

BitScanner Assembly

These are instructions for assembling the BitScanner using the PCB and case design provided in this repository. Obviously, you can create your own variations, in which case, just as obviously, these assembly instructions will not apply.

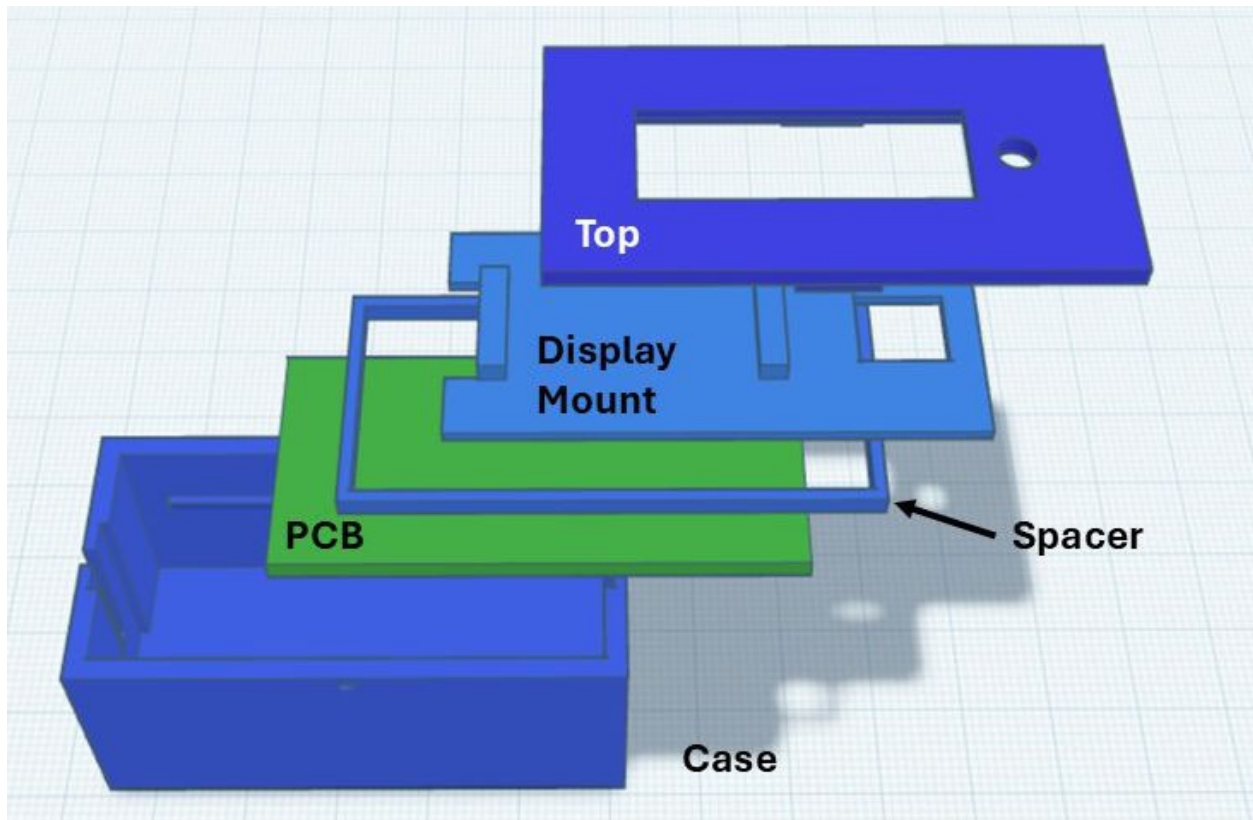
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Overview

The BitScanner consists of one printed circuit board with components mounted on the top and bottom. The bottom contains the I/O connector resistors, diode and capacitor, along with 20 pin header sockets for the Raspberry Pi Pico. The pico plugs in and sits below the components (the socket, at 7mm, being tall enough to provide space for the components between the PCB and the Pico).

