MorseMonkey Power Adapter

Introduction

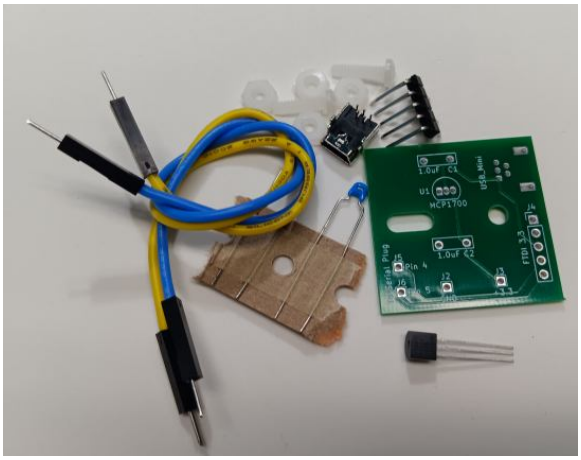
This small adapter is designed to allow you to power the Morse Monkey using either a UBS Mini cable and any USB 5V adapter, or the FTDI serial adapter which is required to use the Koch practice method.

The kits is a simple 3.3V regulator which takes the 5 volts from the supplied cable and regulates it to the necessary voltage used by the Morse Monkey. It is designed to replace the battery pack, or with some creativity could be mounted under the Morse Monkey board, leaving the battery pack in place.

Assembly

The kit consists of the following parts:

Ref	Description	Value	Quantity
C1 and C2	Capacitor all the same marked 105	1.0uf	2
U1	Regulator marked MCP1700	3.3V reg	1
J1	USB Mini plug		1
J4	0.1” 5 pin header		1
Wires	Jumper wires		2
PCB	Printed circuit board		1
2	Nylon screws		2
4	Nylon nuts		4

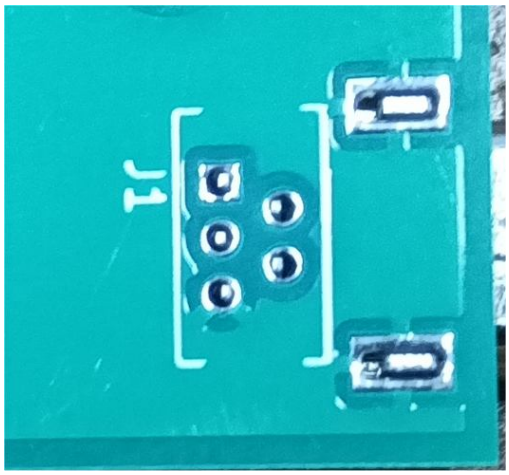


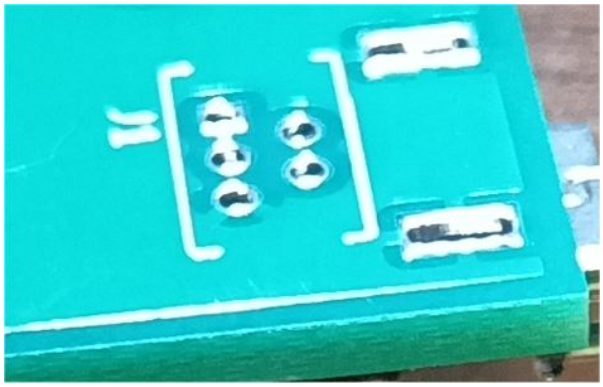
Tools Required:

- Soldering iron with small tip
- Solder 0.082 inch or 0.81mm diameter is preferred
- Diagonal cutters to trim leads
- Small screwdriver and needle nose pliers to tighten the nylon screws which hold the board
- Digital multimeter to check polarity and troubleshoot if necessary
- Solder wick or other desoldering tool in the event a part needs to be removed

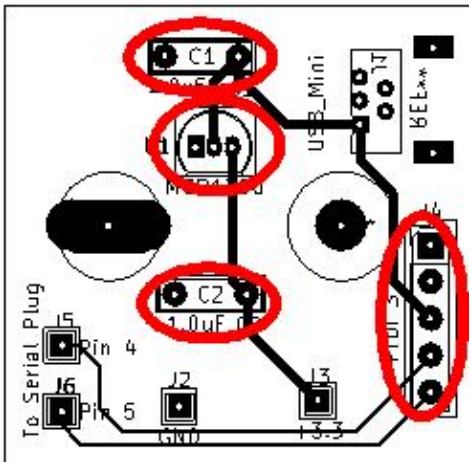
- Small quantity of glue (Elmers© glue all or similar) to help secure the nuts
- Mouse pad to place the board on to hold it steady while soldering

