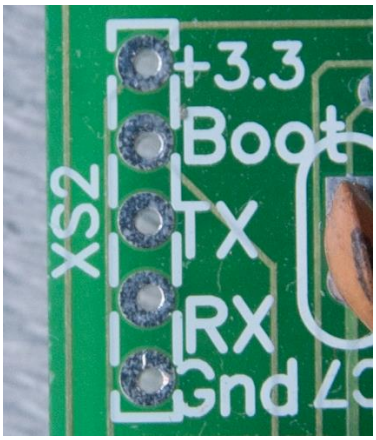
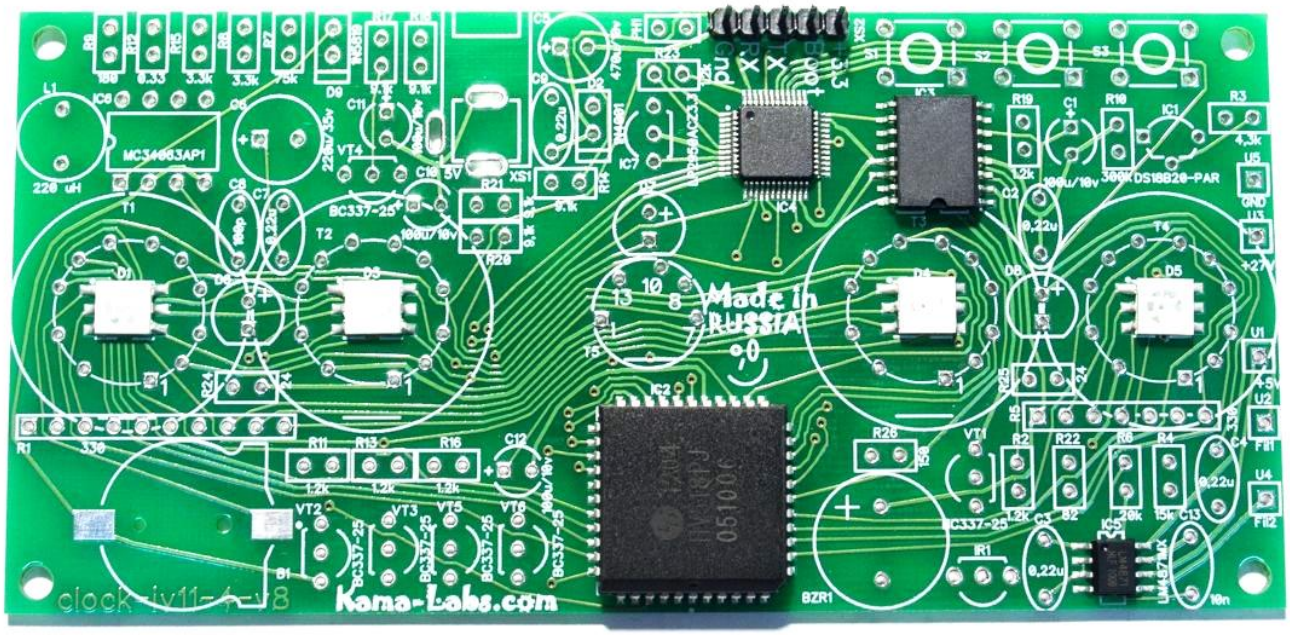
WWW.KAMA-LABS.COM

ASSEMBLY MANUAL FOR ELENA IV-11-4v8 CLOCK

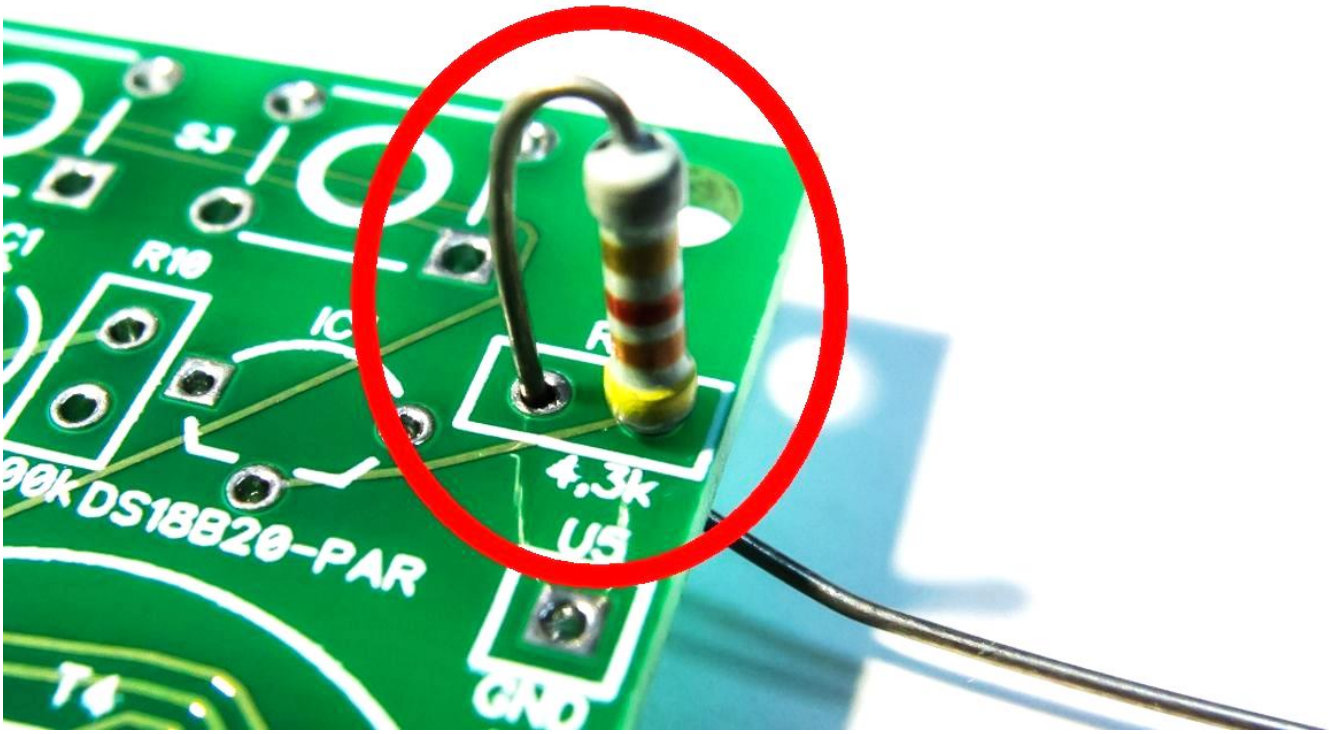


Be very careful with static electricity. If clock not work after build its mean that clock been damaged by static electricity in process of assemble. Check resistance between +3.3 and GND pins of XS2. The resistance should be more thank 1kOhm.

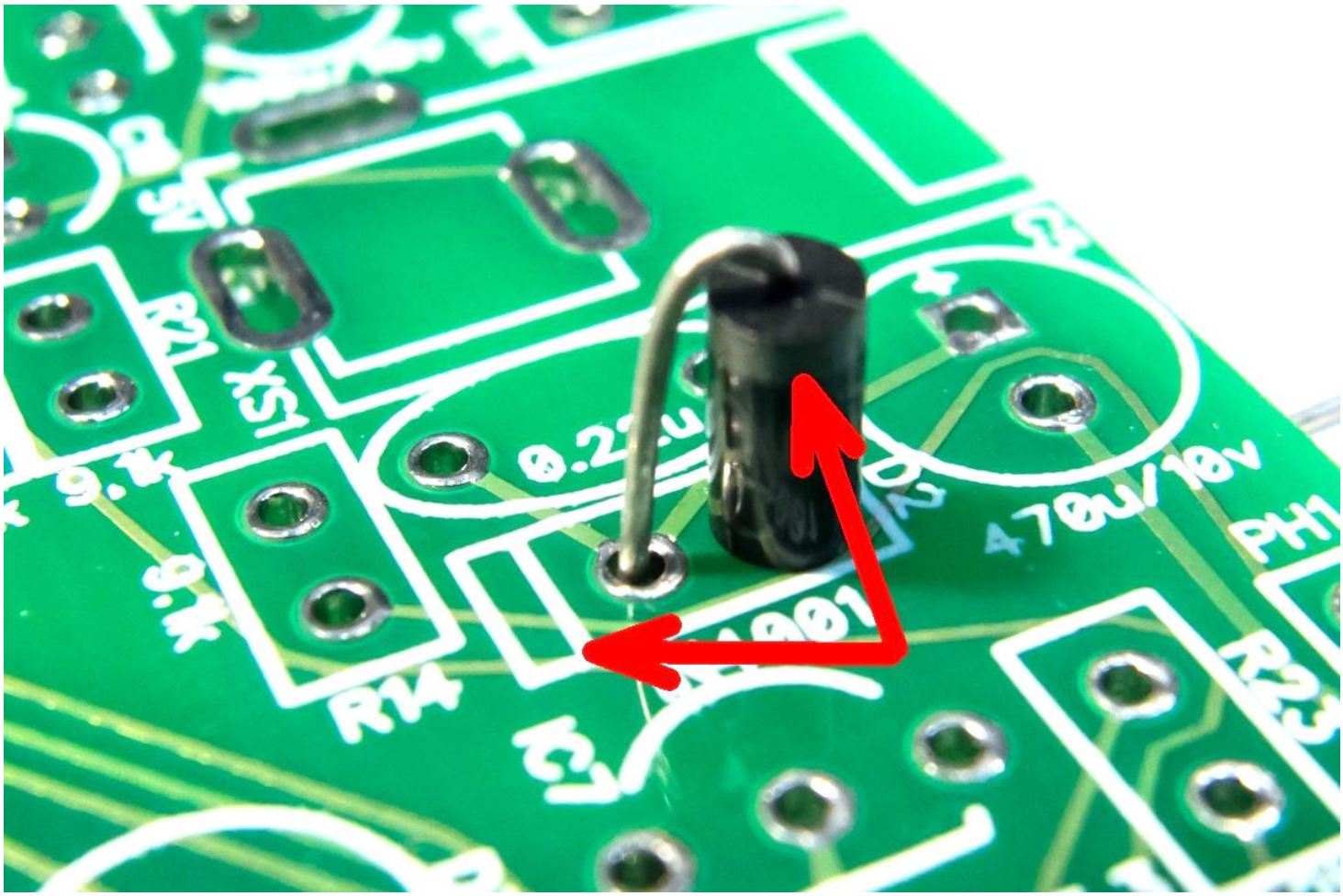
1) You have a PCB with ICs:

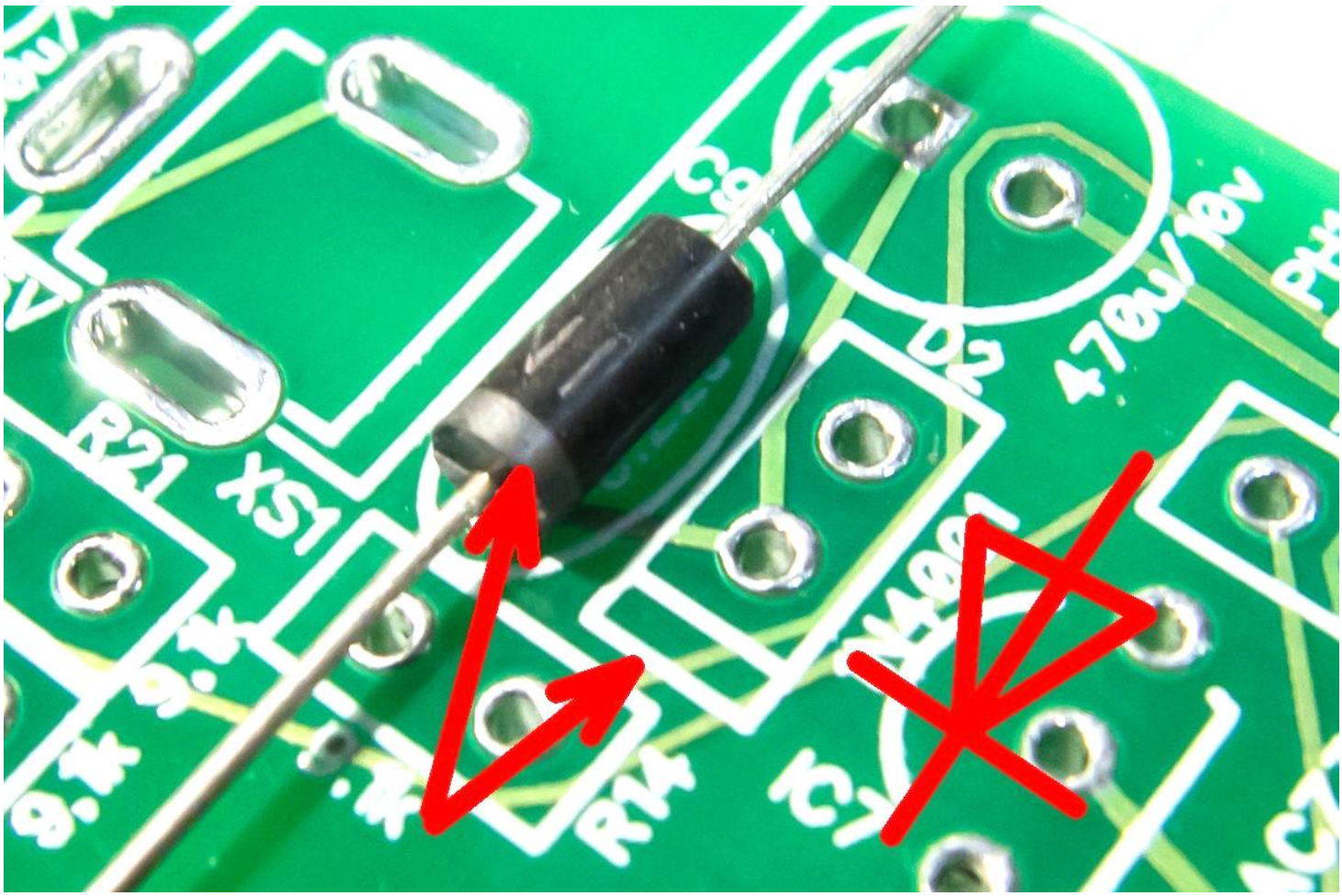


2) Place all resistors vertical:

