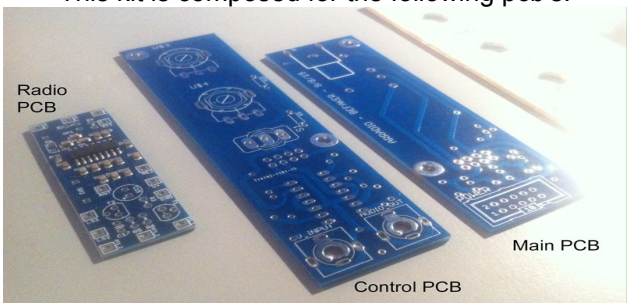
ARRADIO V1.1

CV CONTROLLED FM RADIO

Thanks a lot for choosing this BEFAKER Arradio Kit, soon you'd be able to play with FM radio stations in your Modular Synth.

You'd need:
Welder, tin, tester, cable cutter and little dose of care and patience.

This kit is composed for the following pcb's:



Important thing:
Radio PCB is extremely sensitive!! for this reason we'll mount at the end, after being sure all other parts are correct and circuit works properly.

Part List:

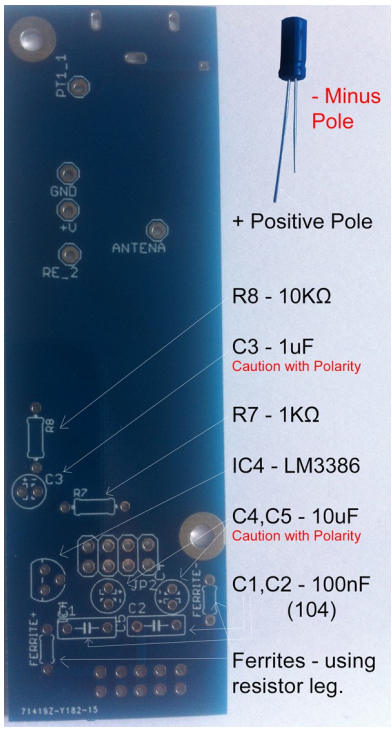
Bottom pcb:

Ferrite	Ferrite
R7	1k
R8	10k
IC4	L78L33A
C1, C2	100nF
C3	1uF electrolytic
C5, C4	10uF electrolytic
JP2	Female recommend
RCA	
Power	

Top pcb:

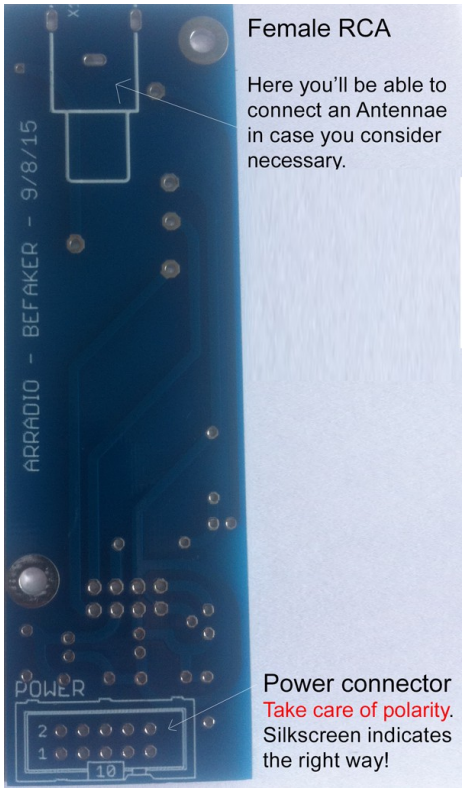
R1, R2, R3, R4, R5, R11, R12	100K
R6	10k
R9	560K
R10	130K
R13	12K
C7	100nF
IC1	TL74

Let's start soldering the top parts in Main PCB accourding this indications:

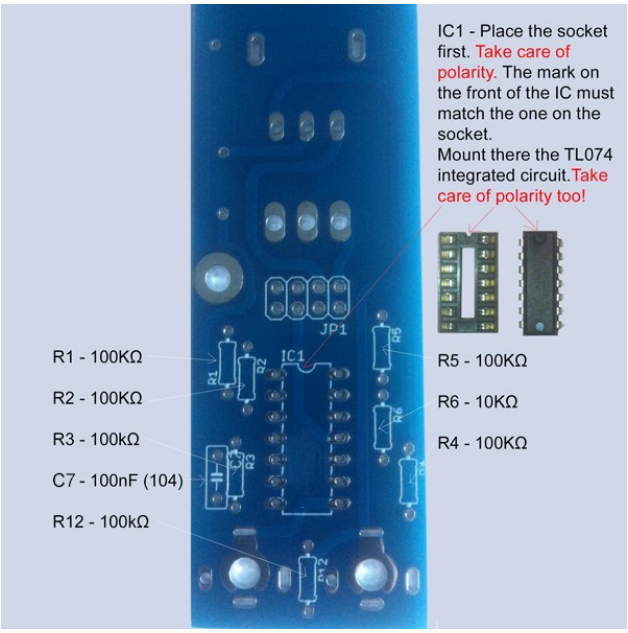


Now you can solder female 8 Pin Header in JP2 Place, make sure it is 90º from PCB!