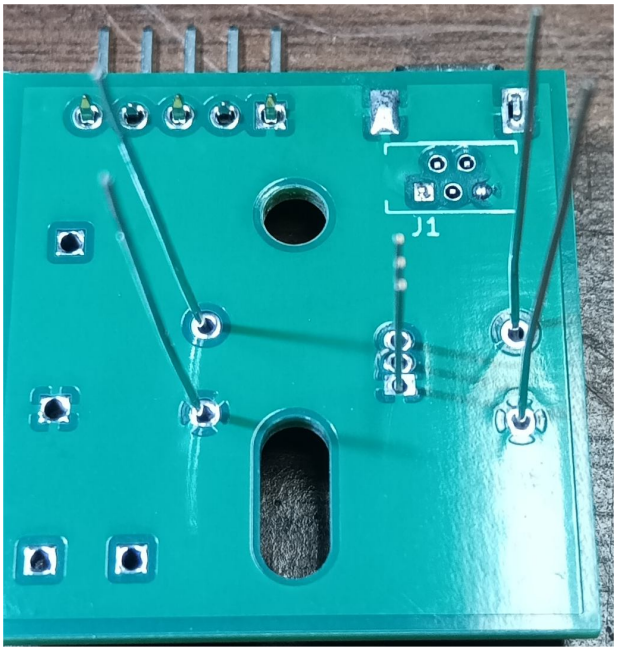
Insert the J1 USB mini plug into the board, Turn the board over and solder the pins in place. The pins will be very shallow in the PCB holes, and it does not require much solder to attach them.





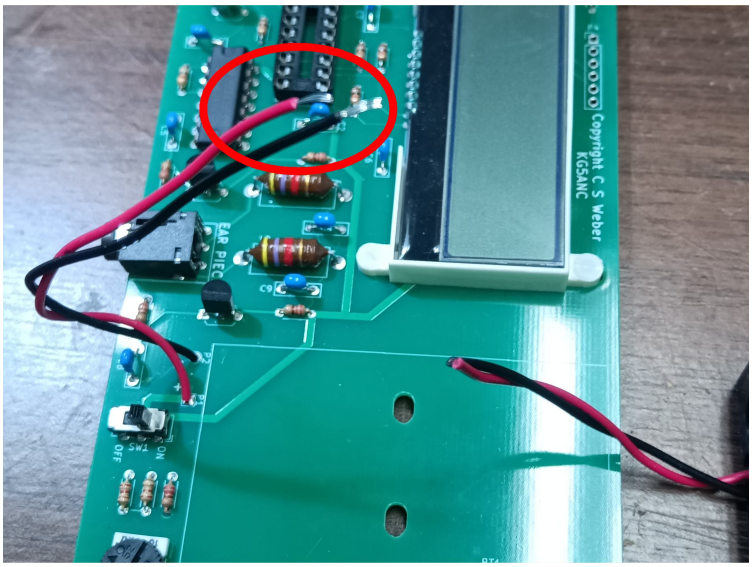
As shown in the drawing below, the next locations are circiled in read. Install the two capacitors and the regulator on the board. The capacitors do not have any polarity, however the U1 regulator should be oriented in the same way as the drawing on the circuit board. Then install the 5 pin header, with the pins facing away from the circuit board.





Once the parts in in place, turn the board over and solder the components. The trim the leads.

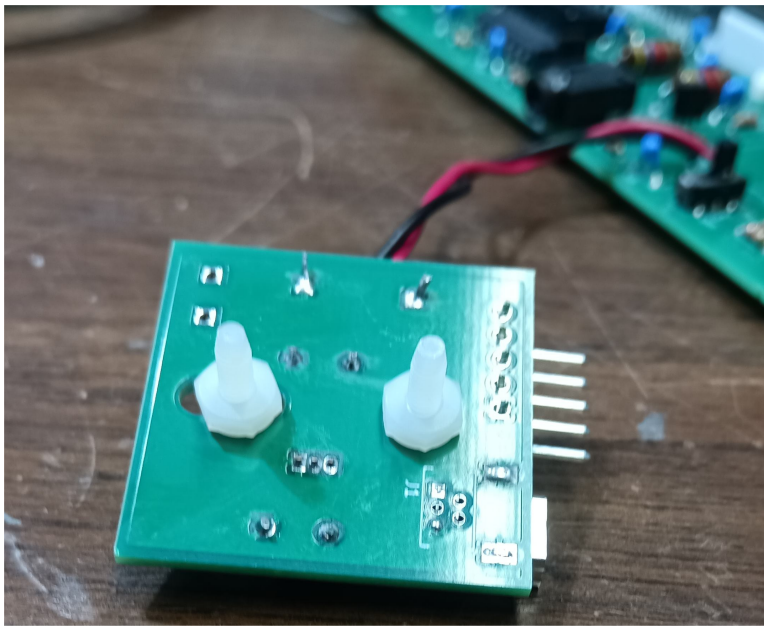
The next step is to remove the battery holder from the Morse Monkey, and cut the wires to it about half way between the board and the battery pack. Then carefully strip the leads form the board, exposing the conductors. The red circle shows the wires cut and stripped.