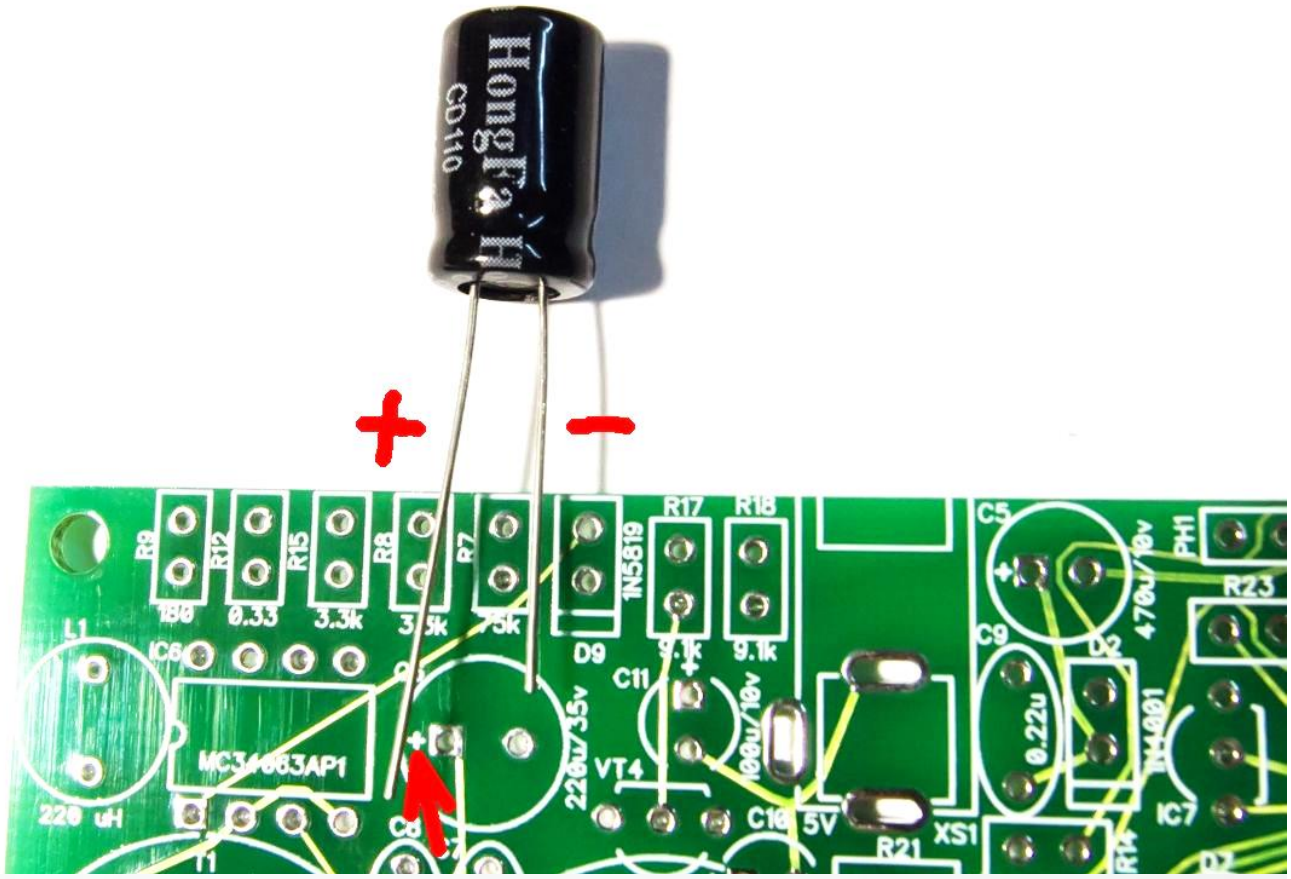


3) Place diodes according marking on PCB:

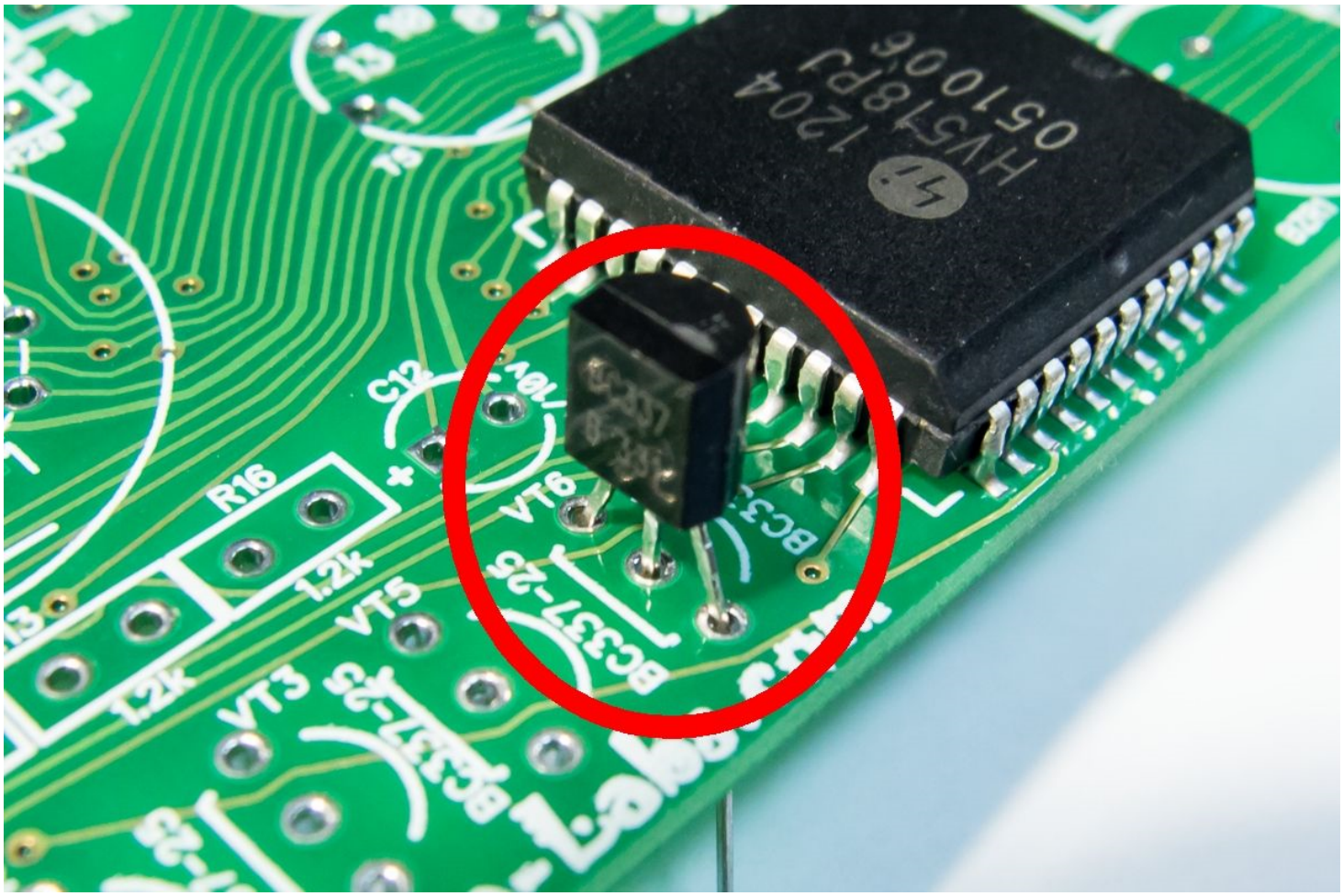


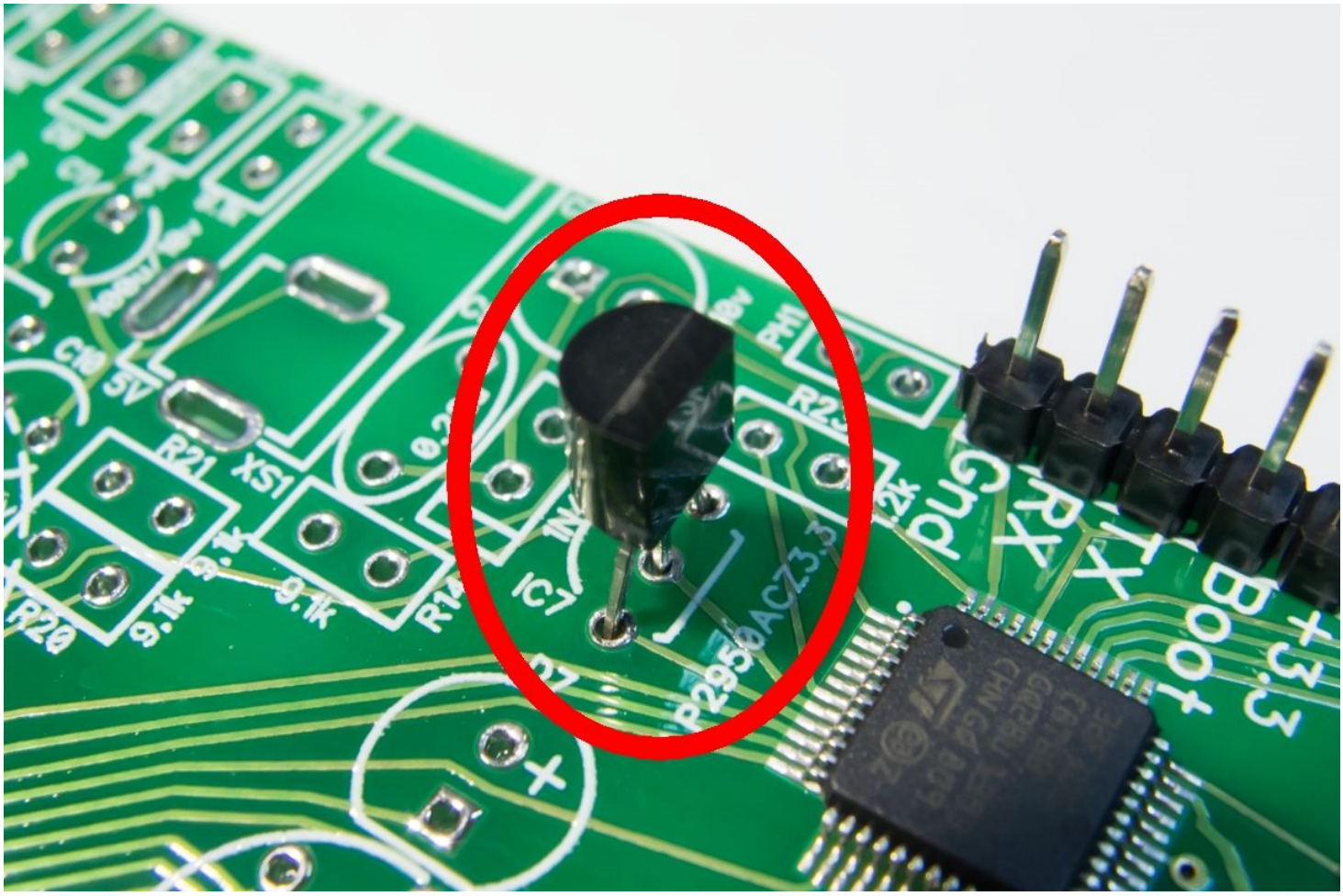


4) Place all electrolytic capacitors. Be careful with polarity!

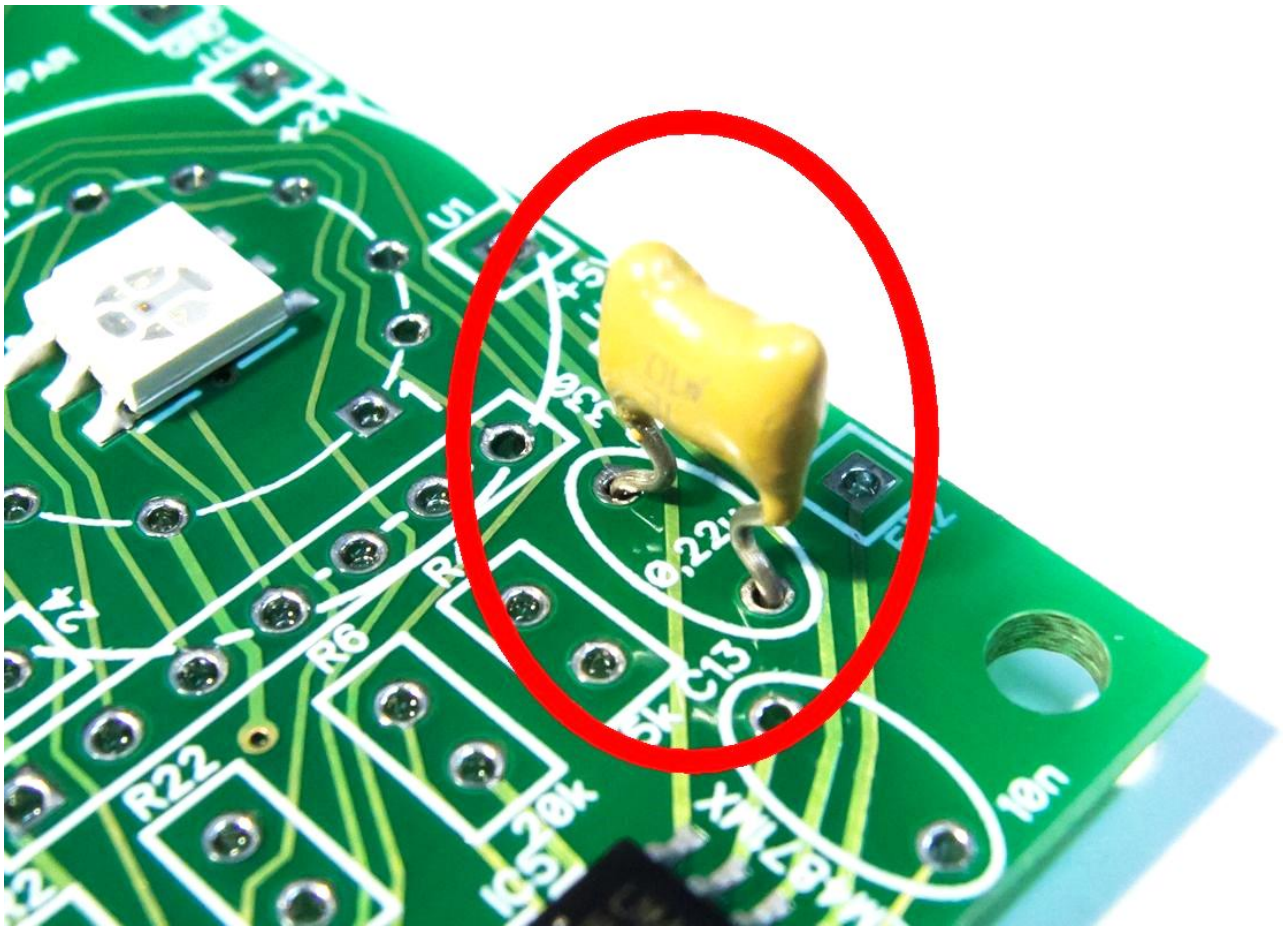


5) Install transistors and 3.3v voltage stabilizer IC7:

