

Corne HW

Sputnik Keyboard

List of materials:

Assuming you have solder, solder iron, and some [wires](#)

Item	Link	Amount
Mechanical Cherry switches	Link	42
Pro micro controller (Nice!Nano v2 clone)	Link	2
Controller feet pins	Comes with controller	4
Diodes 1N4148	Link	42
M3, 6mm screw	Link	14
M3, 3mm length heat inserts	Link	14
Kapton tape	Link	1
Copper wire	Link	1
Repurposed Vape battery	Useful video	2
Some 1mm felt		

Build instruction

Step 1: Prepare everything

Get all the materials, print all the parts

Step 2: Insert heat inserts in the printed parts

- 6 in each top case part
- 2 in each MCU cover part



Step 3: Inserts controller pins into the slot on the plate

Shorter pins facing the top side, while longer pins are inside the plate cavity.

It is a tight fit intentionally so it stays put in place, if it's too tight try to scrape a bit of material in the slot with a hobby knife.

When the pins are in the plate, I added few drops of superglue to secure it.

Then solder the controller so it lays on top of the pins, usb-c facing top of the keyboard



Step 4: Put switches in the plate

For ease of work in the future just make sure they are all oriented the same way

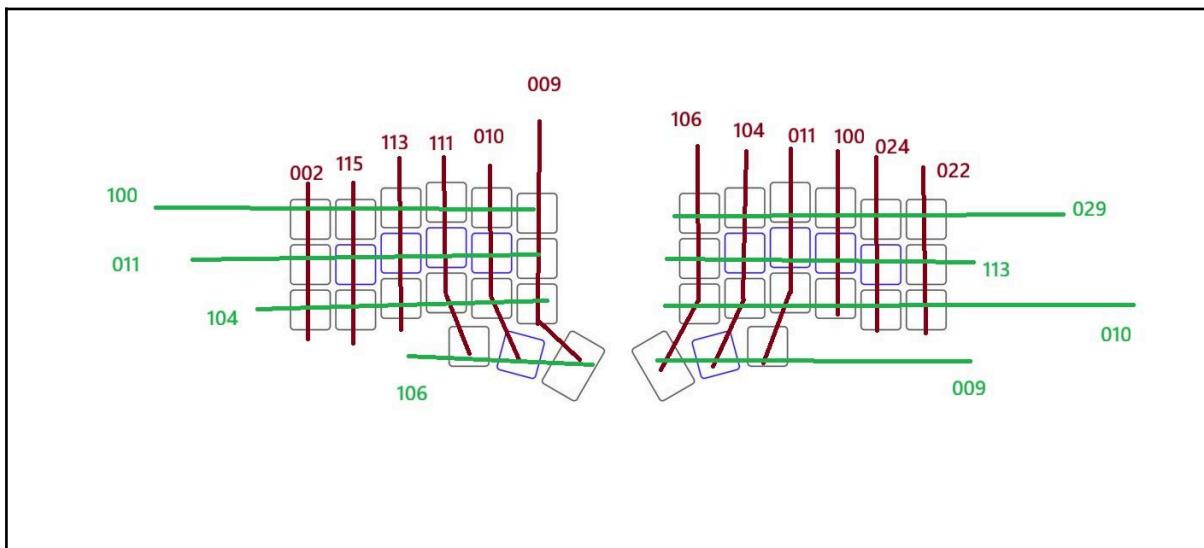
Step 5: Wiring

Wire rows and columns according to this diagram

This view is top view, how the keyboard should be oriented for typing, remember that when wiring columns and row since you gonna do it from the other side

You have to wire each row and column to this pins if you want to use ready made firmware
Otherwise, feel free to take the source code from firmware and edit the pins

For the wiring, i recommend [this video](#) to get more familiar with how this is done