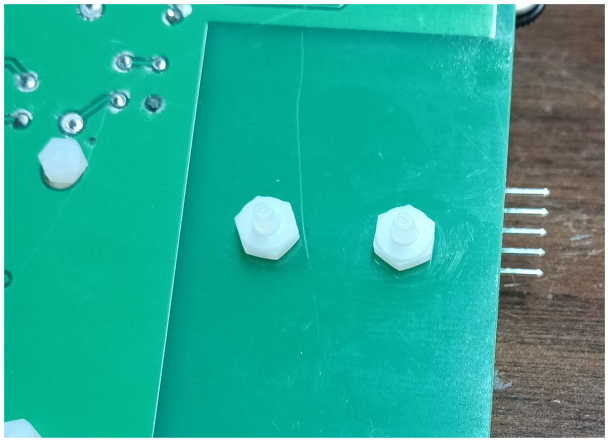
Install the nylon screws and one nylon nut through the holes in the power adapter board.

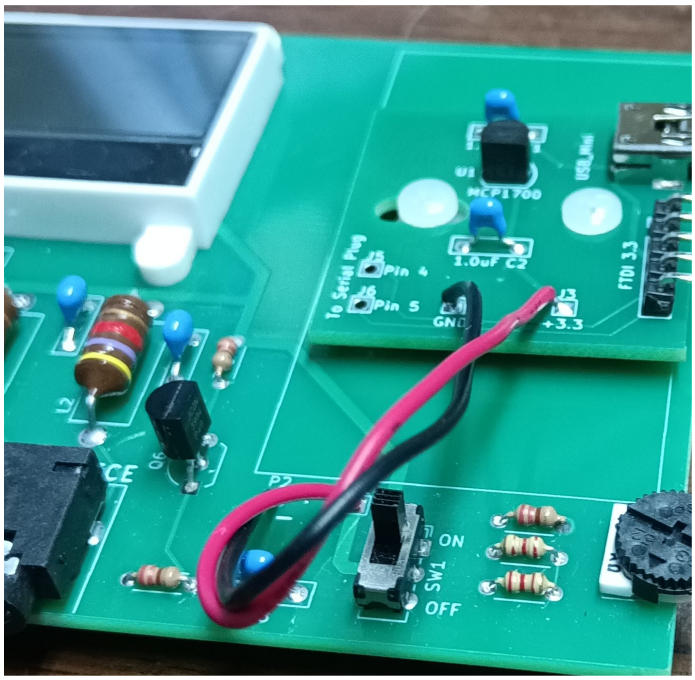
The single nut will be used as a short spacer to keep the power supply board elevated from the Morse Monkey board.

Also, insert the red positive wire into the J3 hole labeled 3.3v, and insert the black wire into the J2 hole labeled GND. Solder the wires in place.



Place the power adapter board on the Morse Monkey board, aligning the nylon screws with the holes which were used to hold the battery pack. Attach the board using the nylon nuts from underneath.



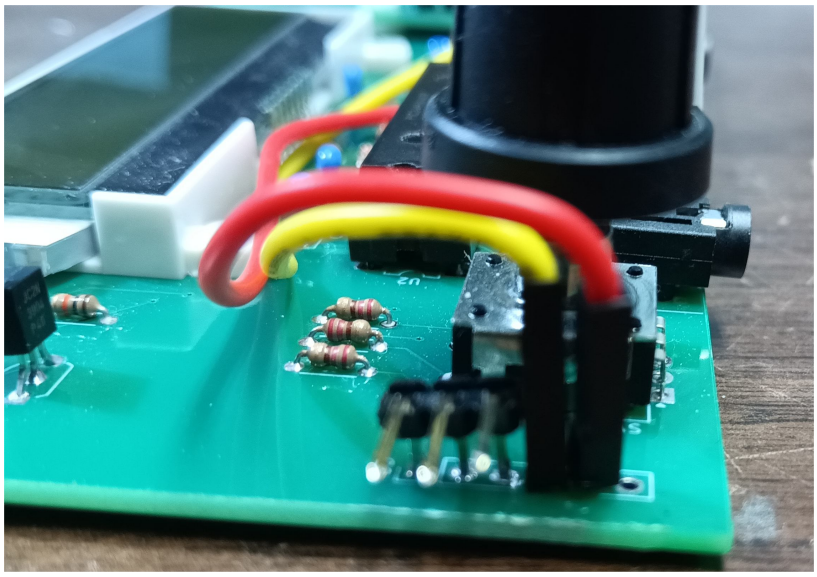


Testing

Before turning the Morse Monkey on, the voltage coming from the board should be tested. Simply attach either a USB Mini plug, or the FTDI serial plug to the power supply, and verify that the voltage between the 3.3V and GND wires is 3.3 volts.

