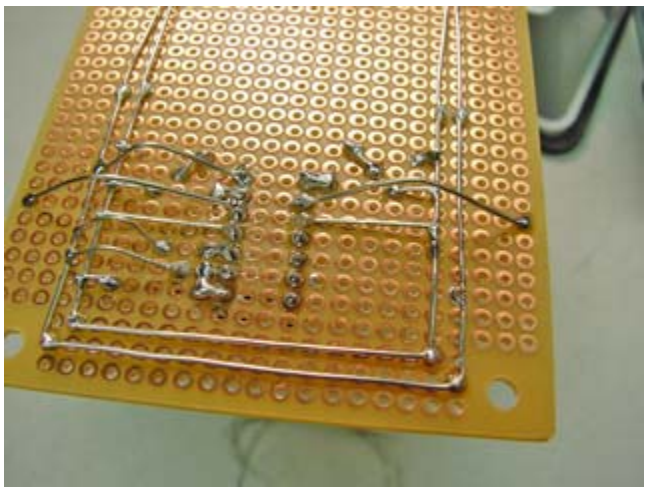
Top view



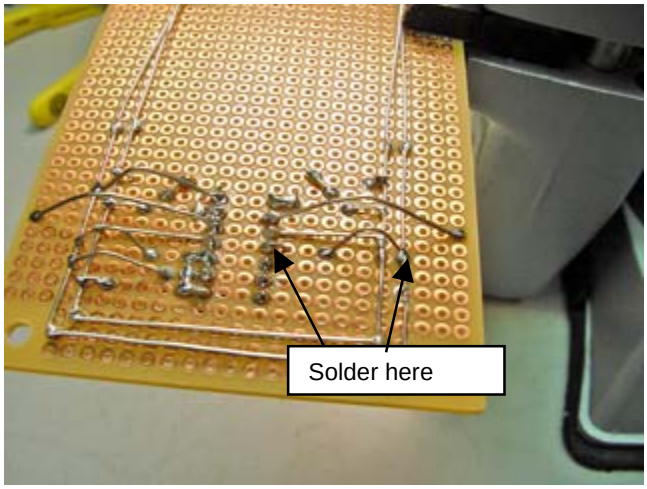
15. Jumper pin 9 to the edge of the board. This is the second IC output pin.



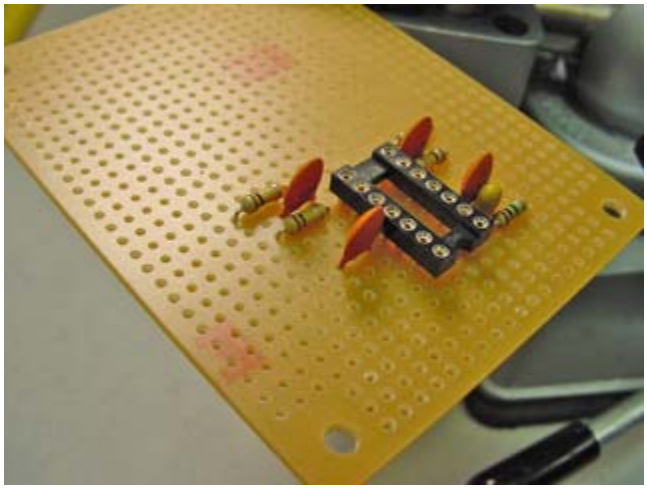
16. Connect pin 10 to the positive bus wire.



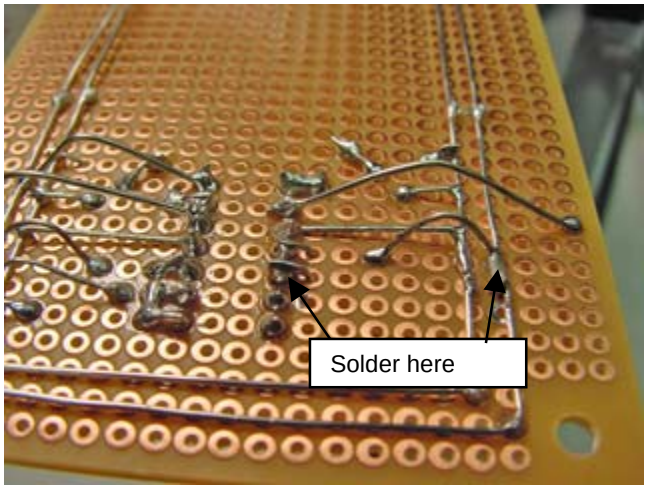
17. Install a 0.1uF cap at pin 11. Solder it to the negative bus wire as shown.



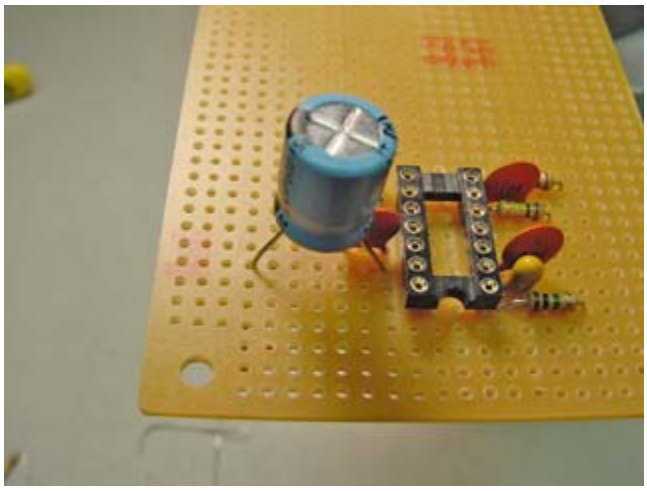
18. This is what you should have at this point.