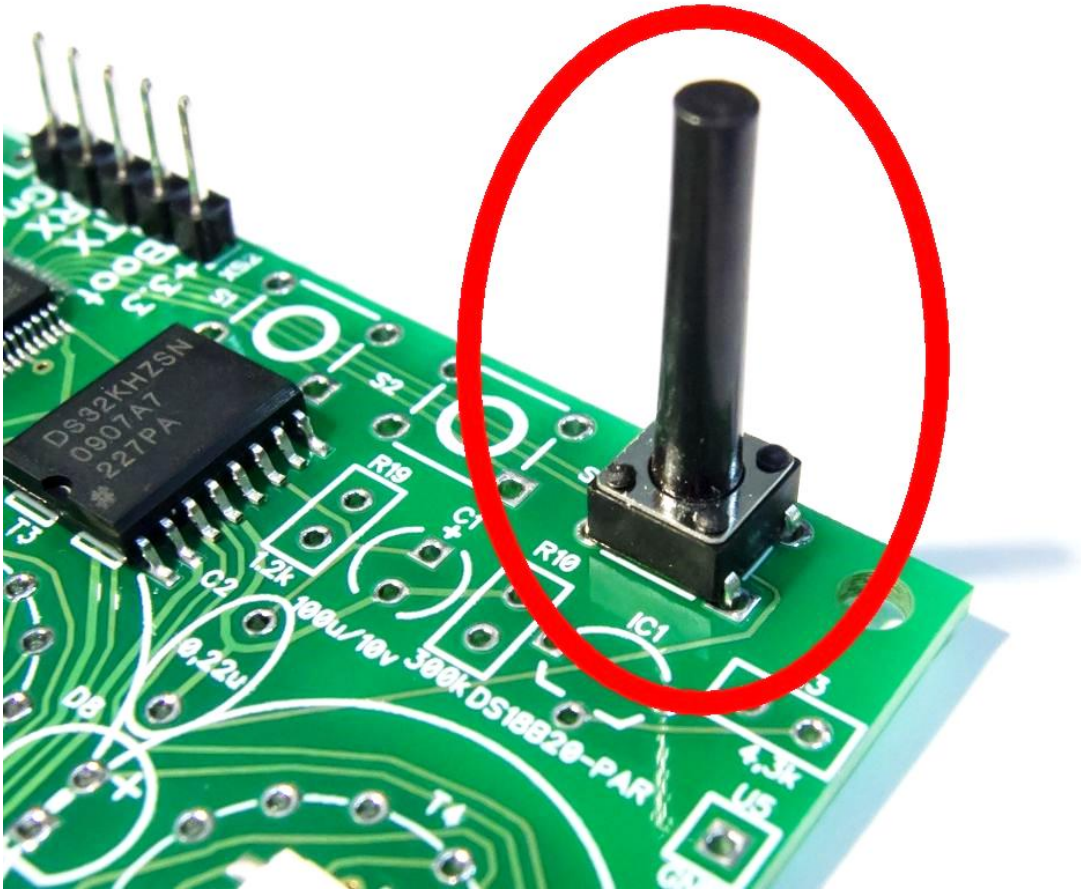




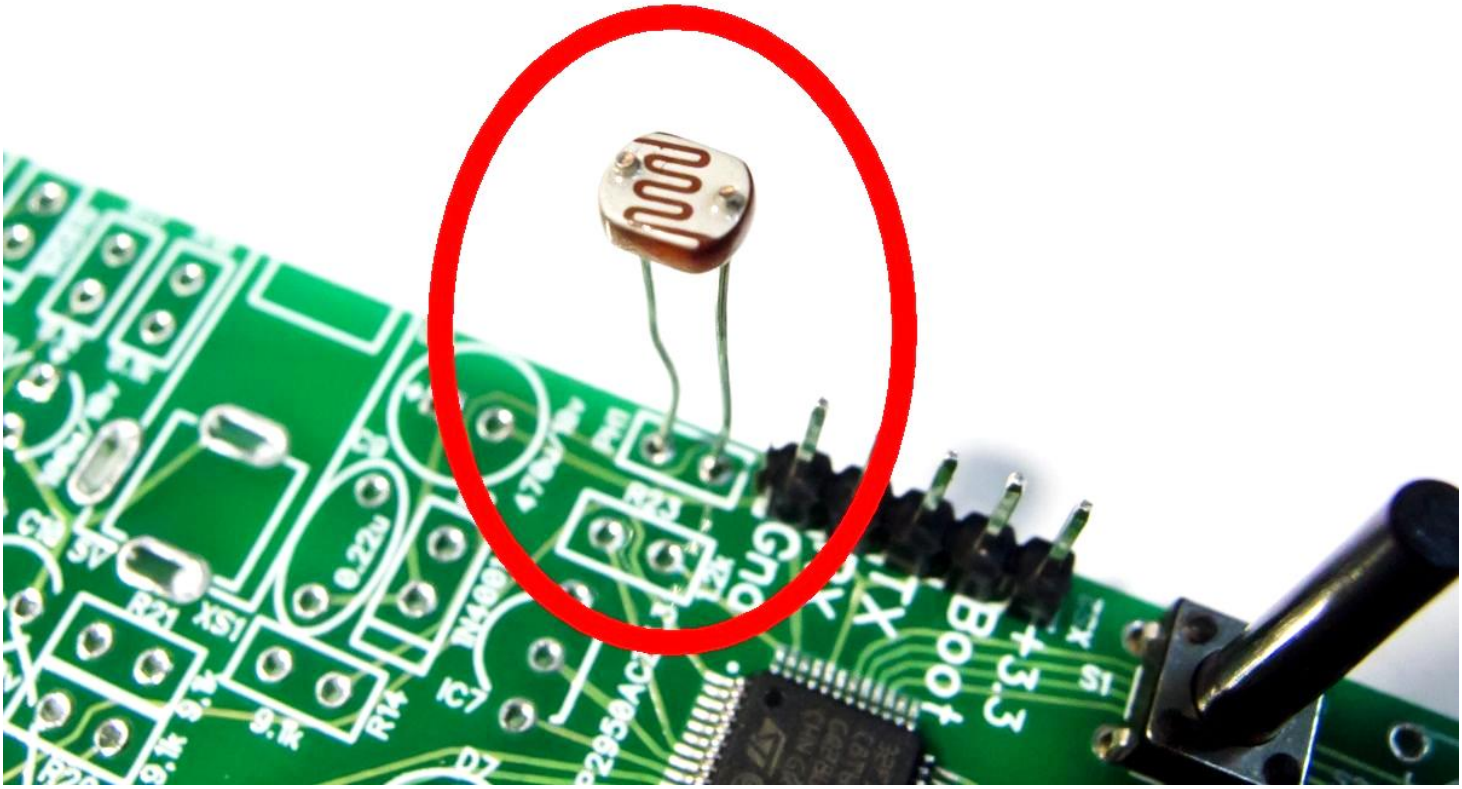
6) Place ceramic capacitors. Polarity is not matter:

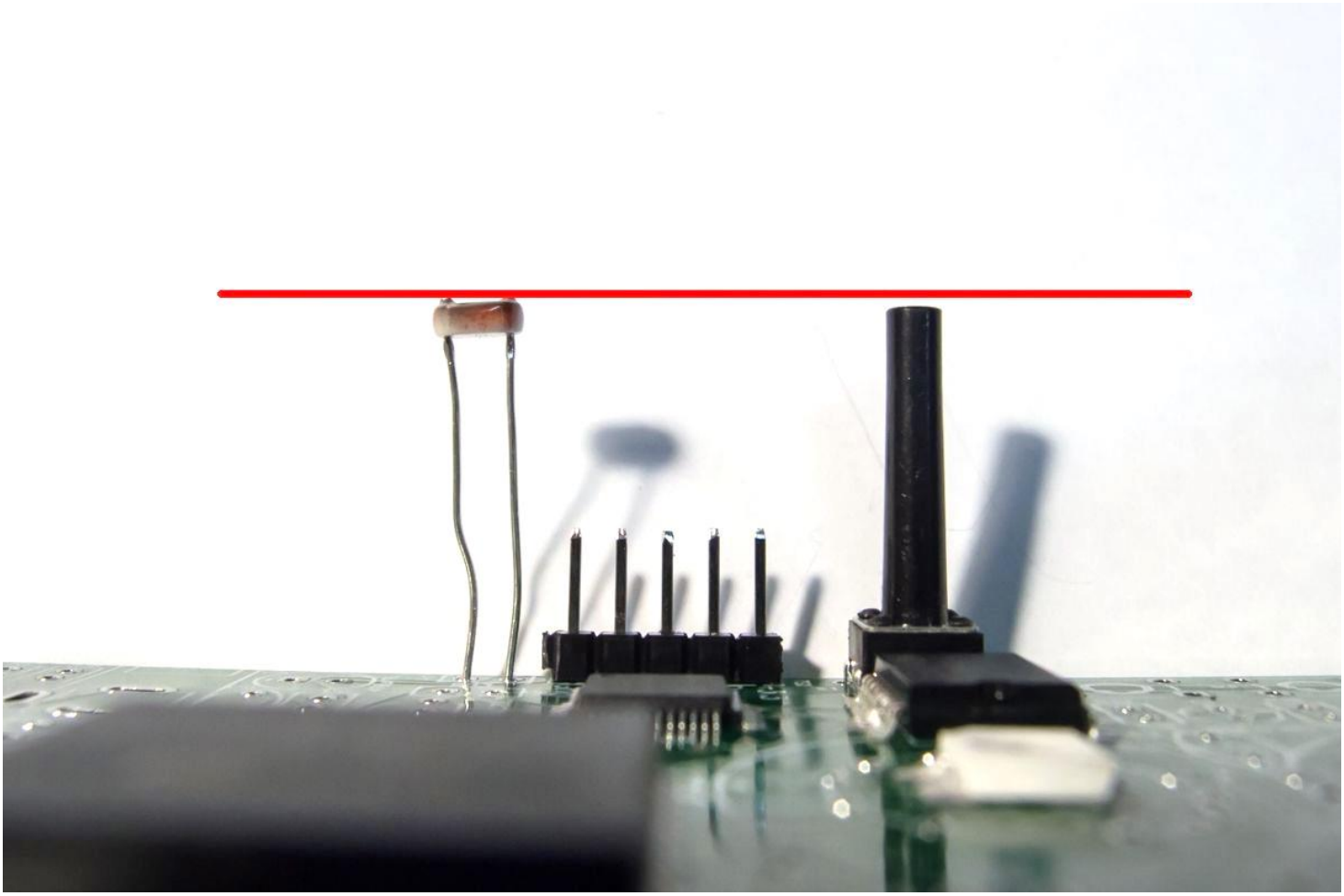


7) Install 3 buttons:



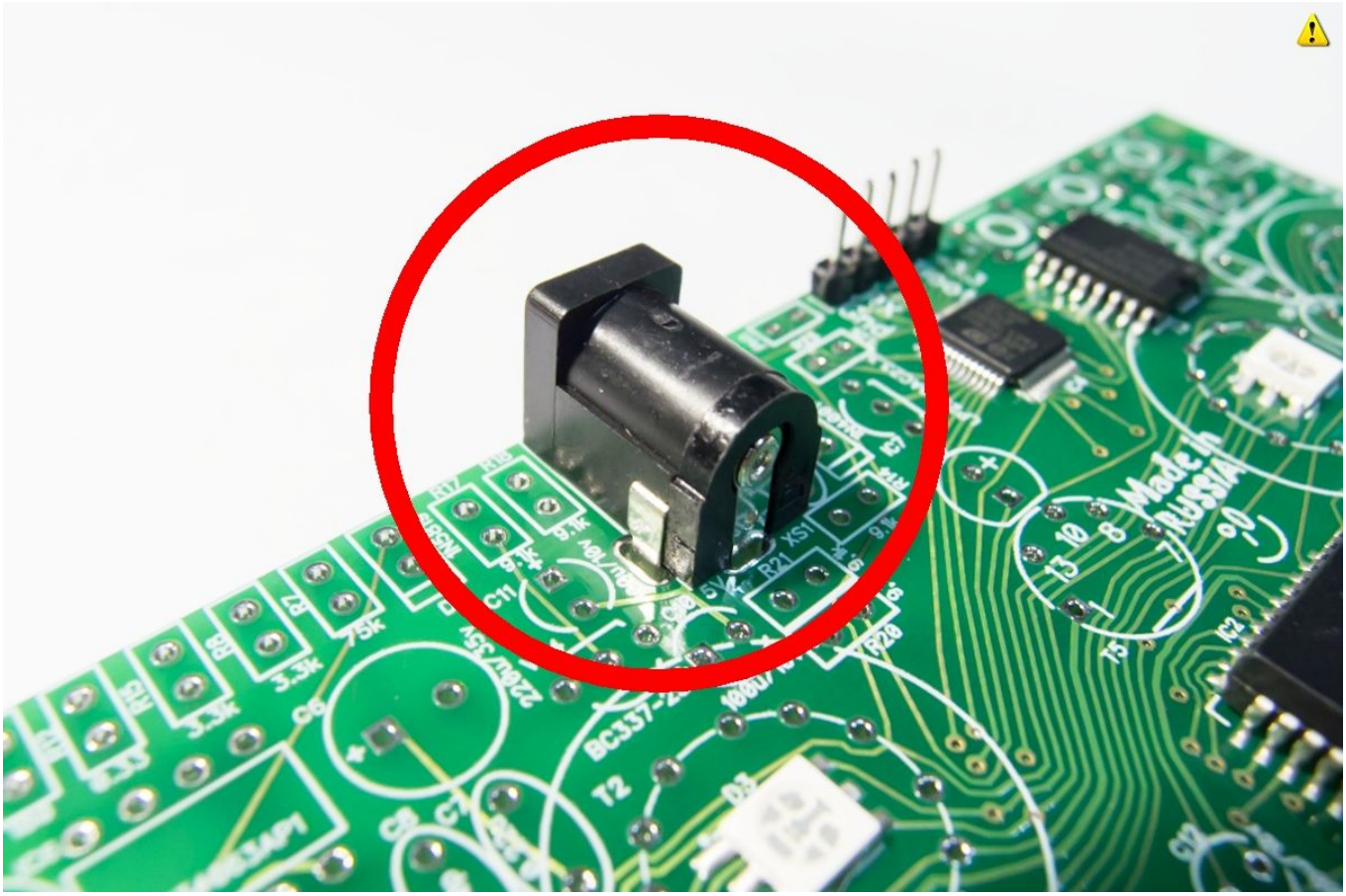
8) Place photoresistor. The high should be equal of buttons.