Once it is confirmed the voltage is correct, turn on the Morse Monkey and it should function normally.

Optional Serial Connection

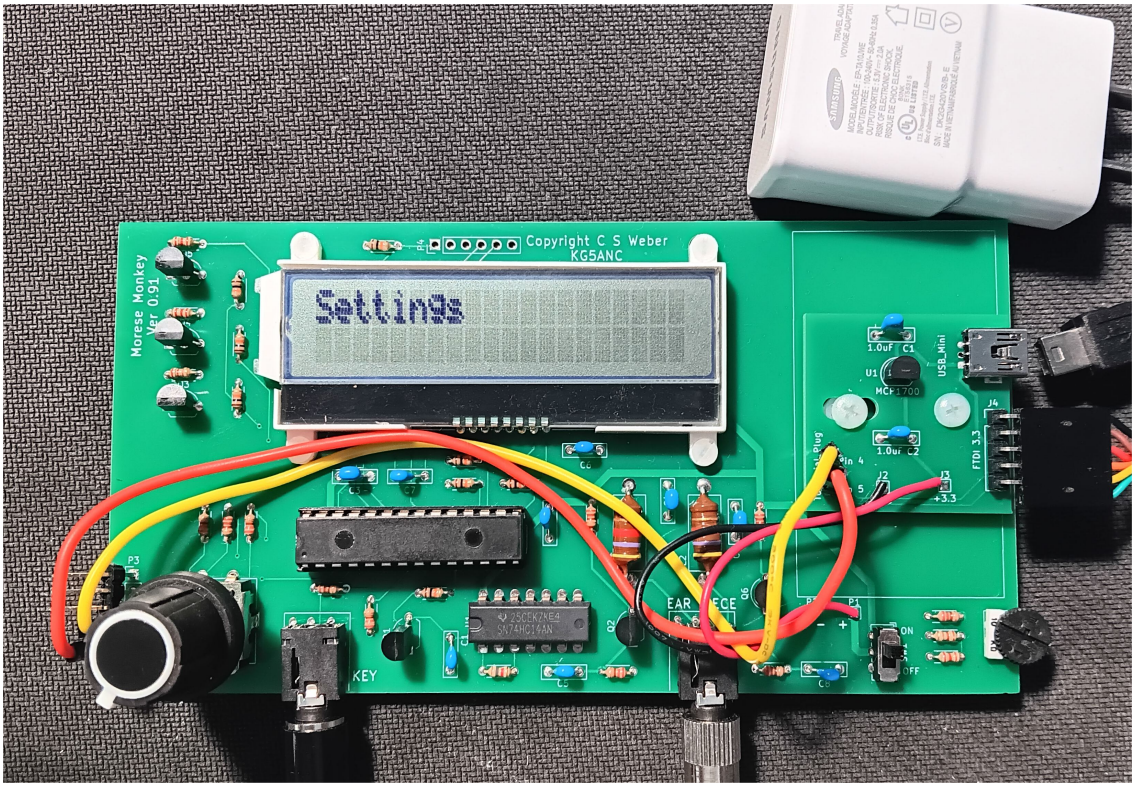


When using the Koch practice method, or upgrading firmware, it is necessary to have a serial connection to the Morse Monkey. The power adapter board provides a “feed through” for the serial communication. The allows the FTDI cable being used to power the board to also support serial communication.

To make the attachment, use the two wires supplied with the kit. Connect the hole labeled J5 pin 4 to the Morse Monkey serial port, the 4th pin from the top as shown with the yellow wire.
Then use the other wire to jumper from the power adapter board, J6 pin 5, to the Morse Monkey serial port 5th pin from the top, as shown with the red wire.

<u>The color of the wires is not important, and the adapter kits have a variety of wire colors.</u>

When completed, the Morse Monkey can now run without the battery pack. When traveling, and on locations, any USB jack should be capable of supplying power to run the board.



NOTE: When the serial connections are installed and the power switch is off, there is a slight buzzing from the playback speaker due to the serial line supplying power to the tone generator.