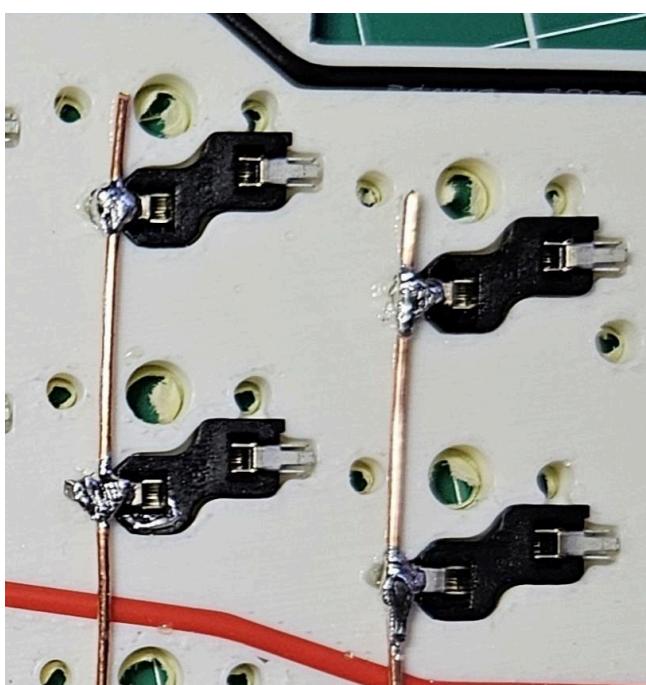
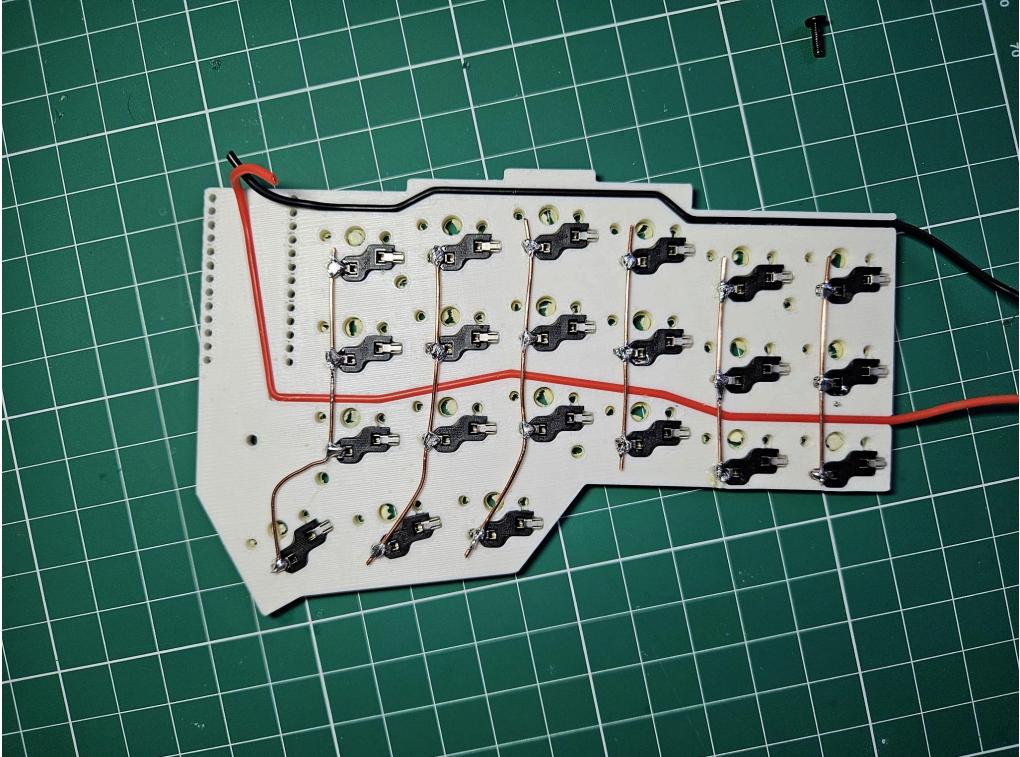


How to wire?