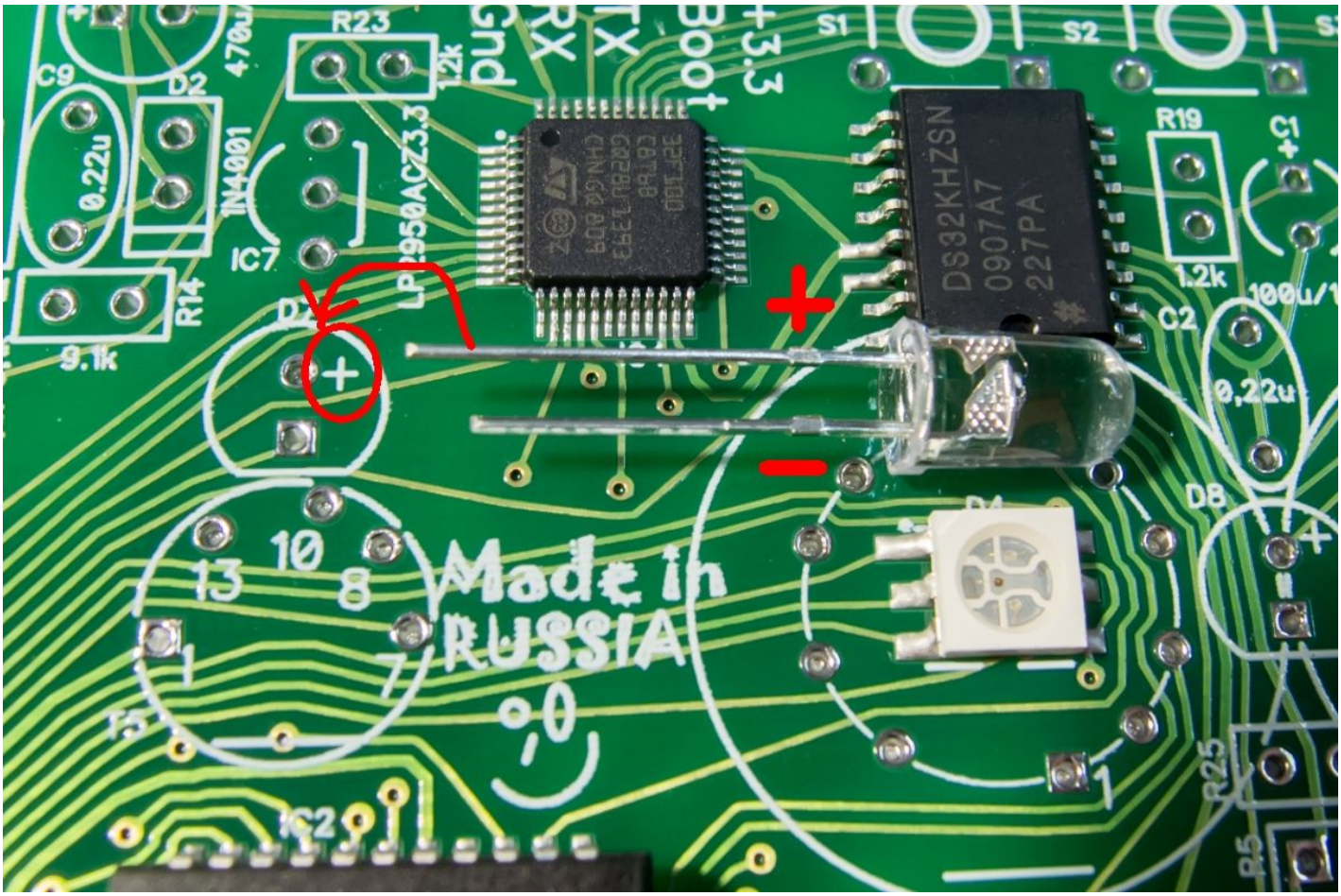


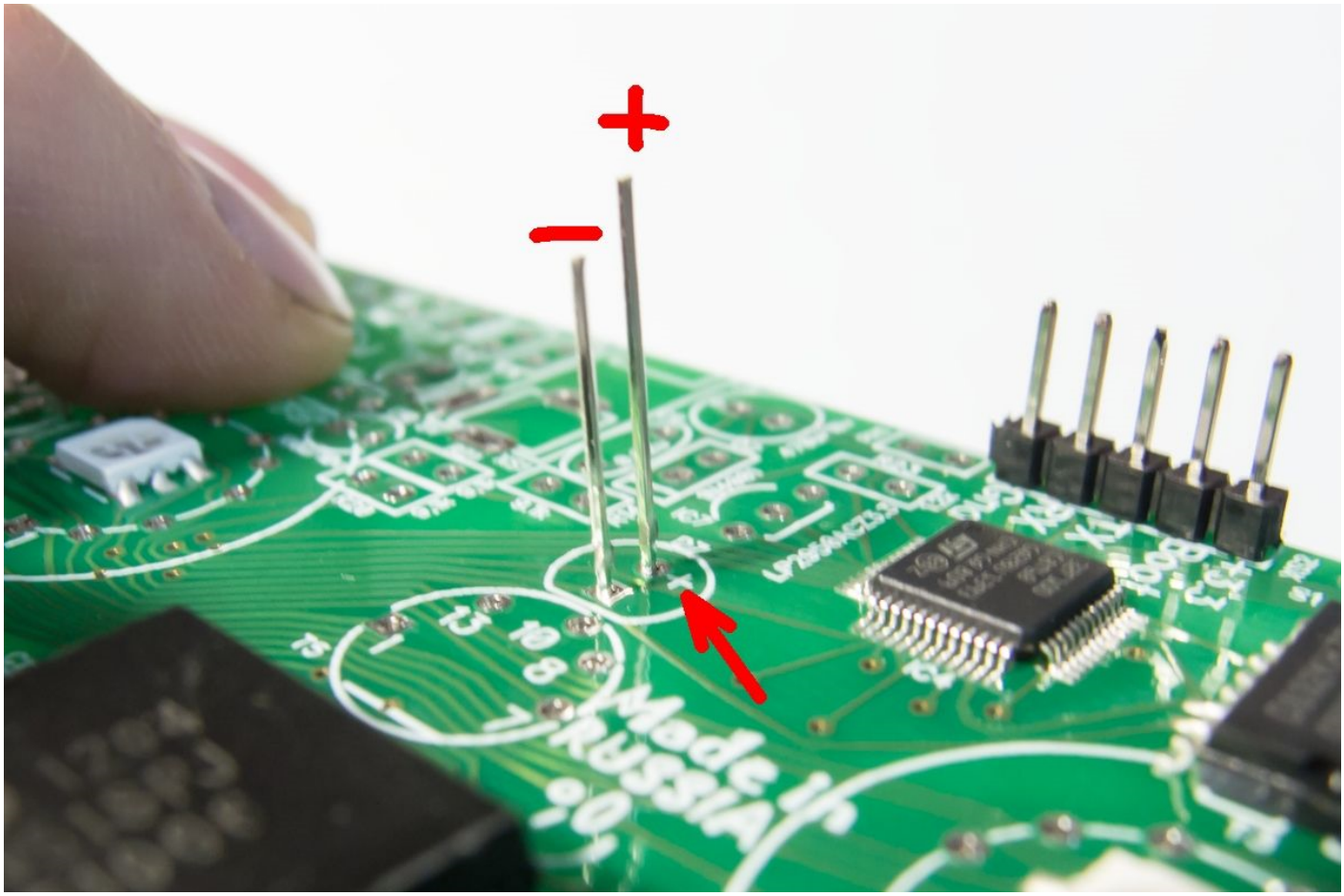
9) Place inductor:

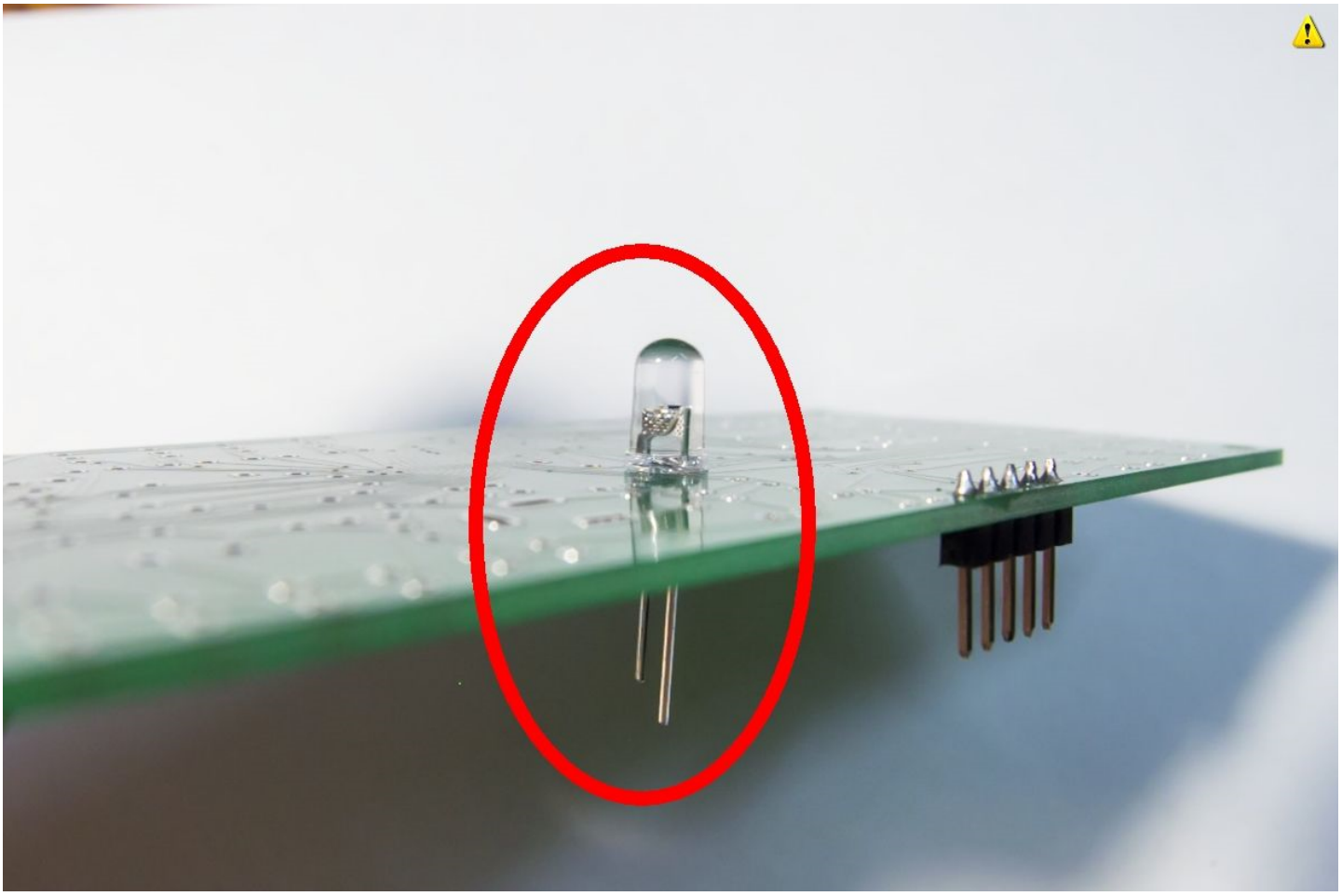
10) Place socket for power supply:



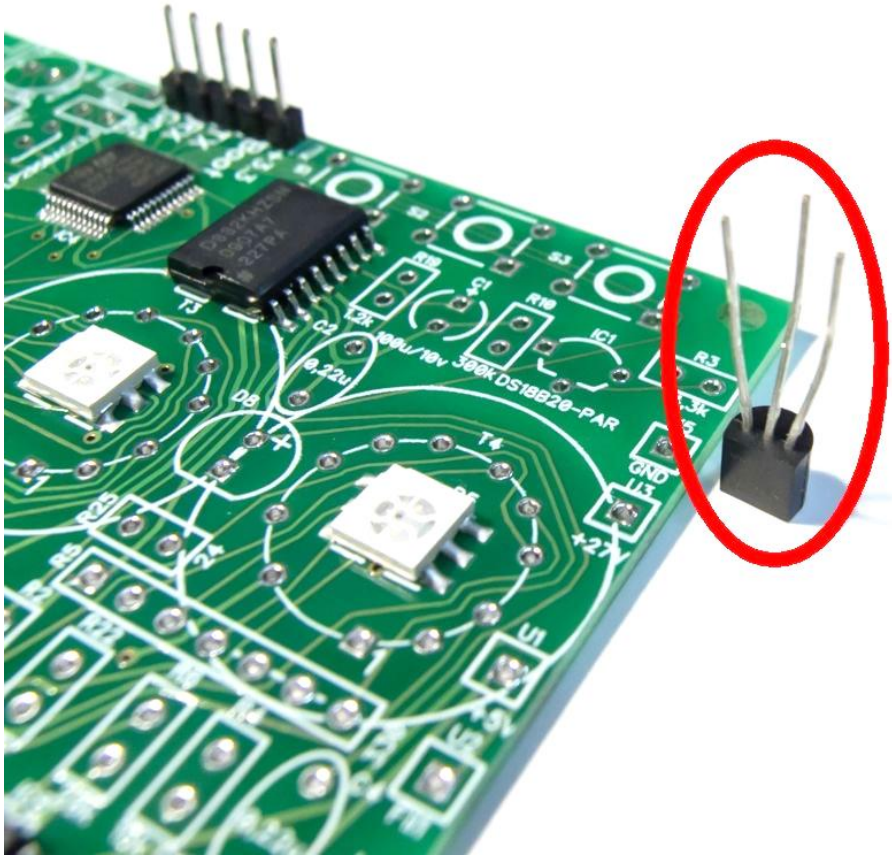
11) Install LEDs to bottom side of PCB. Be careful with polarity! The long pin of led – plus.