Nice time to solder the bottom parts on Main PCB:



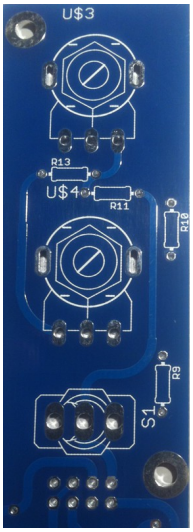
Now let's go to bottom part of Control PCB:



After that solder male 8 Pin Header in JP1 Place, remember make sure it is 90º from PCB.

Now the resistors located in top part of Control PCB:

R13 – 12 kΩ
R11 – 100 KΩ
R10 – 130 KΩ
R 9 – 560 KΩ



Place minijacks ensuring they are by the silkscreen side but not solder them until the front panel is on place and with all nuts screwed. If you use banana, you can solder them without any problem ;)

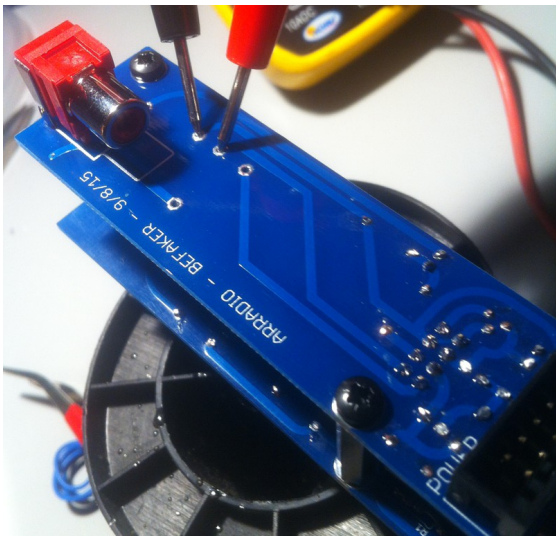
Cut the little ledge on all the two pots with cutting pliers as pictured:

Place potenciometers but don't solder yet!
Place the switch and don't solder too.

Place the front panel moving little the parts one by one if necessary until you fit them to the top. Screw in the following order: Minijacks, switch and pots until all of them are flat and touching completely the front panel. Then you can solder all them.

Place the two spacers with their nuts and screws to fix booth pcbs.

Now let's test circuit works properly before placing the radio pcb.
Power on module and make sure the switch is on right position (→)
Check voltage in this points

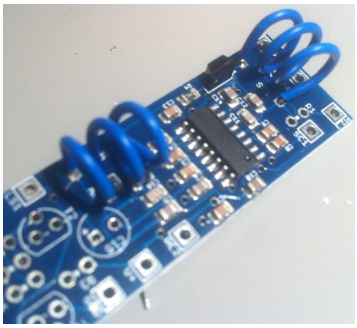


You must obtain something like this:

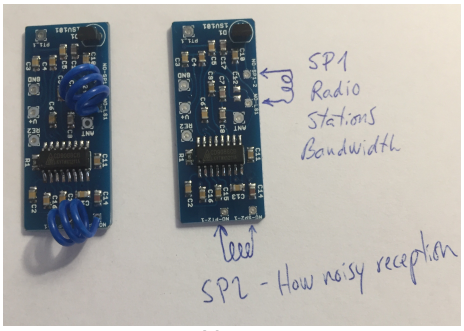
BEFAKER

If all it's ok we can go for Radio pcb:

Now is time to soder the cable coils in SP1 And SP2
Please take care of them, is very important preserve the shape of coils for correct radio tunning.
SP1 is responsable of the radio bandwith you can tune (optimal 88Mhz to 108Mhz)
Modifying SP2 we can hear how module gets more or less noisy.

