

Saw Tooth Organ



Quantity	Name	Description	Signing/Colorcode
1	BT1	9 V battery holder	
1	C1	22 nF capacitor	223
1	D1	5 mm green LED	
1	LS1	8 Ω–100 Ω speaker	
3	Q1-Q3	BC547C NPN transistor	
1	Q4	BC557C PNP transistor	
4	R1, RK1-RK3	3.3 kΩ resistor	OR OR BK BR BR
1	R2	100 Ω resistor	BR BK BK BK BR
1	R3	22 kΩ resistor	RE RE BK RE BR
1	R4	220 kΩ resistor	RE RE BK OR BR
1	R5	470 kΩ resistor	YE VI BK OR BR
1	R6	82 Ω resistor	GR RE BK GO BR
1	RK4	3 kΩ resistor	OR BK BK BR BR
4	RK5-RK8	2.7 kΩ resistor	RE VI BK BR BR
1	RK9,RK10	2.2 kΩ resistor	RE RE BK BR BR
1	RK11	2 kΩ resistor	RE BK BK BR BR
1	RK12	1.2 kΩ resistor	BR RE BK BR BR
1	RV6	25 kΩ potentiometer	
1	SW1	push button	
1	wire flexible 30 cm		
1	wire stiff 3 cm		
1	PCB		

Difficulty: ●●○○ Build-Time: 1–2 Hours

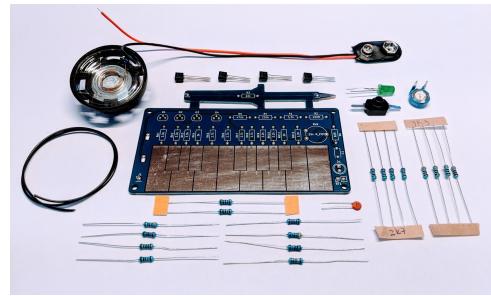
Manual v1.0 CC BY-SA 4.0 Binary Kitchen e.V.

Board v1.1 CC BY-SA 4.0 Elektronikmuseum Tettnang & Timo Schindler

Farblegende: SI = silber; GO = gold; BK = schwarz; BR = braun; RE = rot; OR = orange; YE = gelb; GR = grün; BL = blau;
VI = violett; GR = grau; WH = weiß

Step 1

- a) Hints: Resistance value can be determined via color coding
- b) Orientation for resistors is not important.
- c) LEDs have a flat side and one shorter leg. Both show the negative side. LED orientation is printed on the board.



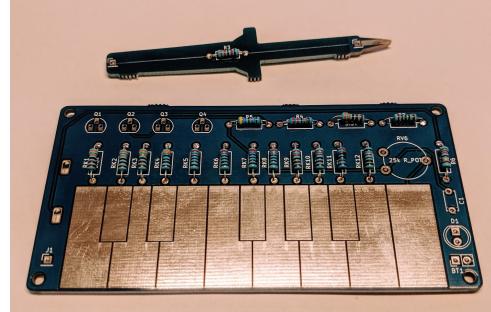
Step 2

- a) Break off the stylus at the predetermined breaking points. Use a pliers.



Step 3

- a) Solder all resistors.
- b) Pay attention to the correct value which is printed on the board.



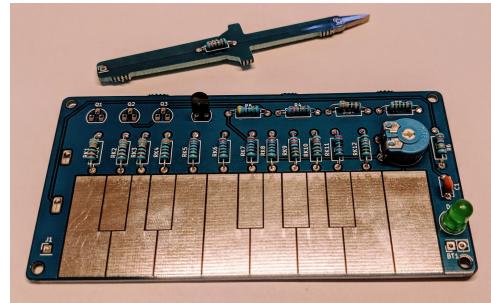
Step 4

- a) Solder the potentiometer.
- b) Solder the capacitor.
- c) Solder the LED. Pay attention to the correct orientation (See Step 1)!



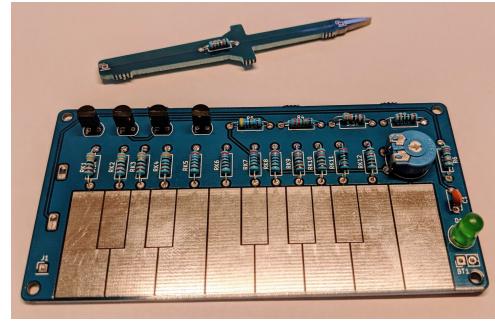
Step 5

- a) Solder the PNP transistor BC557C (Q4). Attention: Risk of mix-up with the NPN transistors.



Step 6

- Solder the three NPN transistors BC547C (Q1–Q3).



Step 7

- Turn around the board.
- Bend the soldering tabs and solder the button to the board. The direction does not matter.



Step 8

- Solder on the speaker.



Step 9

- Thread the red and black wire of the battery holder through the holes (not in the picture) above the solder pads and insert the wires into the solder pads. Attention: red is positive, black is negative
- Solder the wires.



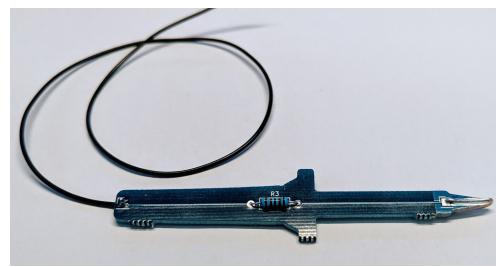
Step 10

- Solder the stiff wire at the tip of the stylus in the soldering point
- Then bend the wire over the tip and solder it on the long soldering points (back and front) at the tip.



Step 11

- a) Thread the flexible wire through the hole at the back-part of the stylus (not in picture)
- b) Solder the wire then to the soldering point
- c) Thread the other end trough the hole near the connector point on the board.
- d) Solder the wire to the soldering point.



Step 12

- a) Insert a battery and turn on your organ.
- b) The green LED should turn on now.
- c) You are done. Have fun playing your organ!