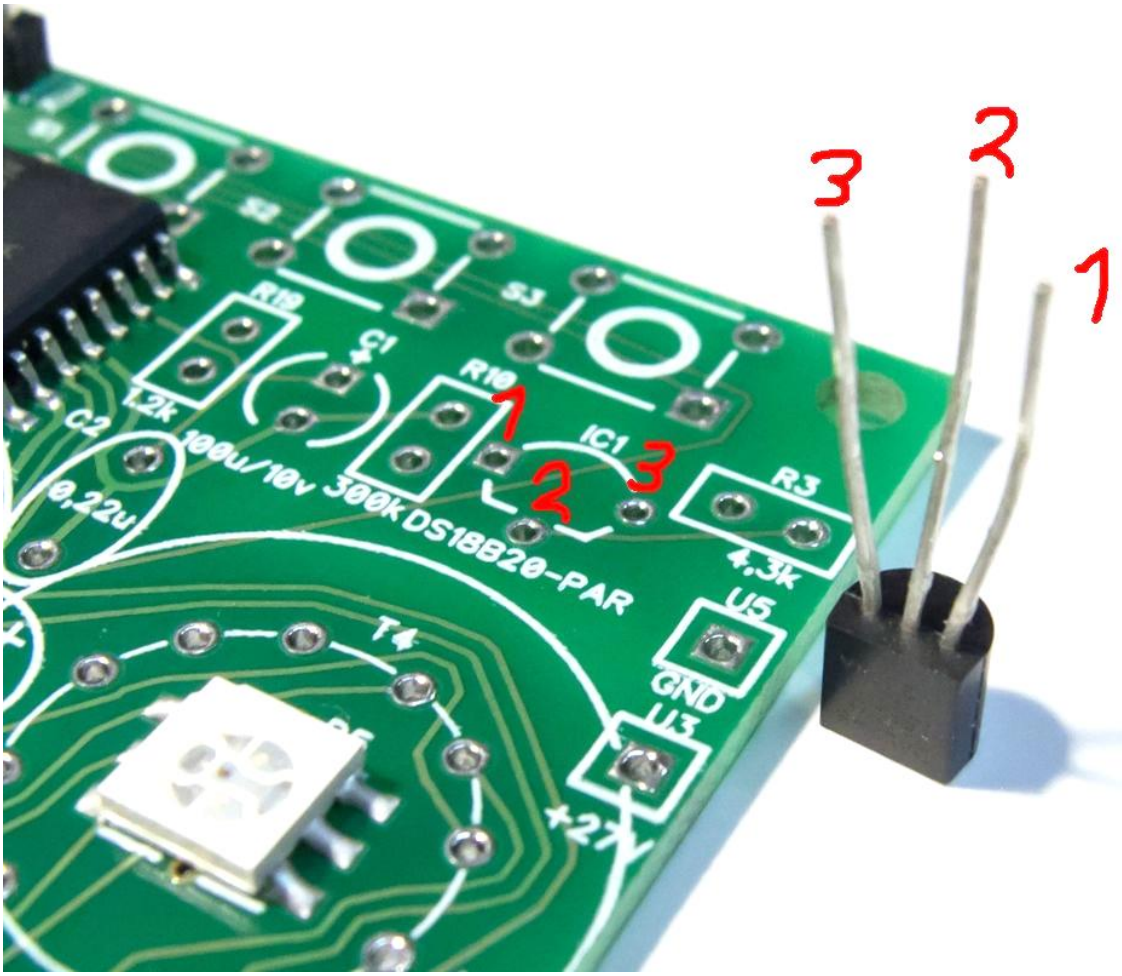


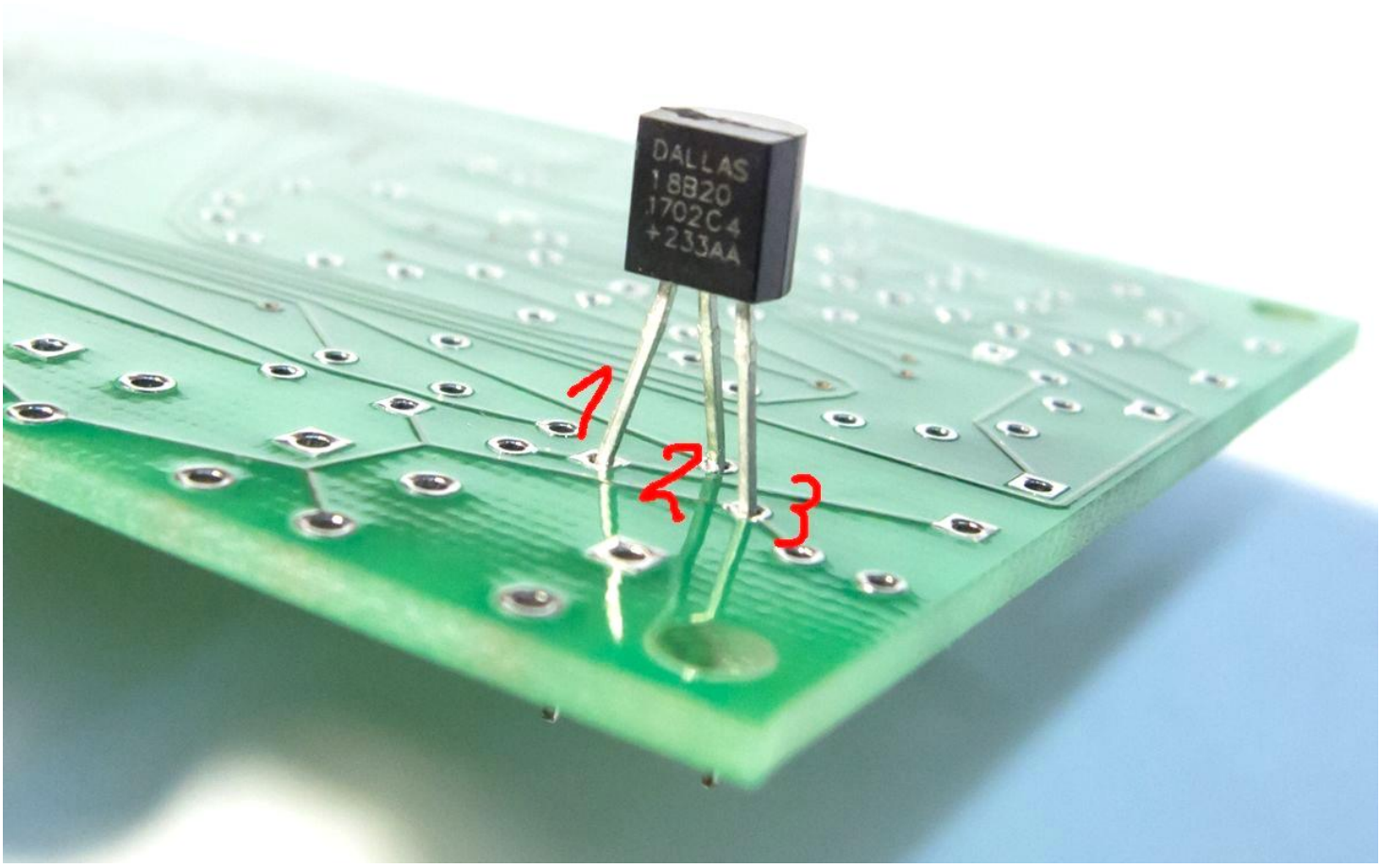


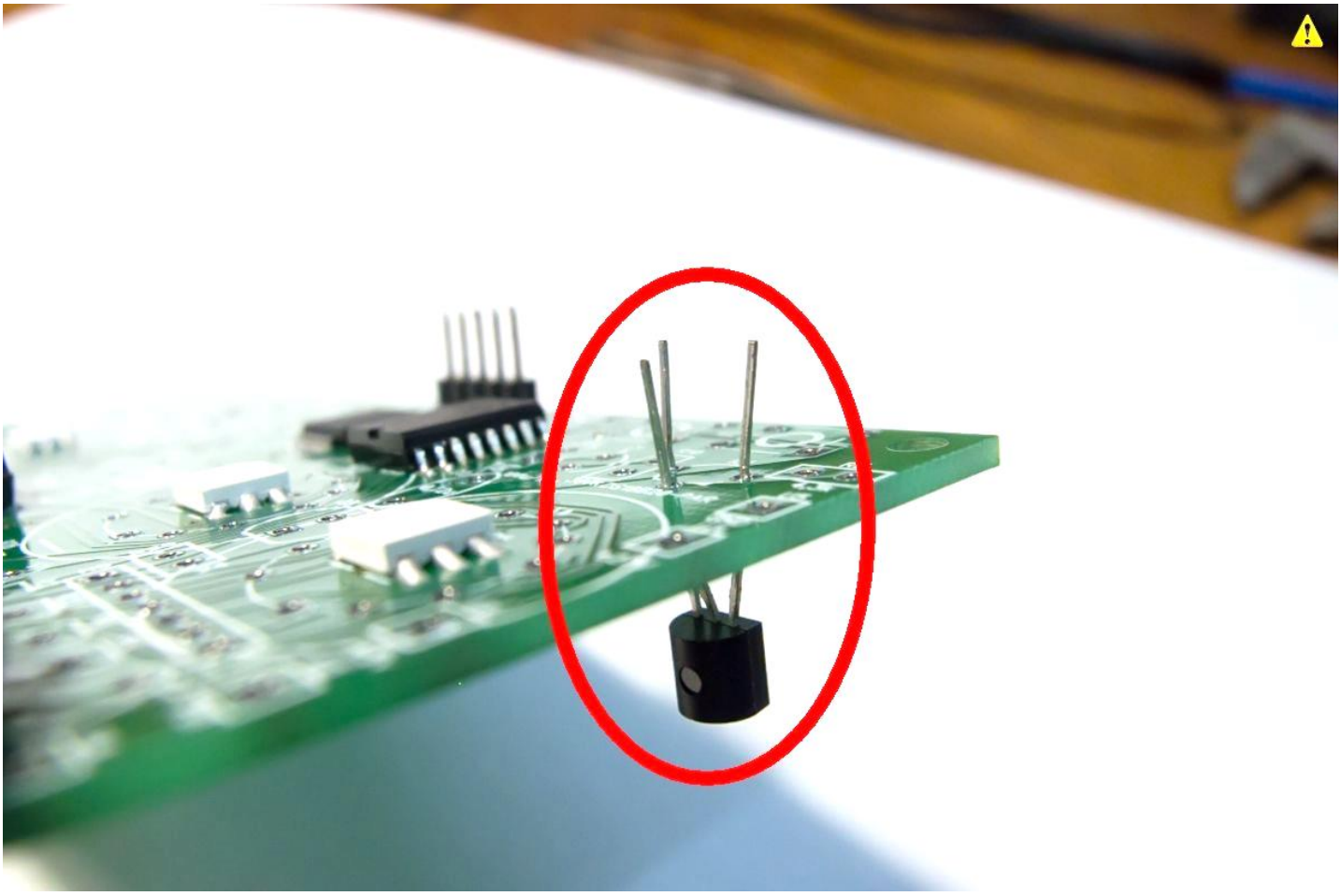


12) Install temperature sensor IC1 DS18B20 on BOTTOM side of PCB:

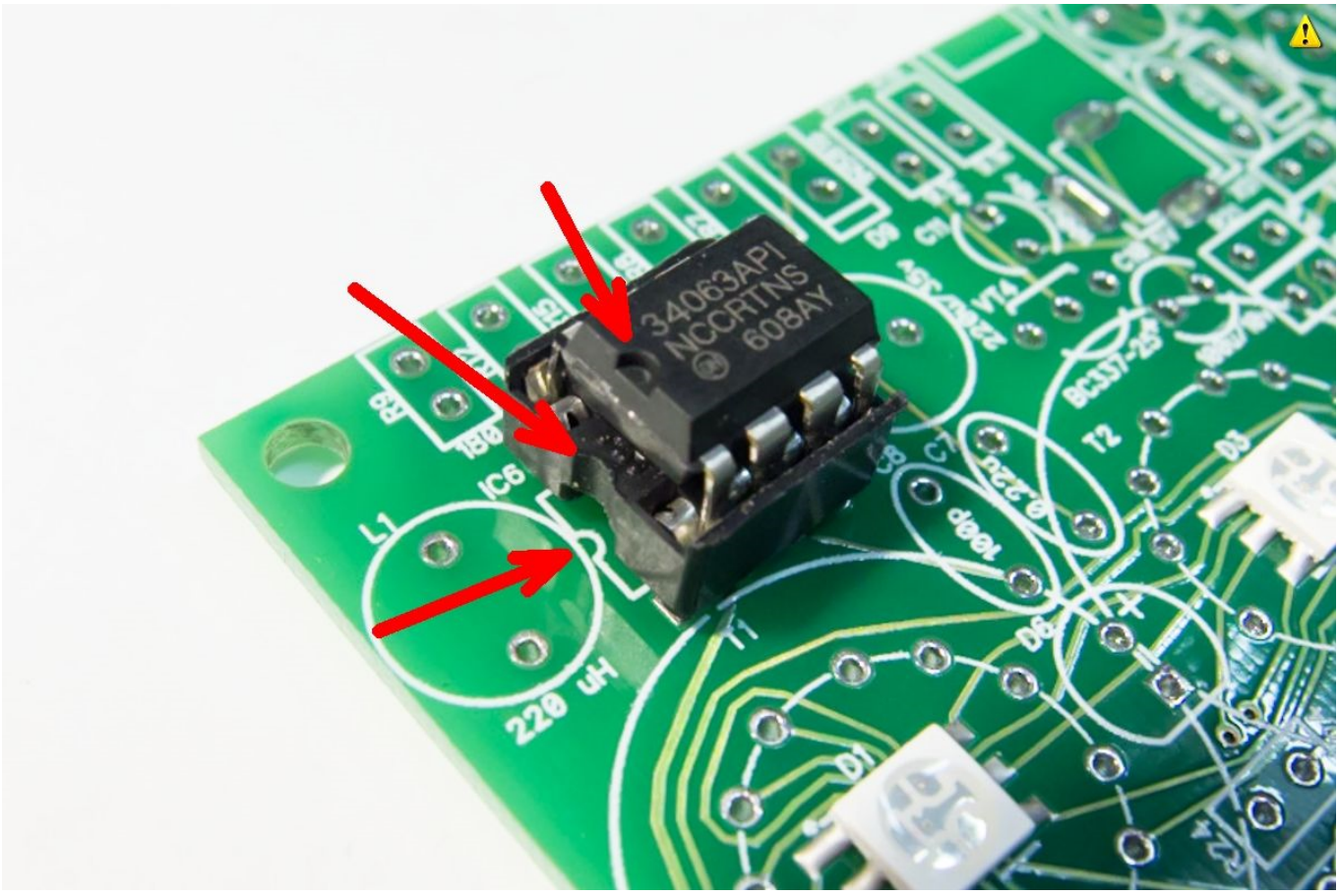



3
2
1
S3
R19
C1
R10
12k
C2
100u/10v
300k
IC1
0,22u
DS18B20-PAR
R3
4,3k
U5
GND
U3
T4
+2