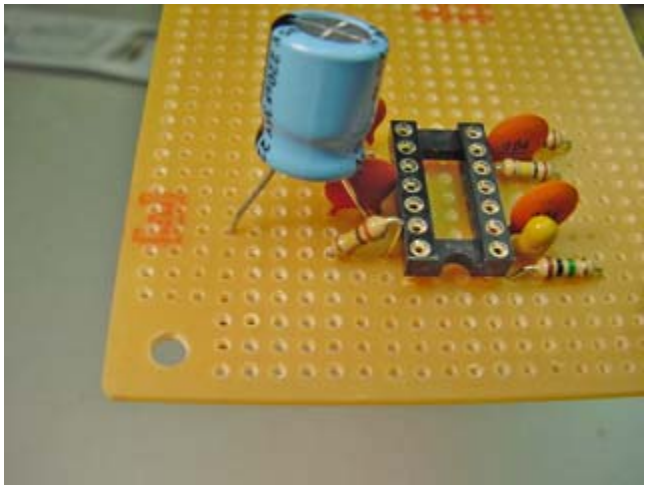
19. Connect the 220 uF cap (the large one) to pin 12 and the negative bus wire. Be sure that the "-" marks on the cap are facing the negative bus. If the polarity is incorrect, the cap can explode.

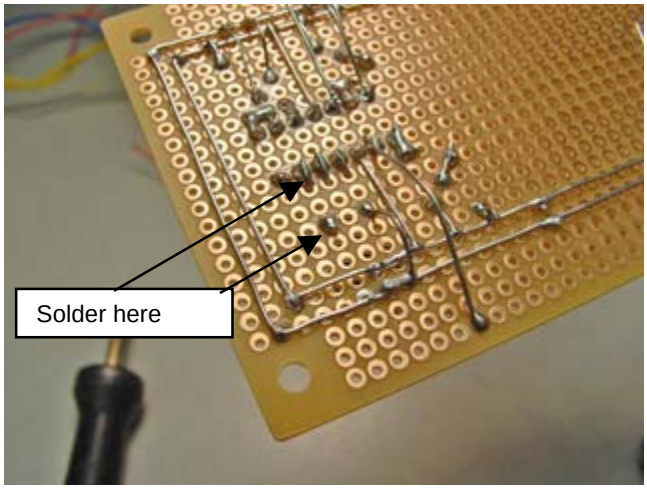


20. This is the correct position for the large capacitor.

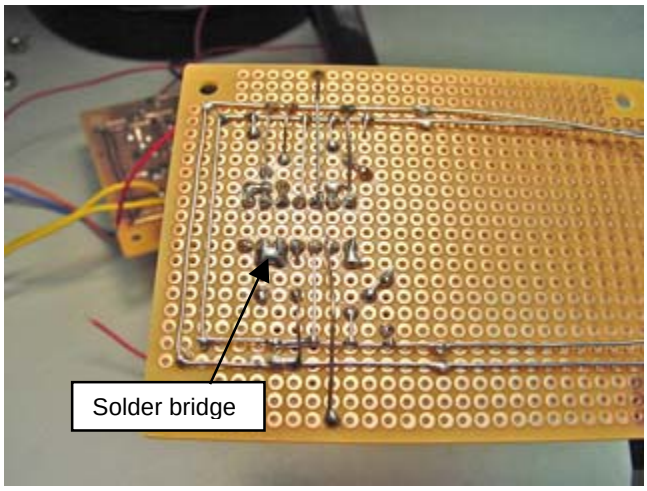


21. Insert a 100K resistor as shown. Solder one wire to pin 13 on the IC socket. Solder the remaining wire where it exits the hole and trim. This connection will be used later.

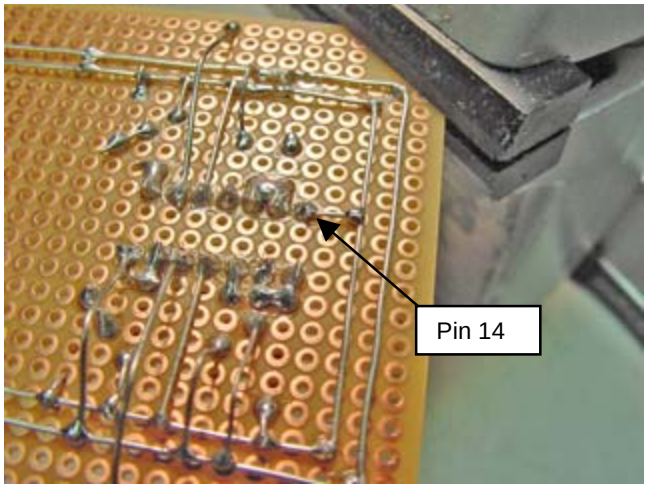




22. Create a solder bridge between pins 12 and 13 as shown.



23. Use a piece of bus wire to bridge pin 14 to the positive bus.



24. The wiring for the IC is finished and the chip can be installed in the socket. Make sure the dot on the IC is at the notched side of the socket.