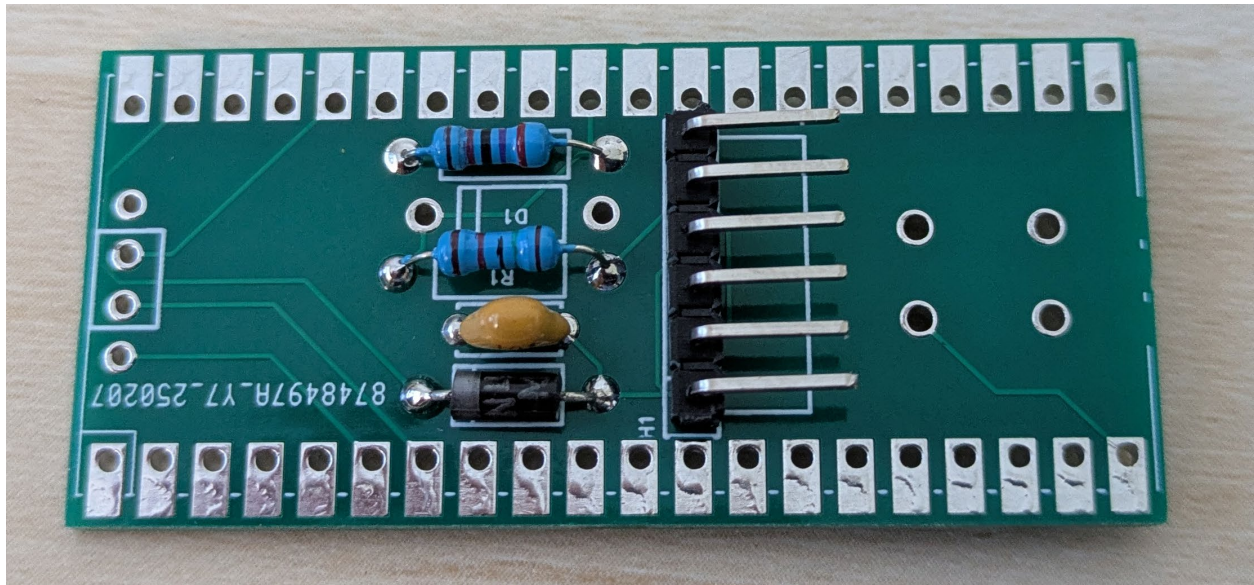
On the top of the PCB you have the OLED display and the push button. A spacer and display mount hold the OLED above the PCB, leaving space for the soldered connections and holding the OLED at the the correct height. A rectangular opening provides space for the button.