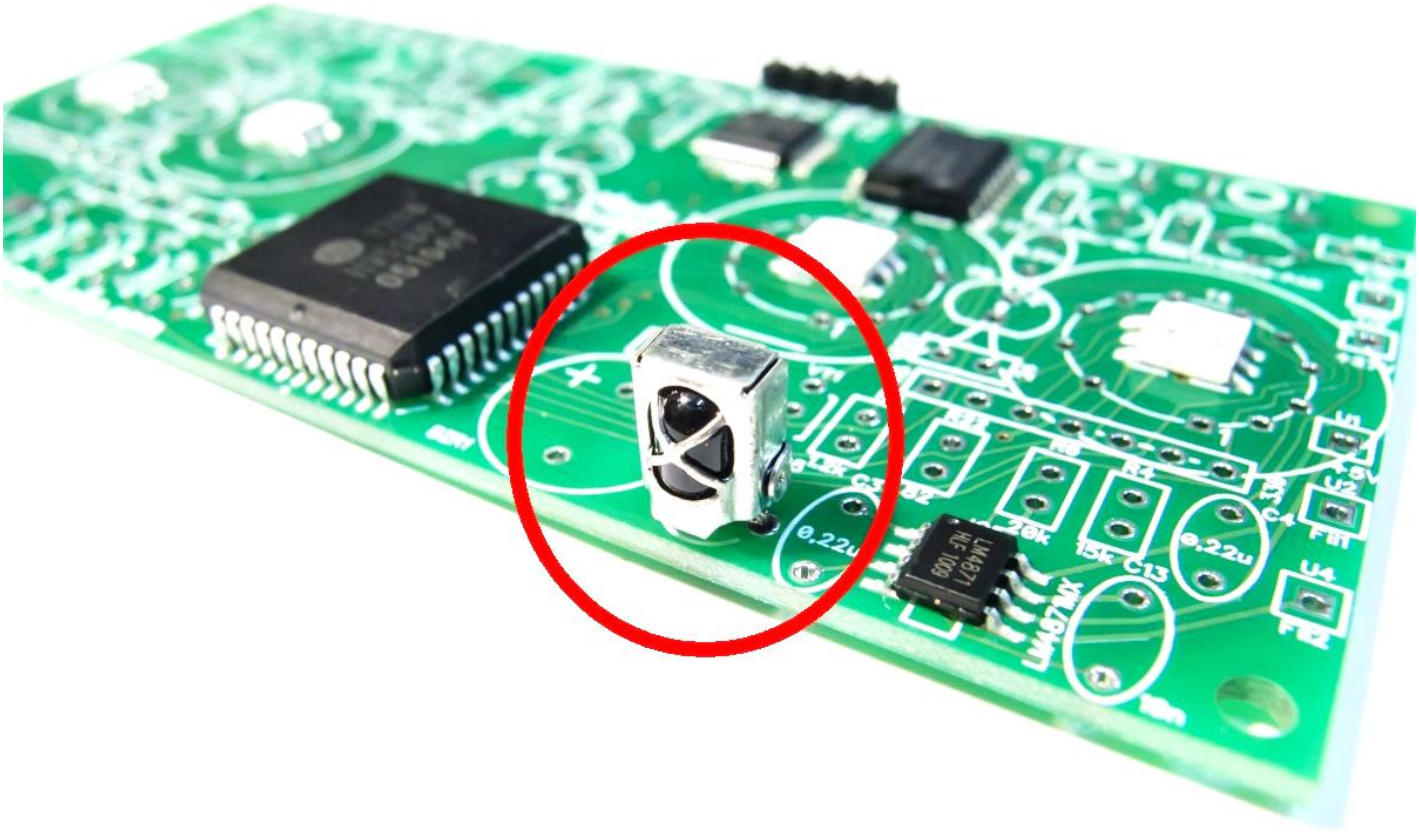

DALLAS
18B20
1702C4
+233AA
1
2
3



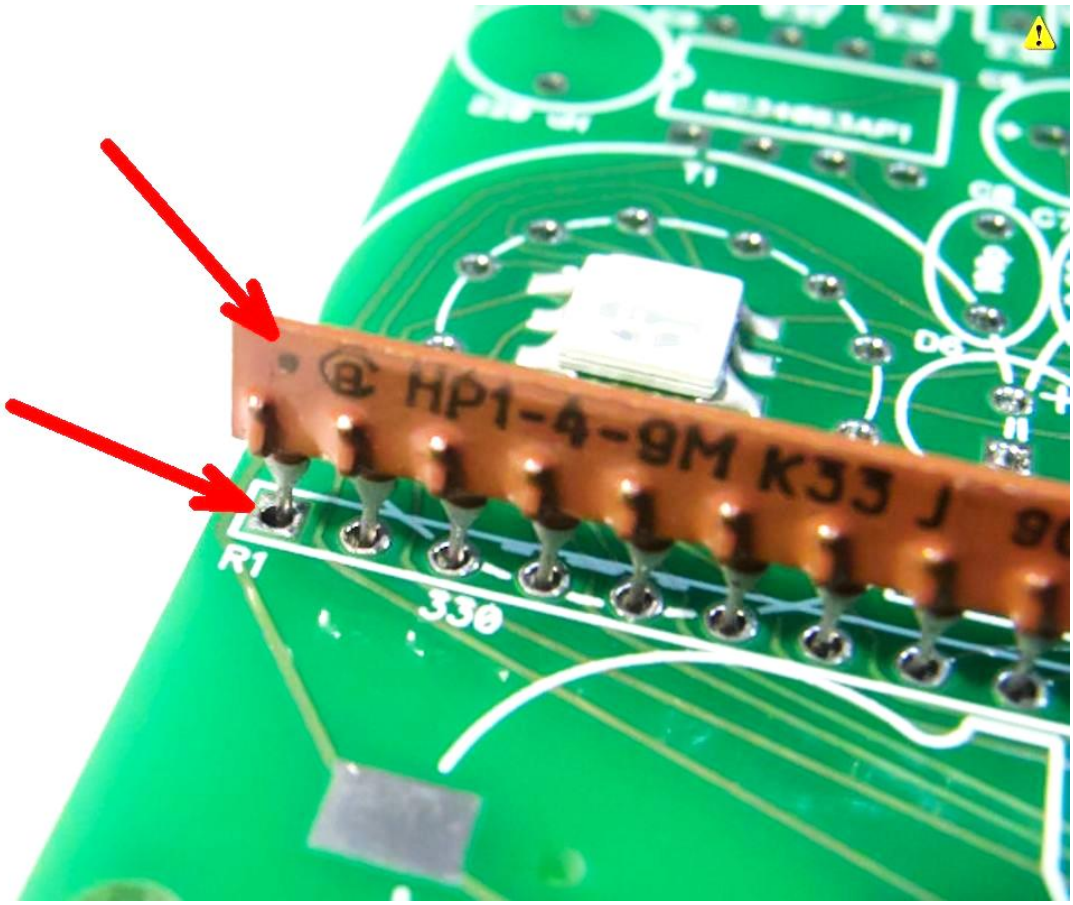
13) Place sockets for IC. Insert MC34063 chip at the end of assembling process:



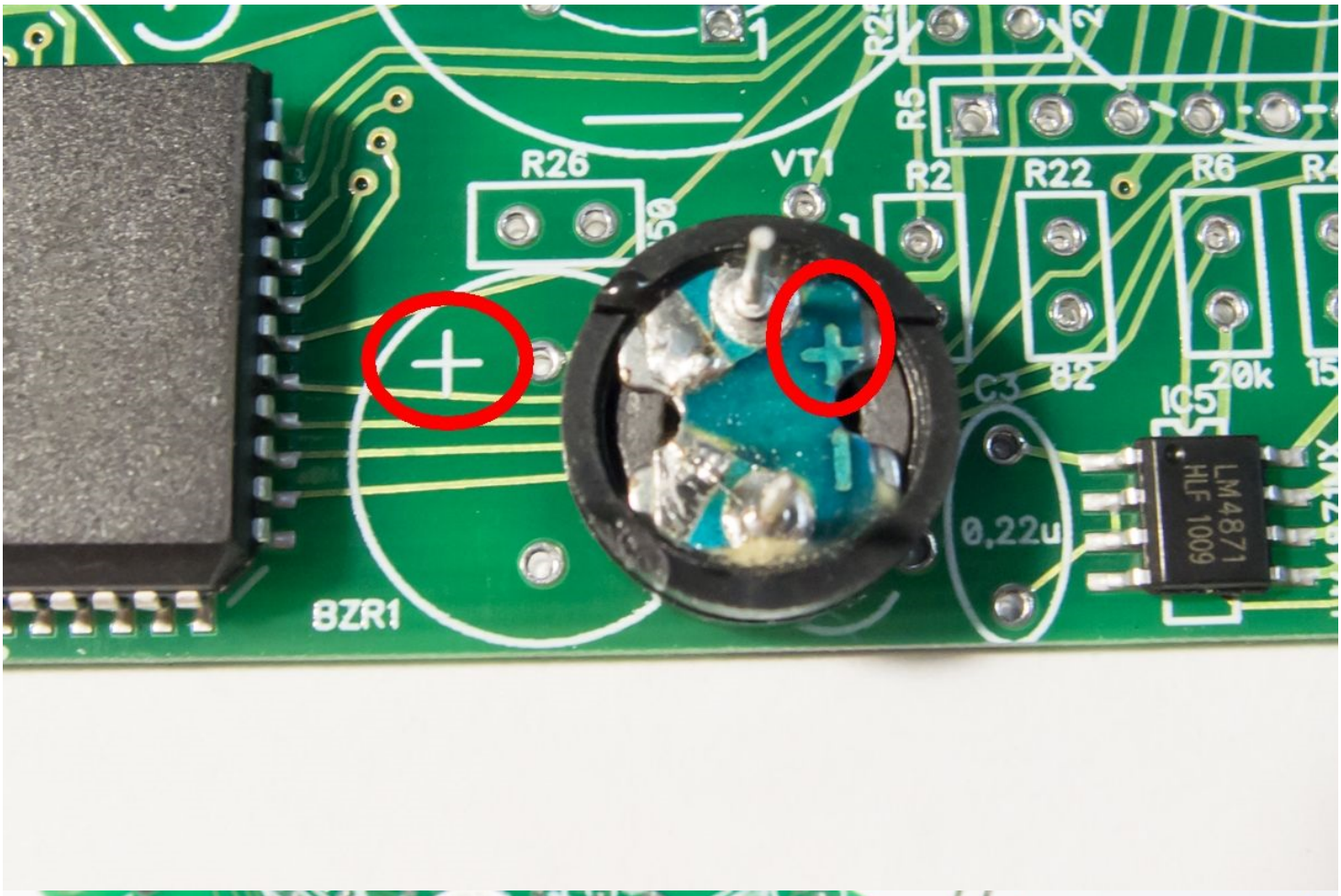
14) Install Infrared receiver:

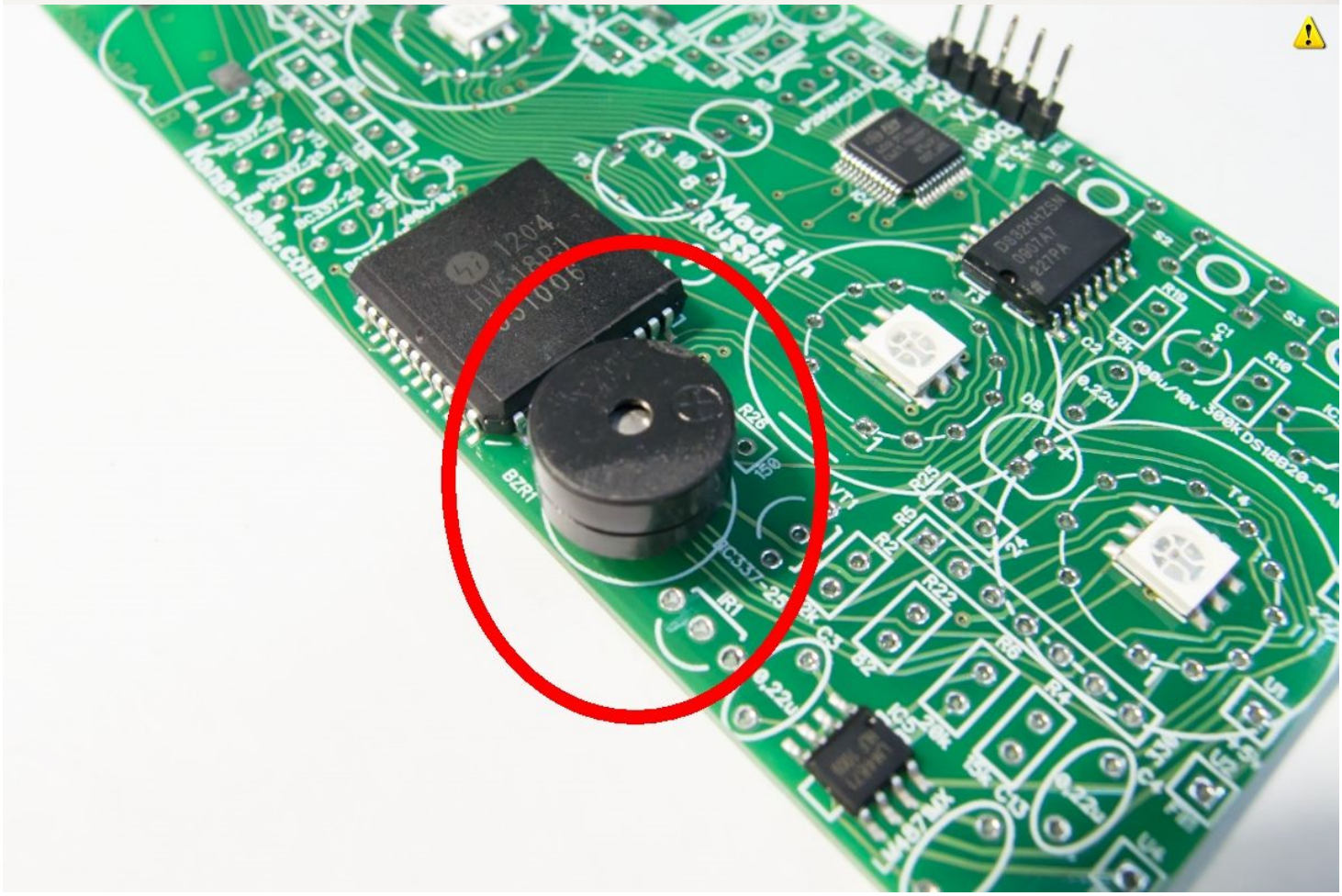


15) Place resistor array. Common pin to square pad!