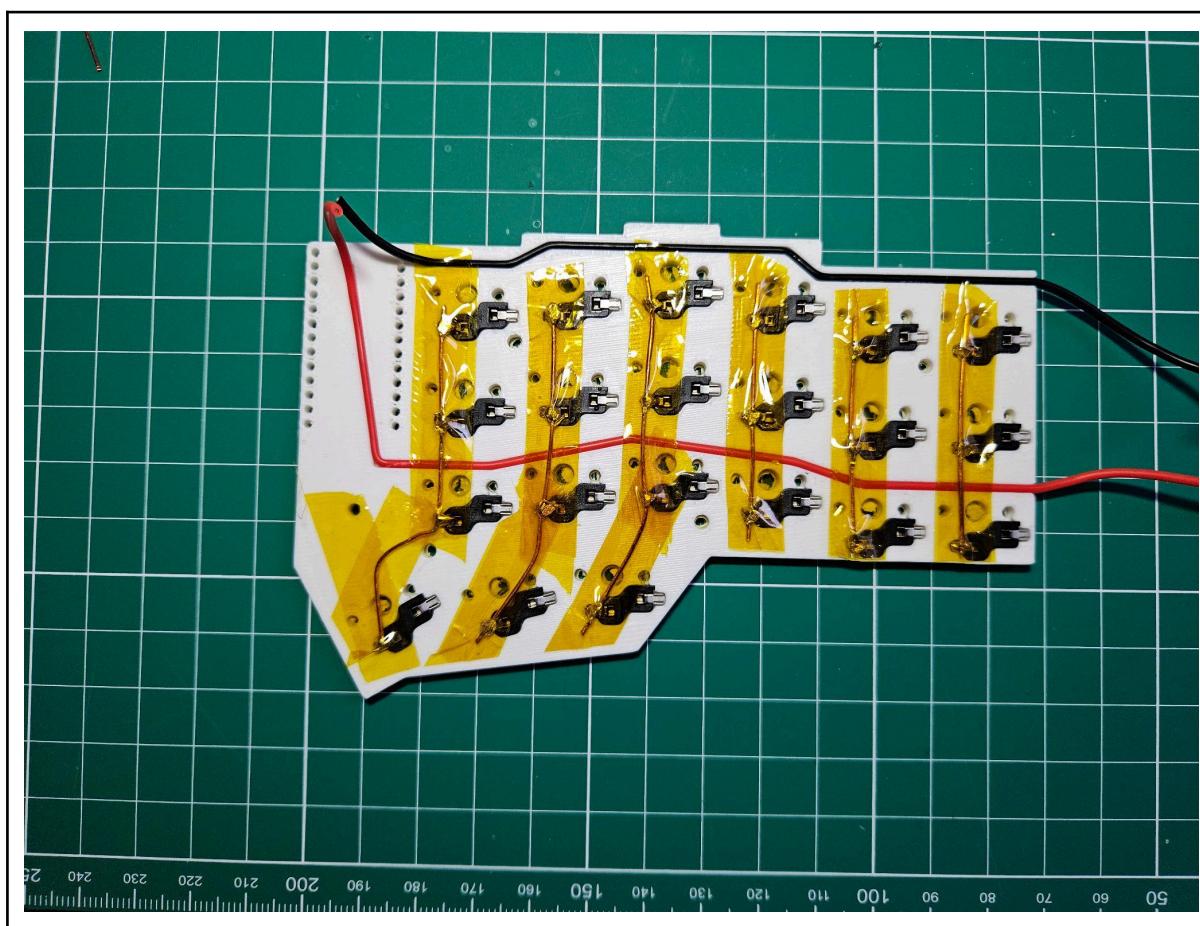
This is example on other keyboard that i made, it uses hotswap sockets instead of direct switch contact but the process is absolutely the same