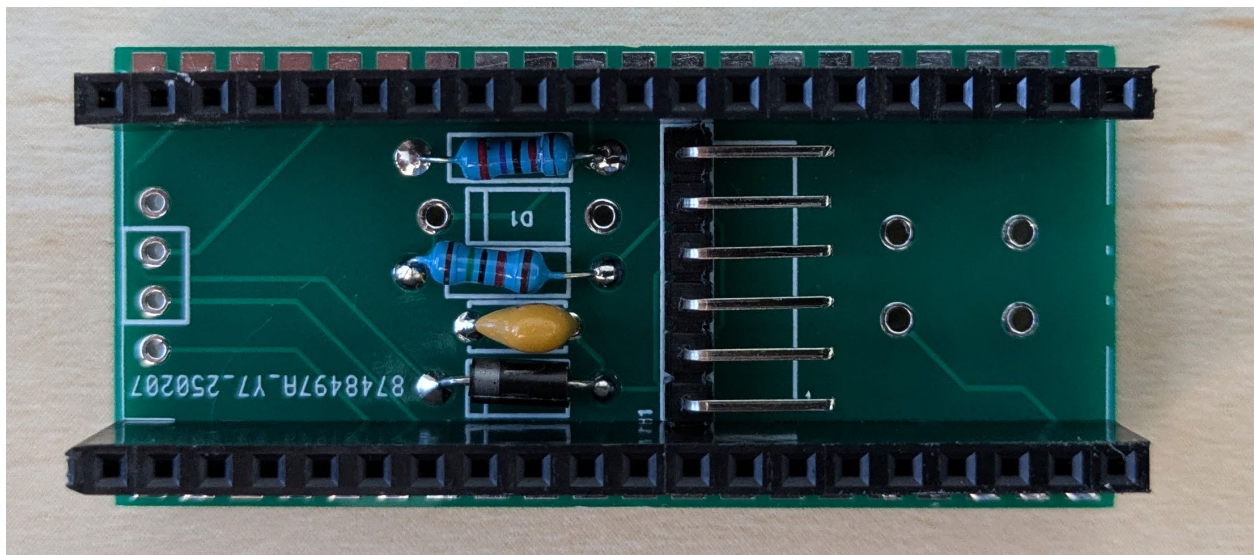
PCB Bottom

Start by soldering the components and connector to the bottom of the PCB. Note that D1, the Zener diode, is generally not used.

See <https://github.com/Desaware/bitscanner/wiki/Hardware> for the parts list and part designators.

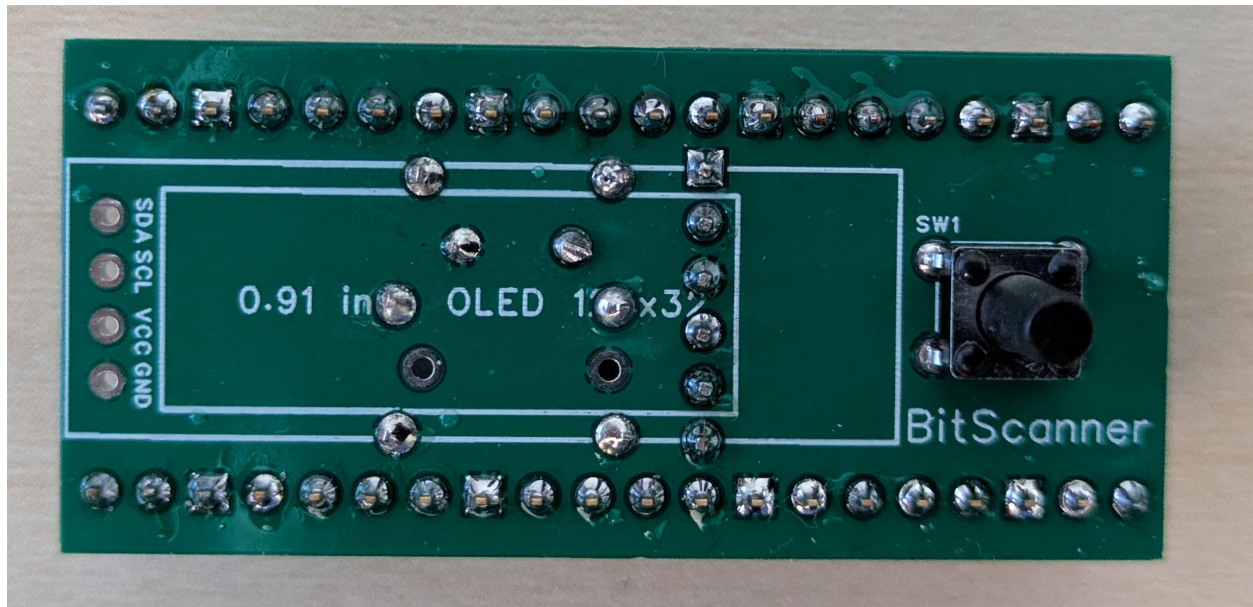


Add the 20-pin header sockets. These should be the standard square sockets that have a 7mm socket body. Don't use the lower profile round pin sockets.