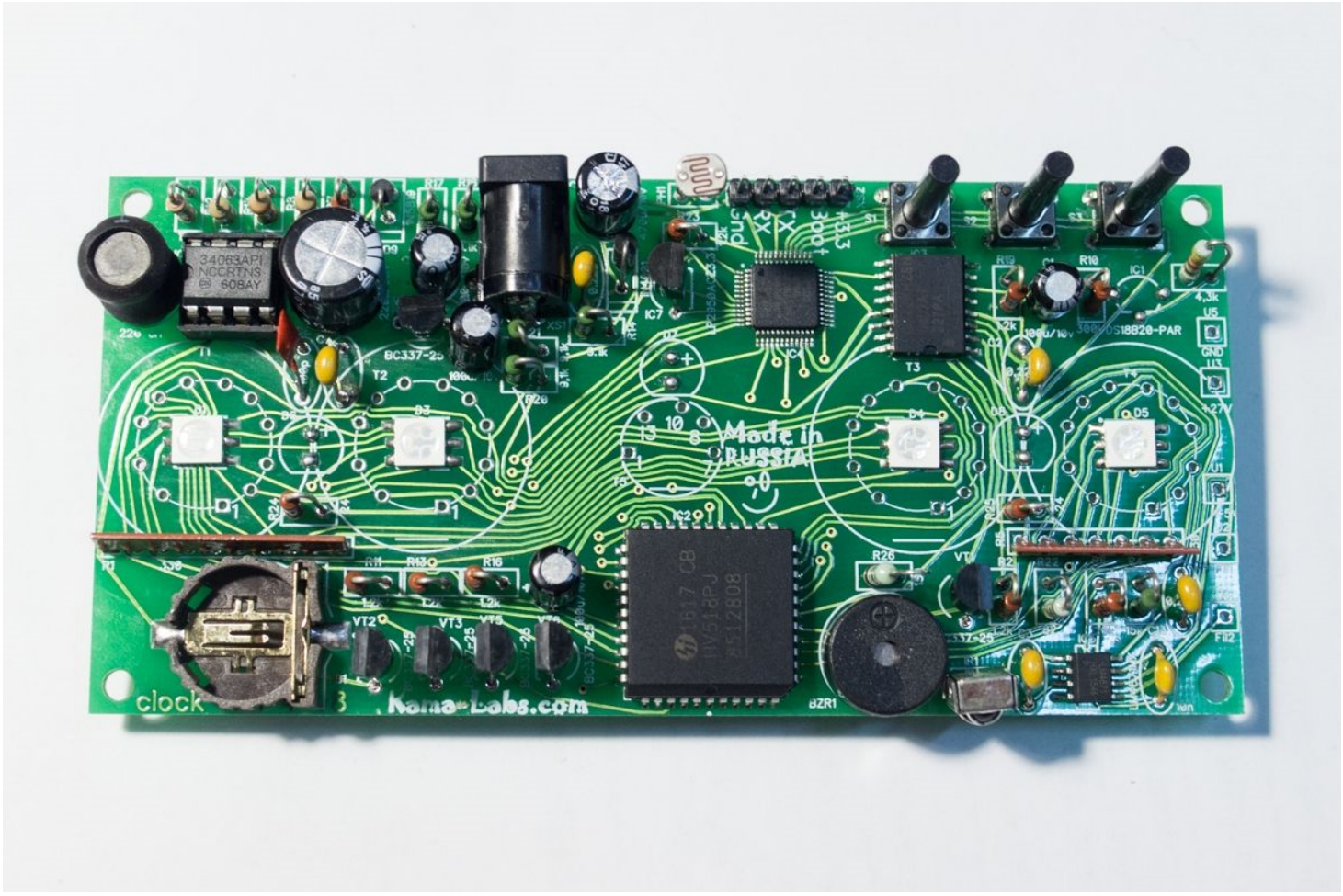


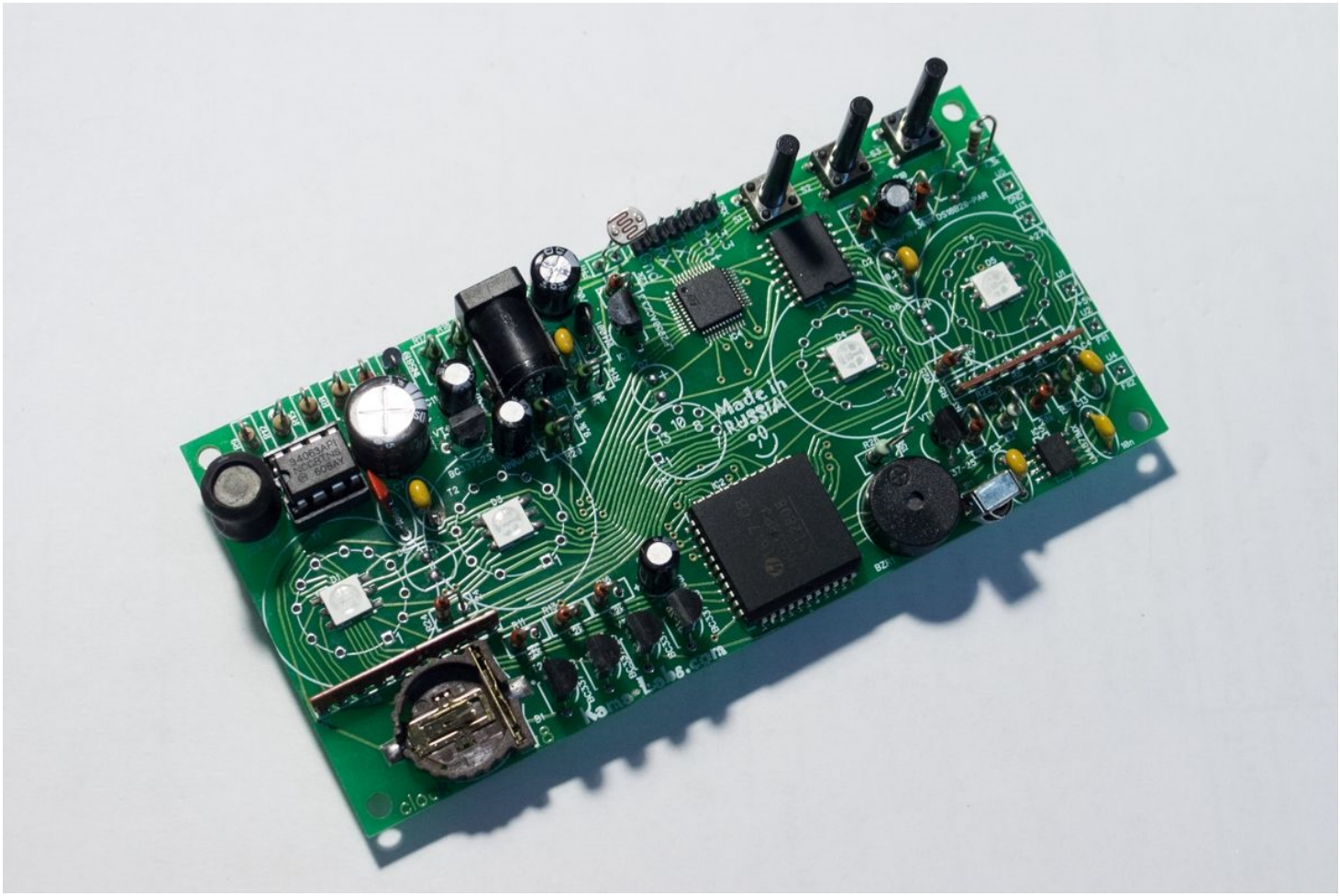
16) Install buzzer:

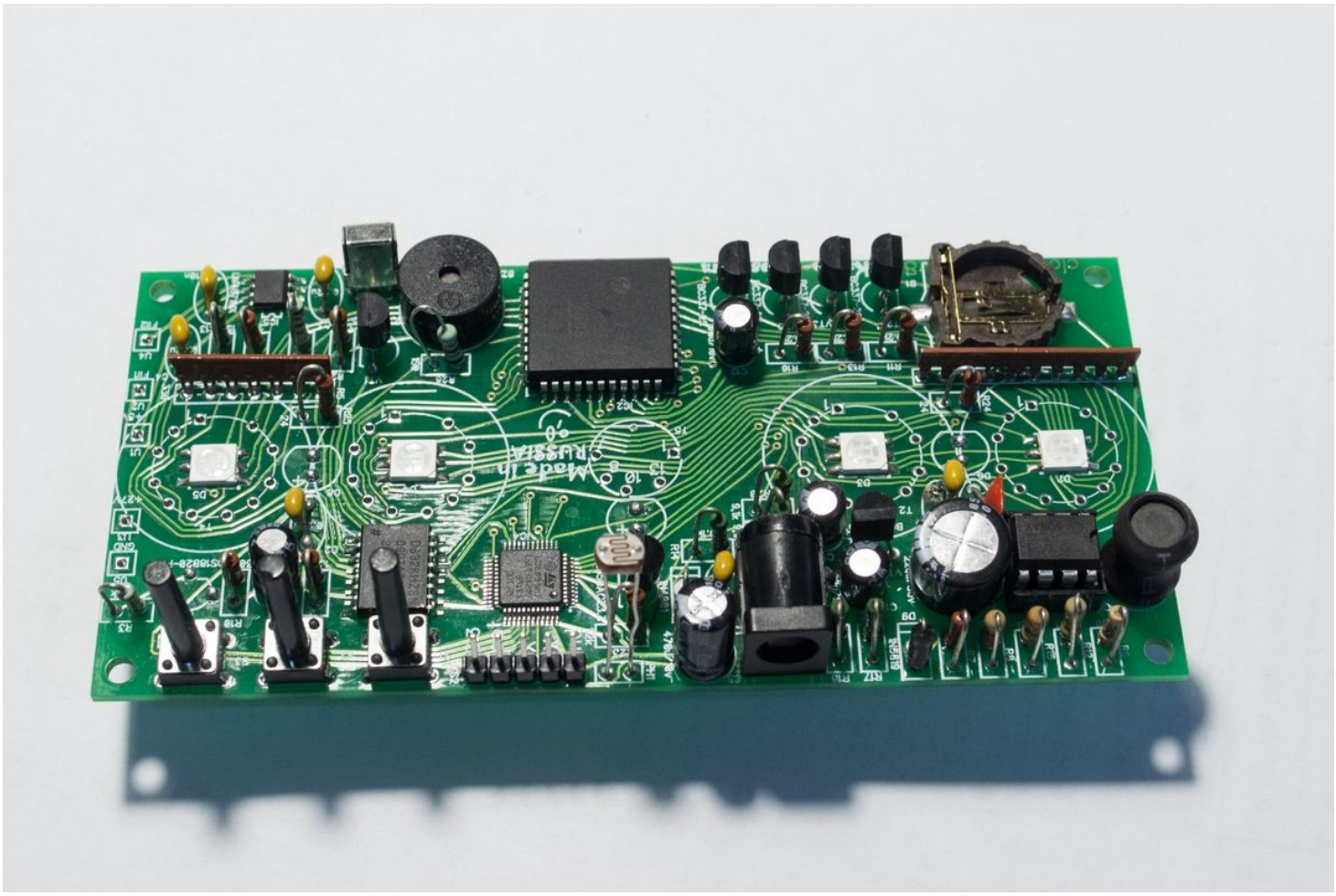


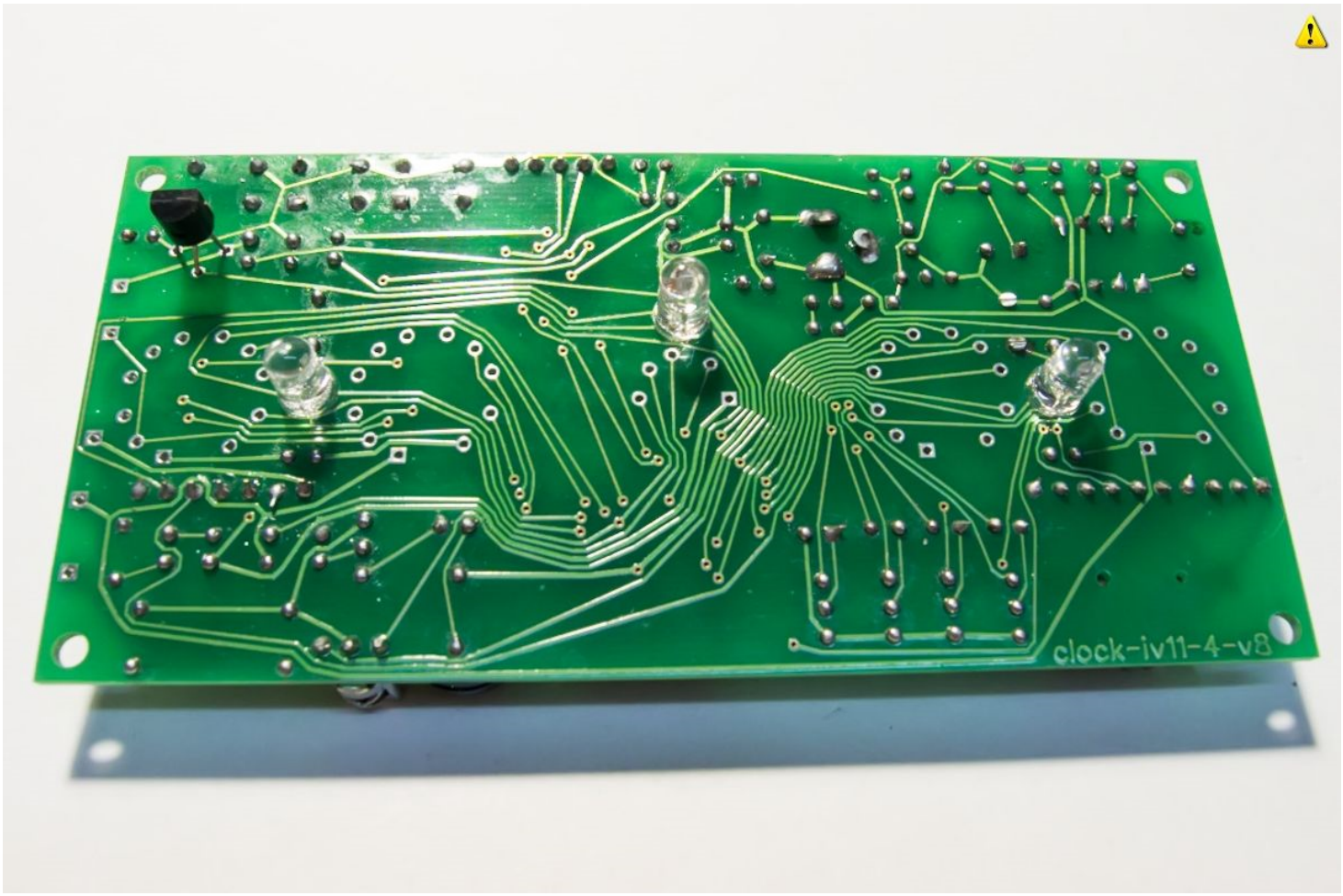


17) After all, your clock should looks like on photo:

