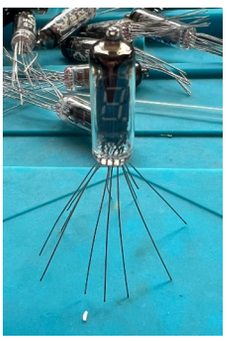
IV3 Clock

Instructions

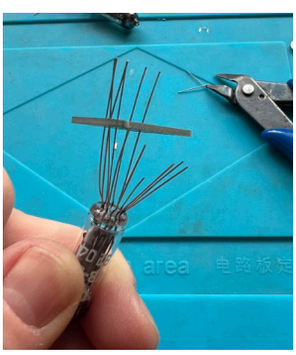
Step 1

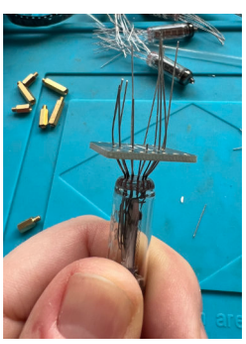
Soldering the IV-3 Tubes

Fan out the tube legs

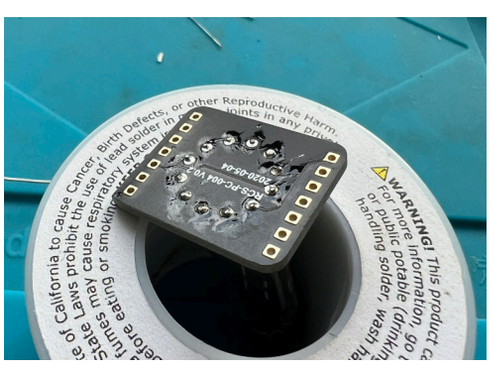


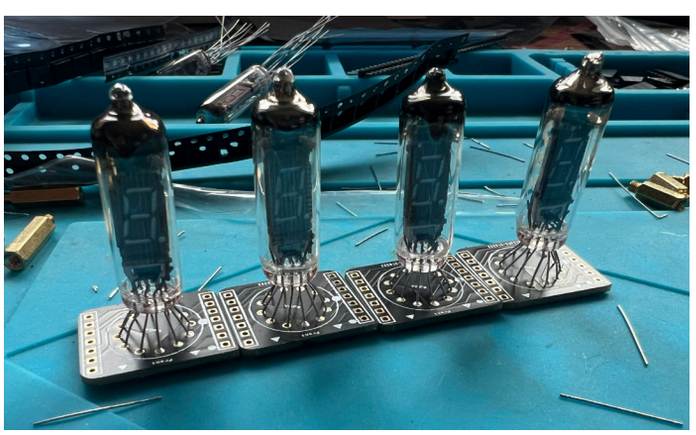
Line up the short leg with the dot on the PCB and thread the first 3 or 4 legs through the PCB.
Trim the remaining legs. This makes it easier to thread them onto the PCB.





Solder each leg and trim the excess.
Repeat for all 4 tubes.