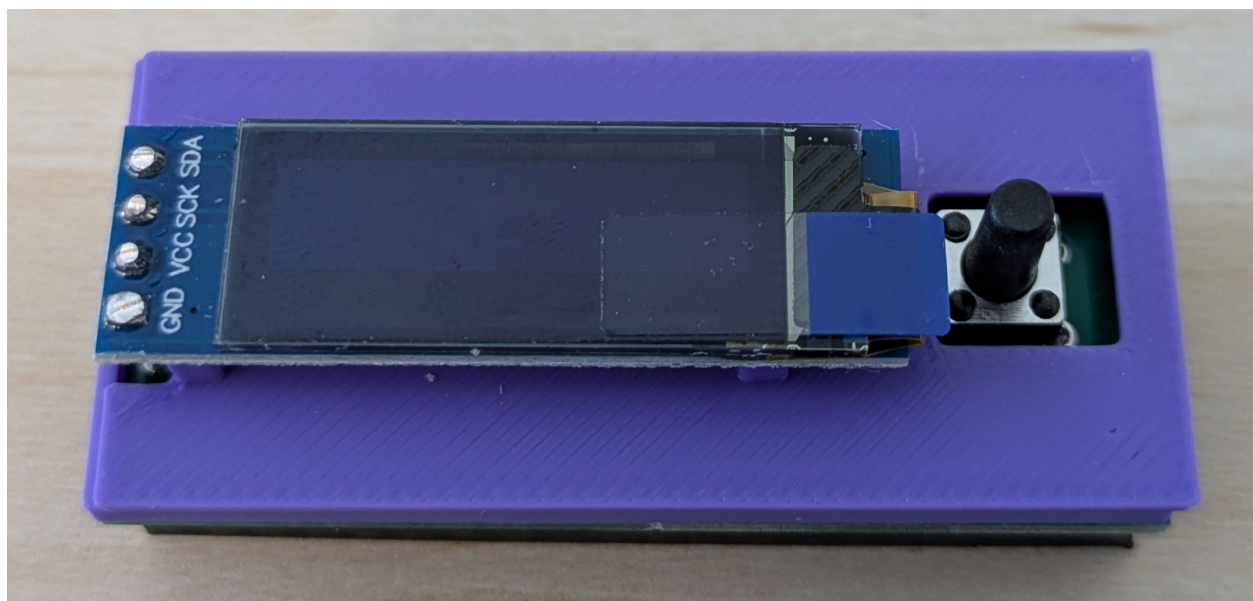


PCB Top

Solder the tactile pushbutton onto the PCB.



Place the spacer and display mount on top of the PCB as shown in the diagram earlier in this document. These will position the OLE at the correct height. With the OLED pressed down against the display mount, solder it to the PCB.