When wiring, just use all same side contacts of the switches

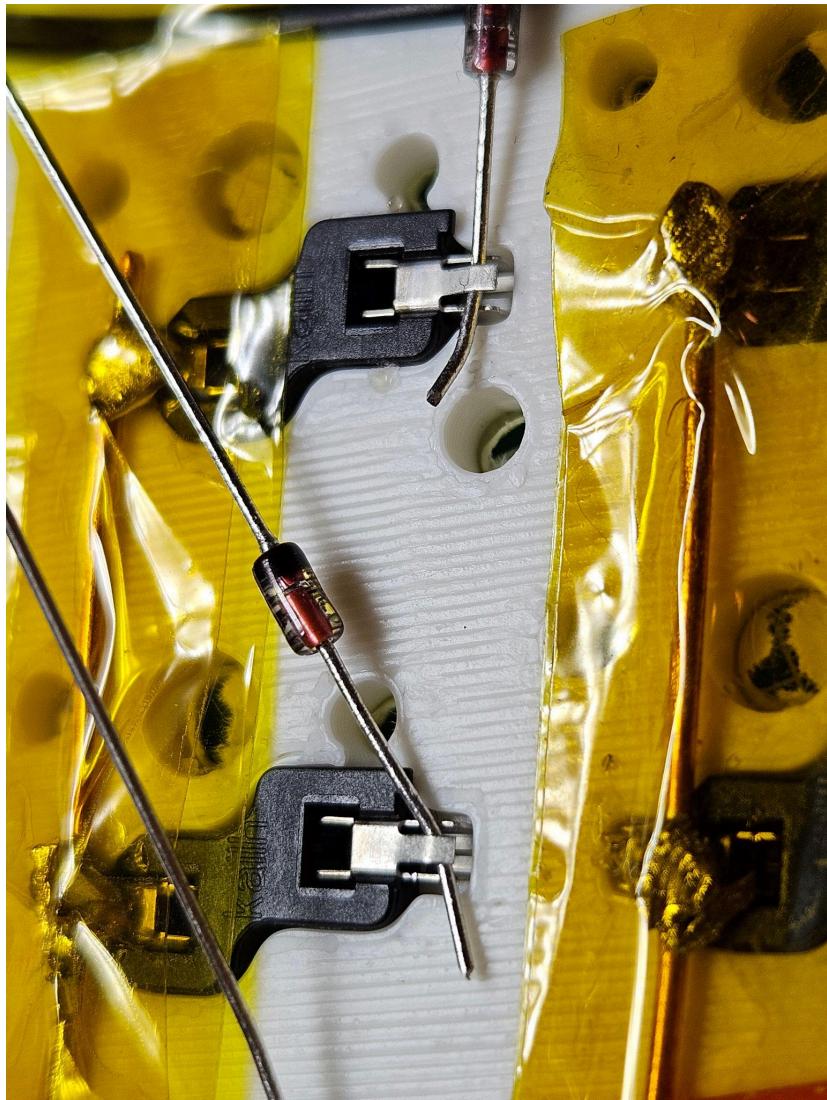
1. Use straighten copper wire to solder all the columns according to the diagram