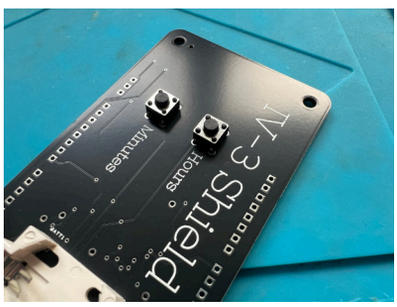




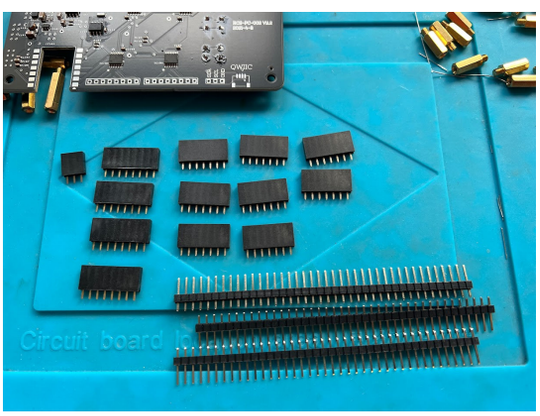
Step2

Soldering the main board

Fit the 2 tactile buttons and solder into place

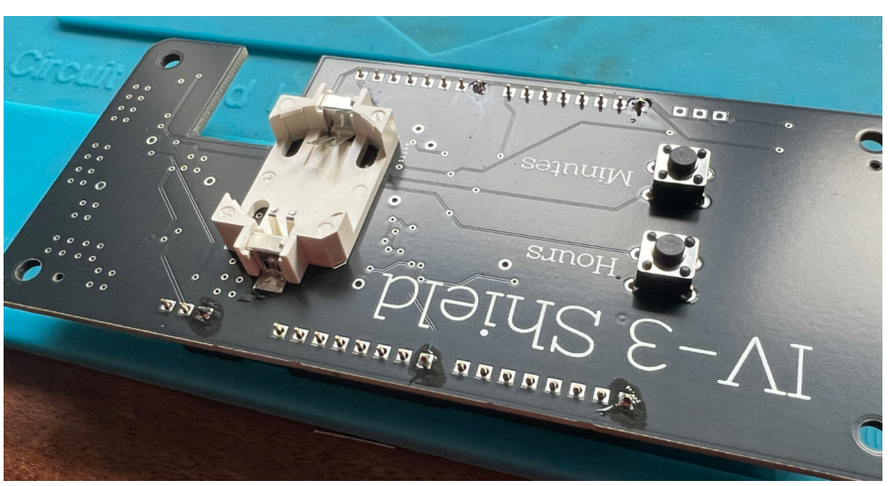


Select the four 8-pin female headers and the 3-pin header.



Place these into the top side of the PCB.

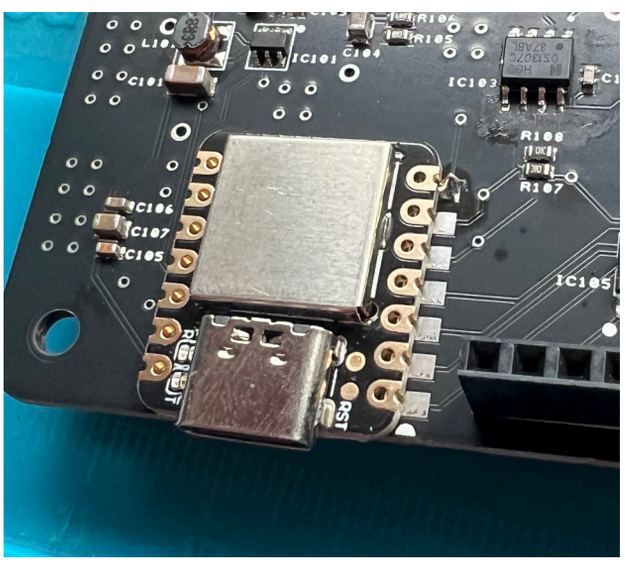
NOTE: The 3-pin header **DOES NOT** fit into the connector labelled - SDA, SCL & GND.

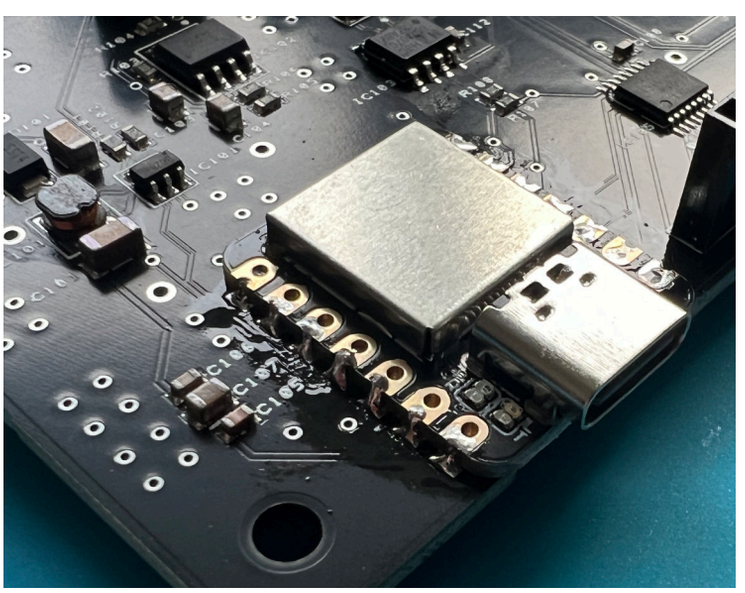


Step3

Soldering the XIAO

Place a small amount of solder on one of the pads.
Line up the XIAO and heat the solder so that it reflows. Ensure the position of the XIAO allows all the other pads to be easily soldered, then solder all the remaining pads.

