

learn how to solder by building your own, simple, and free synthesizer
you need one-ish hour to complete this project - really

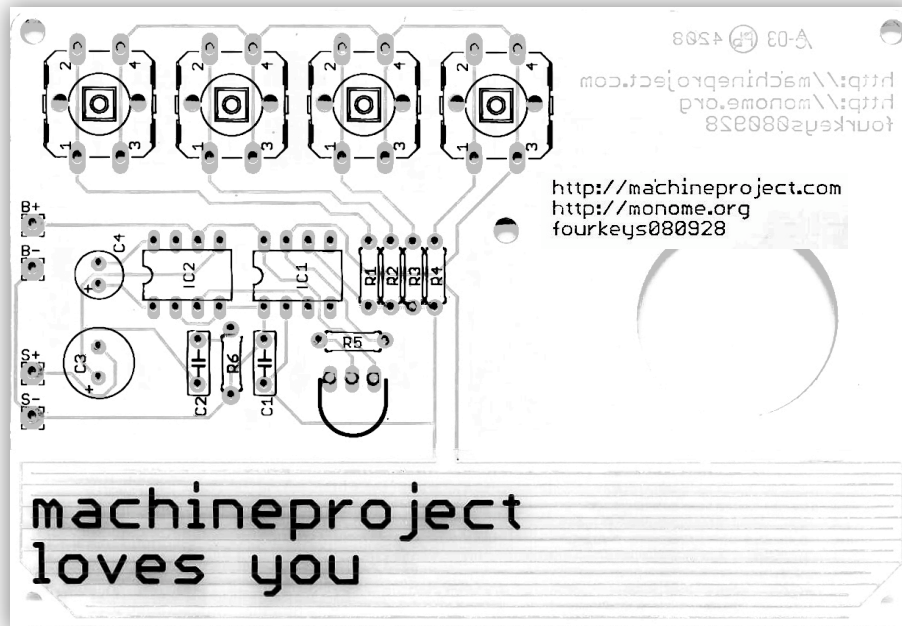
we from machine project will try to help you
and you will have access to a soldering iron and various other tools as needed
and you will get a very nice plastic bag with electronic goodies:

1	printed circuit board	1	R1	resistor 100k Ω (brown, black, yellow)
2	IC sockets 8 pin	1	R2	resistor 10k Ω (brown, black, orange)
1	IC1 LM555 (timer)	1	R3	resistor 1.5k Ω (brown, green, red)
1	IC2 LM386 (amplifier)	1	R4	resistor 470 Ω (yellow, purple, brown)
4	switches with caps	1	R5	resistor 100 Ω (brown, black, brown)
1	speaker	1	R6	resistor 10 Ω (brown, black, black)
1	battery holder	1	R7	variable resistor (trimpot) 10k Ω
1	battery 9V	1	C1	capacitor 0.1 μ F (little brown blob on wire labeled 104M)
		1	C2	capacitor 0.047 μ F (little disc with 2 wires out from edge labeled 473)
		1	C3	electrolytic capacitor 220 μ F
		1	C4	electrolytic capacitor 10 μ F

a VERY important note:

the printed circuit board in your bag does not say which IC (integrated circuit) to put where.
here's the secret:

IC1 is right next to the 4 mighty colorful resistors, IC2 is right next to C4.



circuit board as seen from component side.

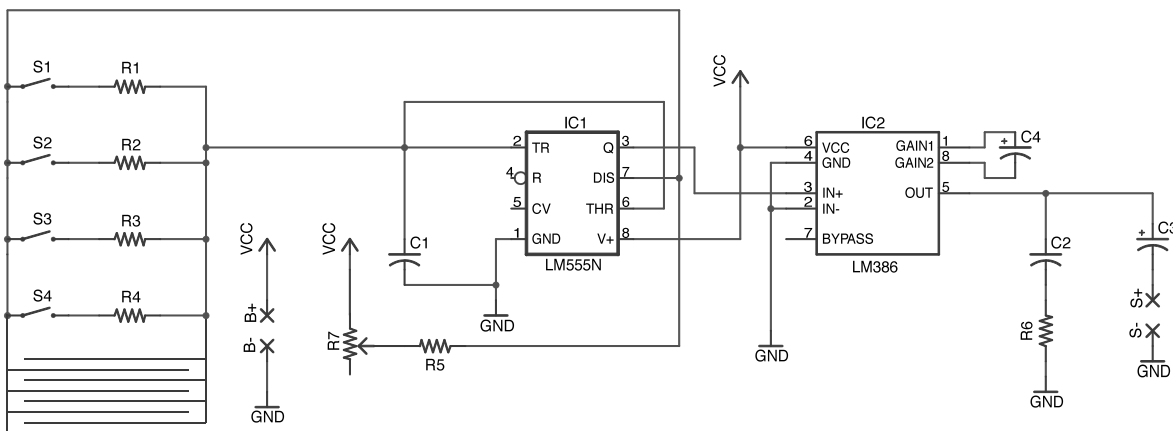
you can see the copper traces from the backside of the board in light grey.

note for the green synthesizer player:

when not playing, the circuit still eats a bit of power from the battery (10mA). So remove the battery when not in use.

note about how it works:

1. the 4 switches connect the timer chip through different size resistors (R1-R4).
the higher the resistance the lower the pitch.
the trimpot (tiny dial) will adjust the overall pitch.
your finger or nose on the inter-meshing comb-lines on the back will also create a resistance and activate the synthesizer.
2. for more information about the circuit etc go googling - like LM555 synthesizer etc.
3. the circuit diagram is below



machine project synthesizer