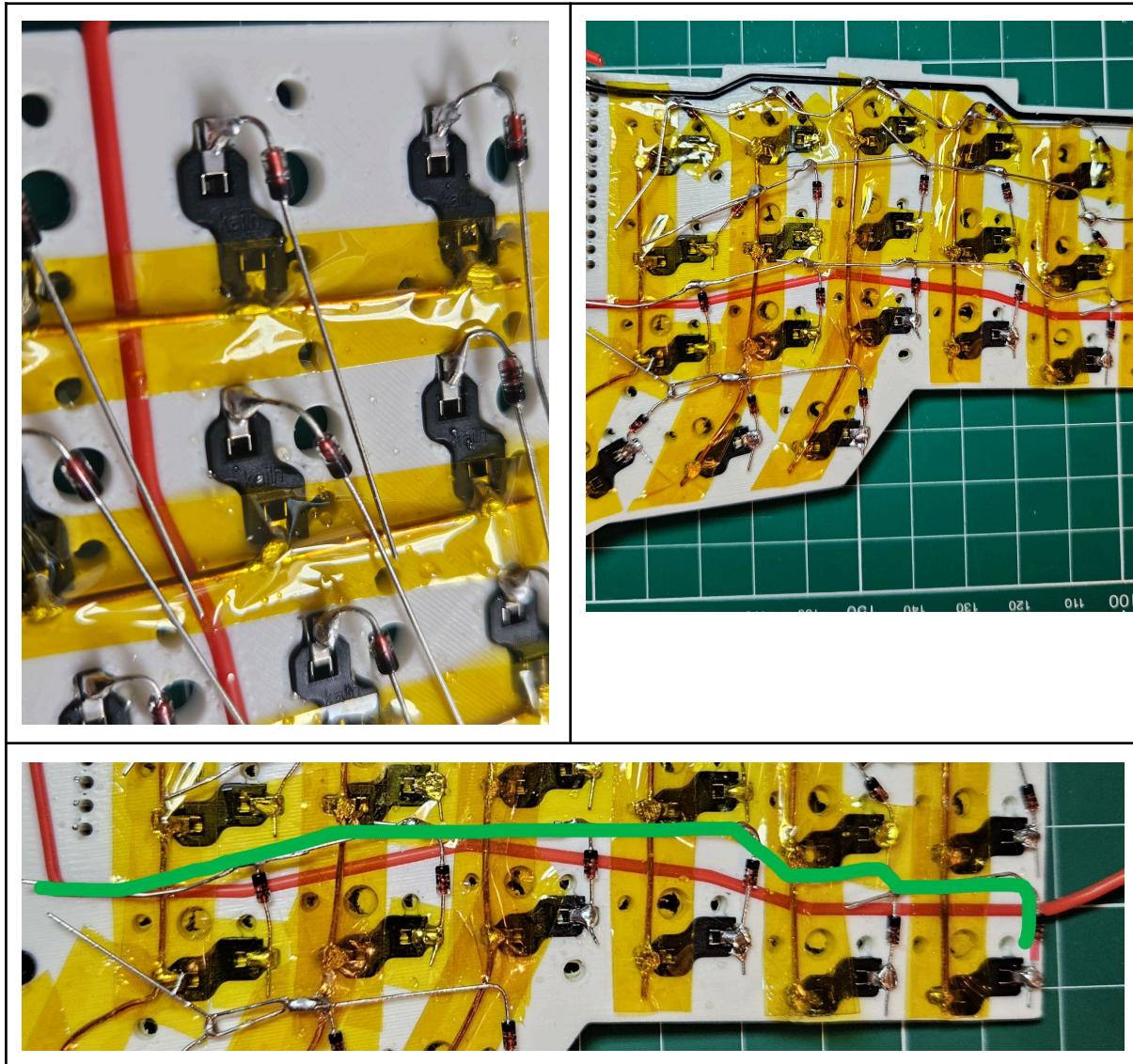
2. Use kapton or electrical tape to isolate the wires on the columns, just don't cover the other contact of the switch



3. Cut the side of the diodes OPPOSITE of the black marking (electricity flows in the direction of black mark, so it should flow from the switch to the matrix)
4. Connect the short end of the diode to the other contact of the switch and solder it (its recommended to coil the short end so it have better mechanical connection)



5. After soldering all the diodes, connect the long leg of the diodes to create row



Make sure to solder it ABOVE the diode itself

6. Using wires, connect each column and row to proper pins

7. Connect Positive side of the battery to B+ pin on the controller and negative pin to the B- on the controller

The battery should fit between controller pins, i secured it with some tape to prevent movement

Step 6: Flashing firmware

If you wired pins according to the diagramm, you can flash ready made firmware

1. Short pins RESET and GND two times in a row (emulating double press) while controller connected to the PC via USB cable
On the pc controller will appear as a Removable drive (like D:/NICE NANO)
2. Drag the files into the drive, it will reset and will be ready to use.

Make sure to upload left firmware to the Left side of keyboard and right to the right

To use keyboard in wired mode, just connect left side to the computer

To connect via bluetooth just search for “Corne HW” in bluetooth devices and connect

Note that right side wont work by itself, if the left side is not connected

Step 7: Assembling the case

For the best sound i added felt to the part of the case that will hold the case on top and the bottom, this is not necessary but will improve the sound

I also add two layers of felt at the bottom of case, also to improve the sound

1. Screw the MCU cover to the plate
2. Sandwich the plate between top and bottom part of the case and screw them together