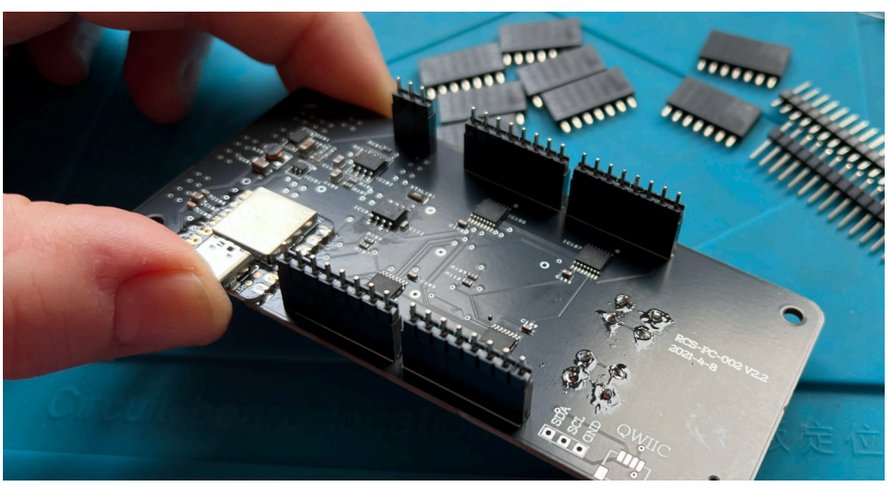




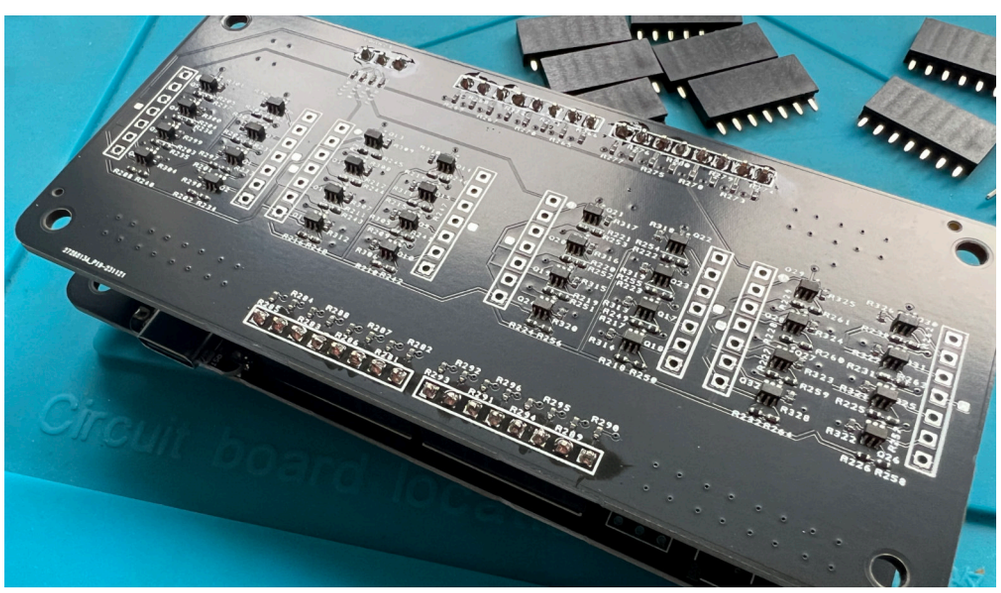
Step4

Attach headers to the switch board

Insert (male) pin headers into the female headers previously soldered



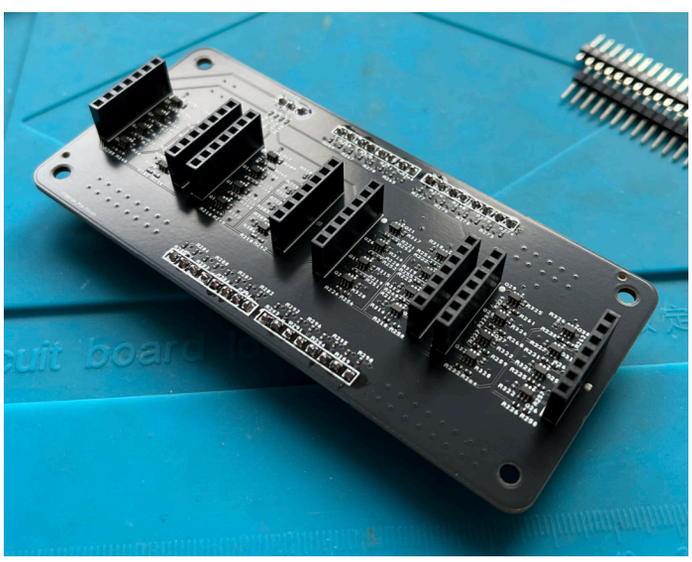
Place switch board onto these headers and solder into position