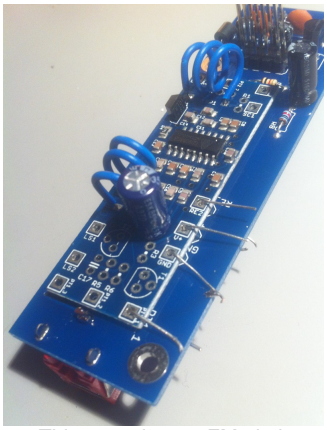


Old FM pletine

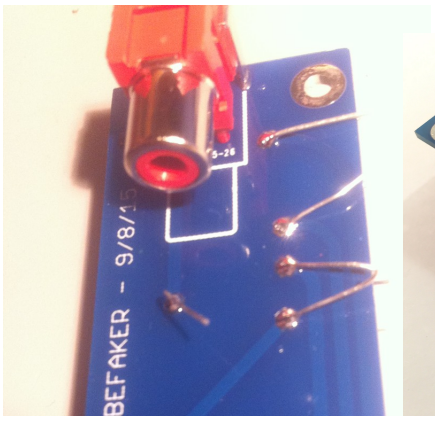


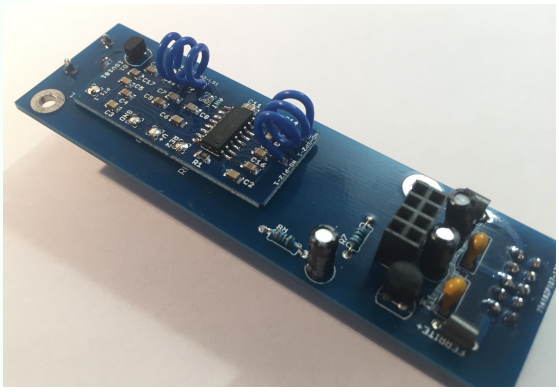
New one

Now time to place radio pcb un main board. You'll need 4 resistor legs plus antenna leg placed before.
Connections in PT_1, GND, V+, RE_2 and ANT.



↑ This capacitor on FM pletine is not needed





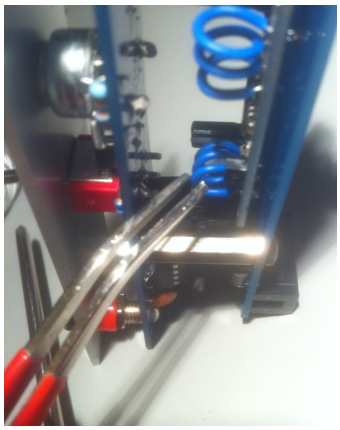
Please cut resistor legs for nice ending.

Plug your new Arradio on synth and let's hear how it sounds!

Calibration:

Check what happens along your tune pot. Go from minium to maxium. The idea is get maxium stations in it an avoid blank spaces at the start and/or end as much as possible. Changing SP1 shape we will get it. To make it possible:

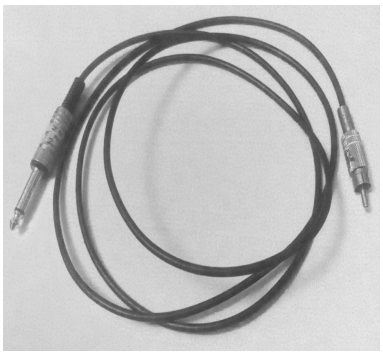
- Try to reduce the distance between SP1 loops and hear what happens.
- Then try to enlarge that distance an hear what happens.
- At last enlarge or reduce distance and also try to move a little to left or right SP1 to get the maxium stations along or your tune pot.
- You can do all this calibration process with module pluged in synth to hear all changes at real time.
- Also you can try what happens if we touch SP2.

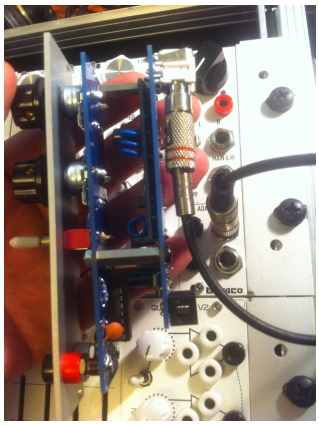


ARRADIO V1.1
CV CONTROLLED FM RADIO

Instructions:
Tune pot – Station searcher from 88Mhz to 108Mhz
CV pot – Amount of cv to move down Tune
Switch – OFF/ON

Antenna

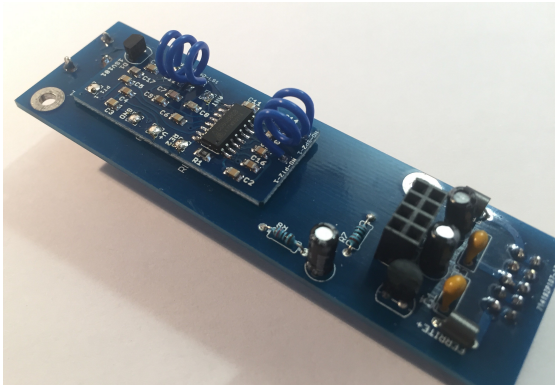




Sometimes can be necessary to use an antenna to boost the signal reception.
You can do it using an RCA-minijack or RCA-Jack cable (not included).
RCA side pluged to module's antenna output and minijack or jack pluged to anywhere you want of your synth. In this way all your ground will work as antenna.

Please take care of the coils, in assembled module are calibrated to obtain the better radio reception:

A minimal change on the shape of coils will change the behaviour of module.



E N J O Y !
:)

Please let me know your feedback:
n3wasmyname.com/arradio
n3@n3wasmyname.com

BEFAKER