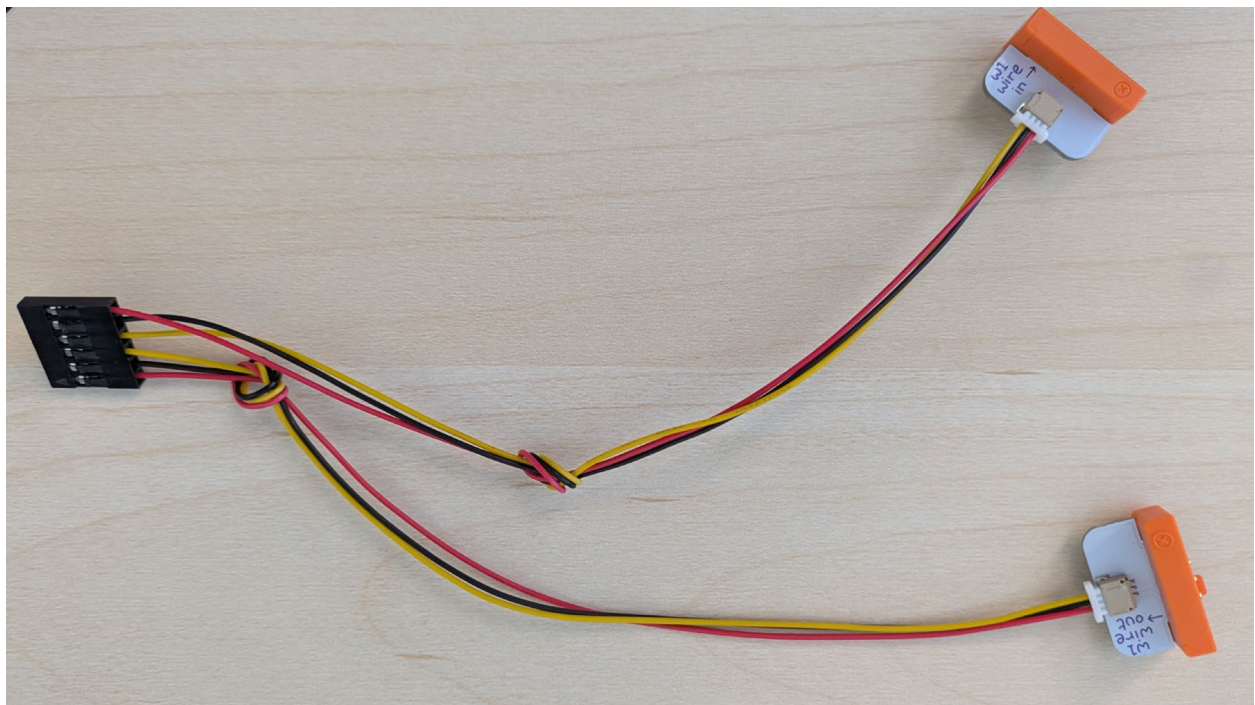


Wires

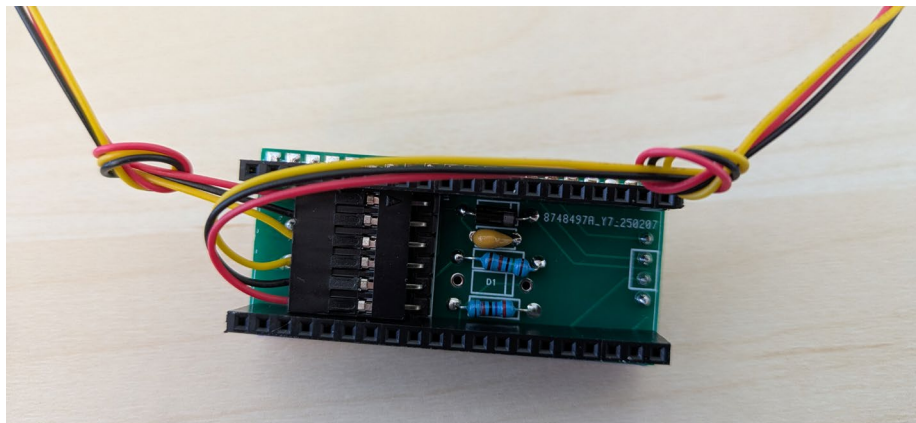
Connect two JST-SH wire assemblies to a 6-pin connector. On this image, pin 1 is the bottom pin on the connector.

Note the color reversal – on pins 1-3, red is +5 and ground is yellow. On pins 4-6, yellow is +5V and red is ground. This is because of the way the littleBits connectors work (+5V is always the top pin for inputs and outputs).

Plug your wire assemblies into the connectors of a littleBits W1 Wire bit. Be sure to plug the correct connector into the correct wire assembly as shown below!



Tie knots in each wire as shown to act as strain reliefs.



Final Assembly

Plug the Raspberry Pi Pico into the header socket (be sure to program it first).

Slide the PCB assembly into the case, placing the wires in the slots. The PCB will sit on the PCB mounts in the case.

Place the case top on the case.

There are two holes on the side for #2 x ¼ self-tapping screws.