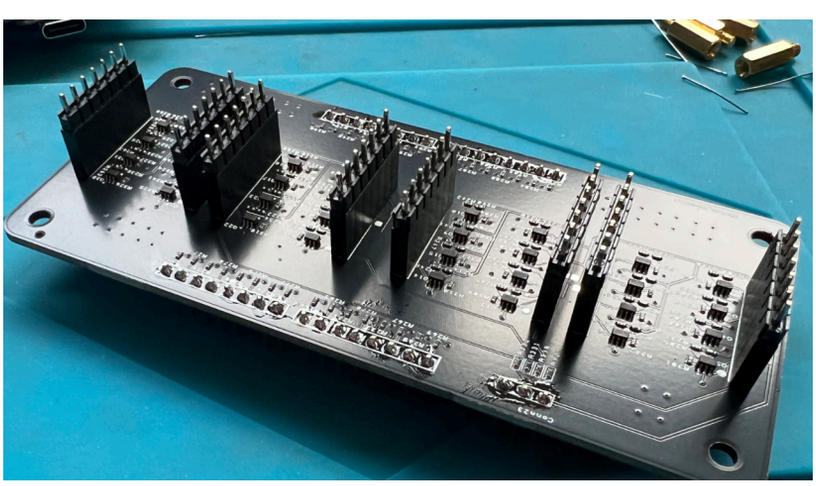
Step5

Attach IV3 headers

Take the eight 7-pin headers and insert them into the top of the board. Careful flip the board and solder into place.



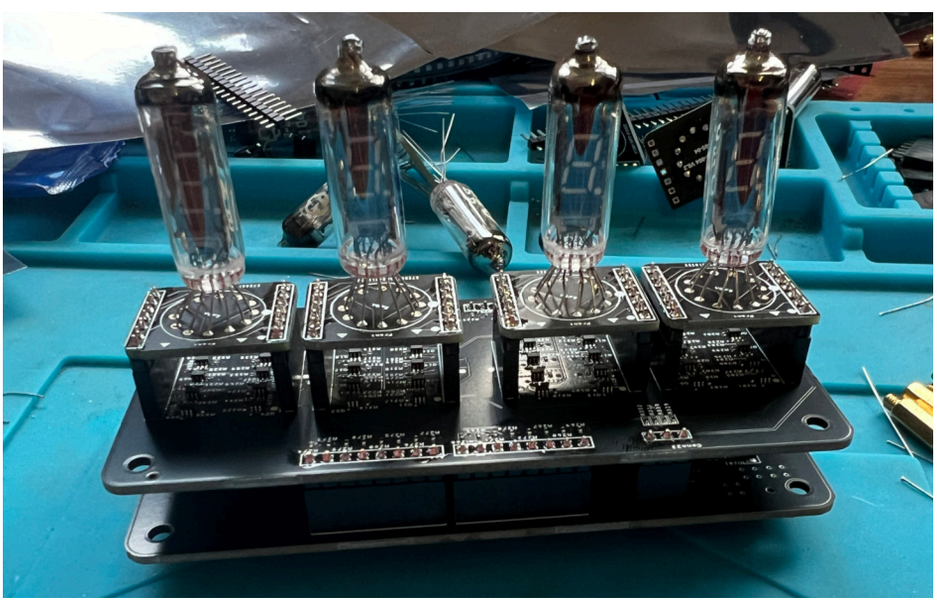
Insert and break off male headers into these.



Step6

Solder IV3 tubes

Take the IV3 tubes you previously soldered and mount onto the board. Solder into place.



Step7

Install CircuitPython

Go to: www.github.com/RCS101
Clone the repo: IV3_Clock_CPython_Firmware

There are two folders:
Circuitpython XIAO Bootloader
XIAO Firmware

Install CircuitPython on the XIAO using the bootloader provided, instructions on how to do this can be found: https://wiki.seeedstudio.com/Seeeduino-XIAO-CircuitPython/

NOTE: If you install a more recent bootloader than the one included in this repo then this breaks the IV3 Clock firmware. Please use the bootloader provided!

Step8

Program the XIAO

Once CircuitPython has been installed, you might want to program the board with a “blinky” example, just to check everything is working!

Assuming it is, now copy the file “code.py” from the XIAO Firmware folder onto the XIAO board.

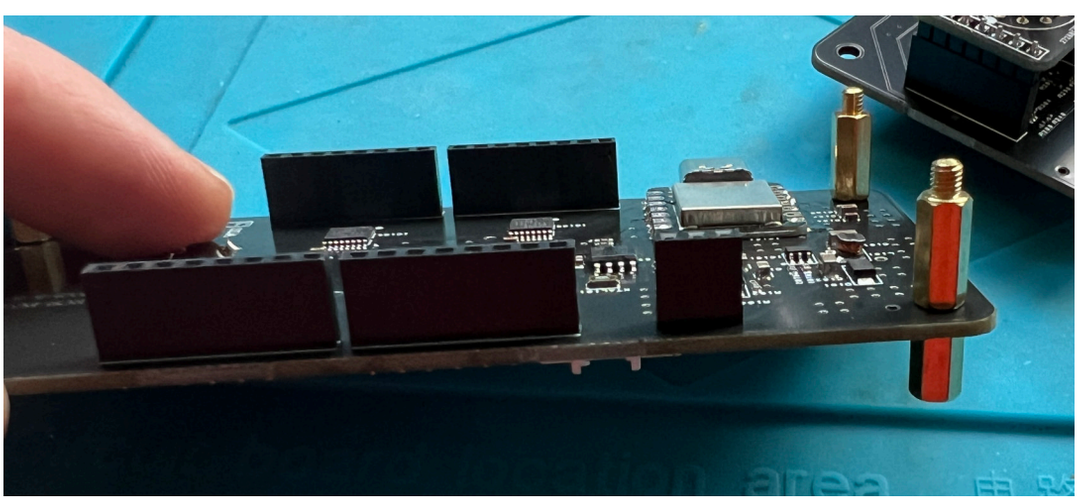
Follow this by copying the “lib” folder to the XIAO.

The clock should now be fully functioning.

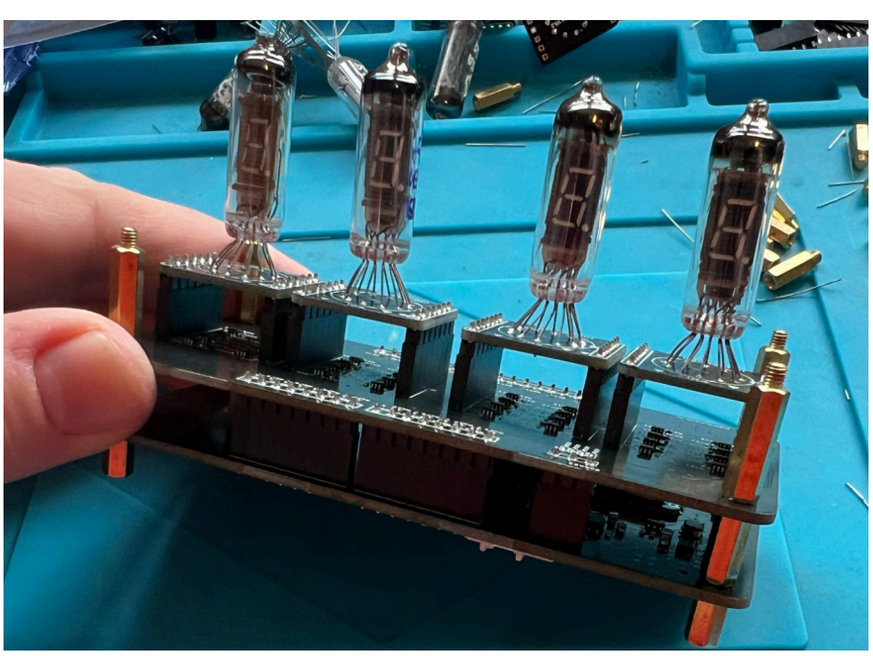
Step9

Assemble the clock

Now you can finish assembling the clock. Included in your kit are brass standoffs. Take the smallest standoffs, pass them through the mounting holes on the main board, and screw the middle length standoffs.



Next add the switch board and screw the long standoffs on top.



Choose which side of the cover plate you prefer, place on the long standoffs and screw the caps on.

Connect the USB cable and the clock is finished!