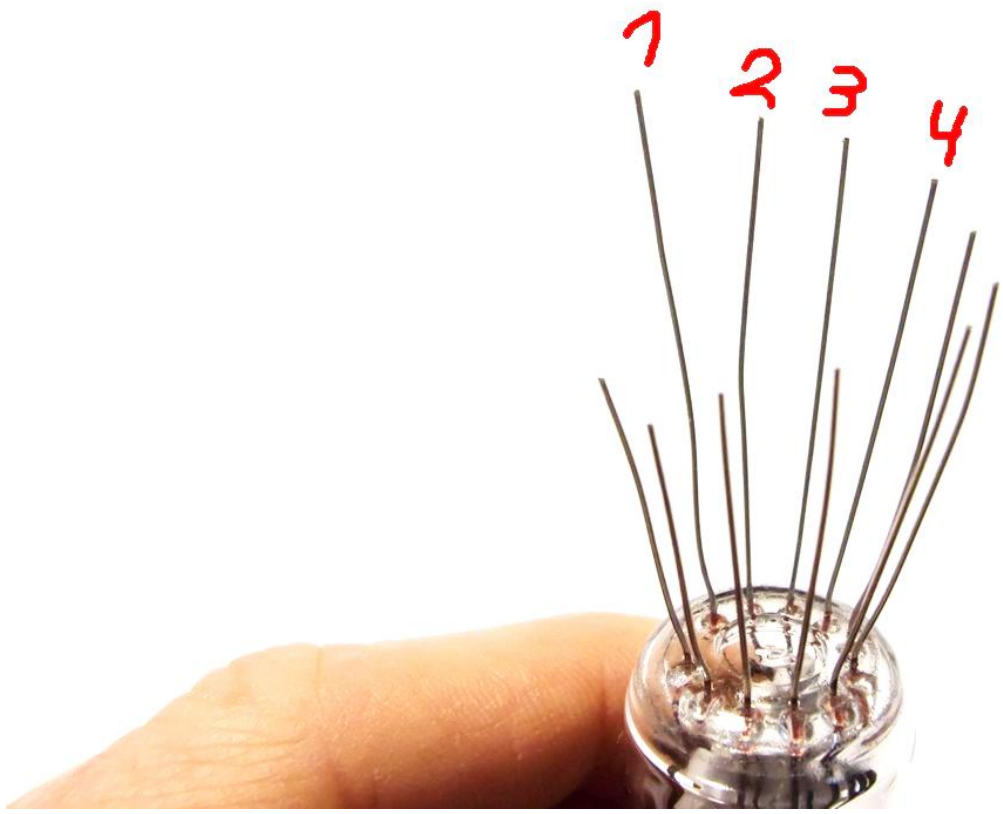


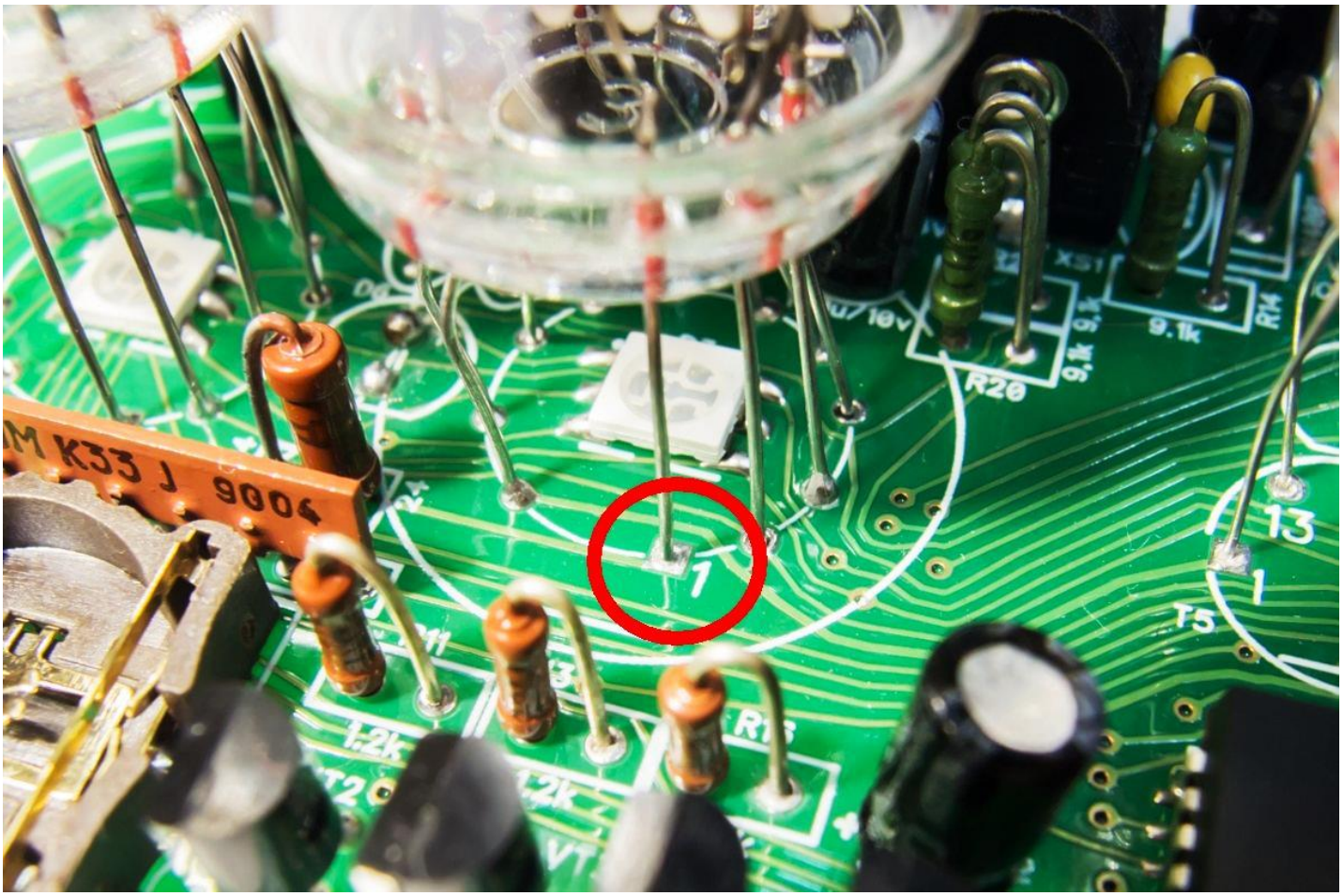


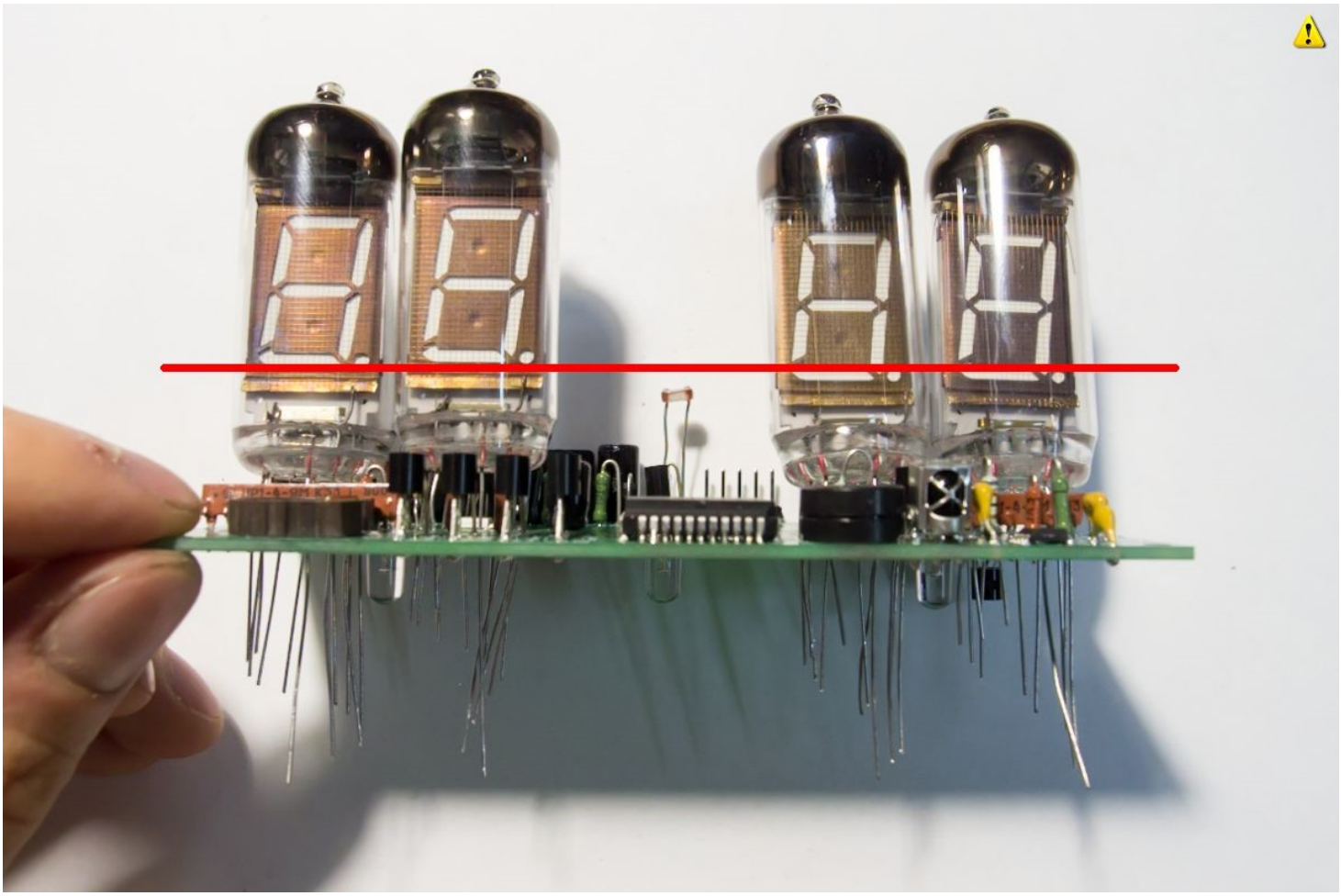



clock-iv11-4-v8

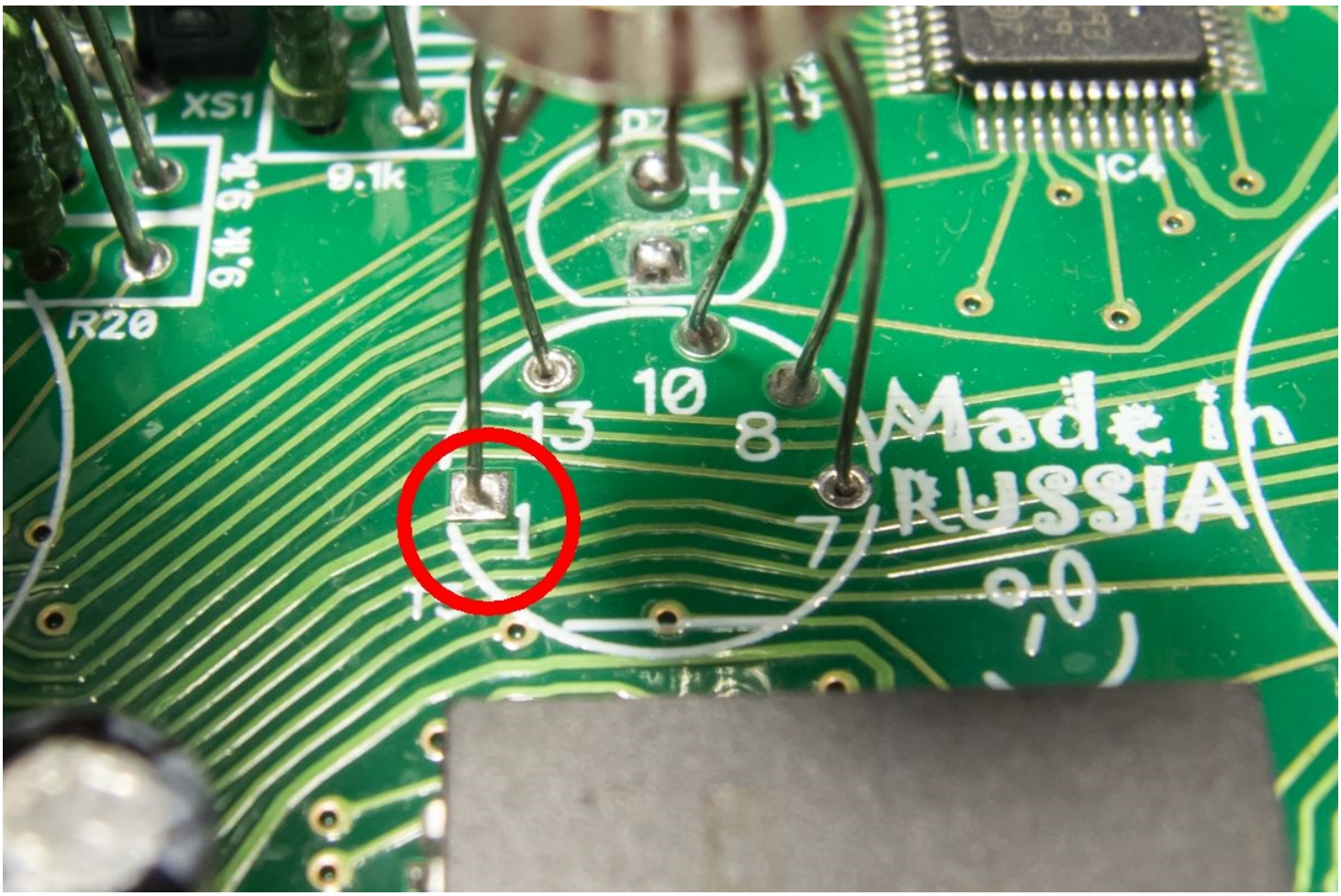
18) Prepare and install all IV-11 tubes. You can see that pins of tubes cuts spiral already. The longest pin – the first pin:

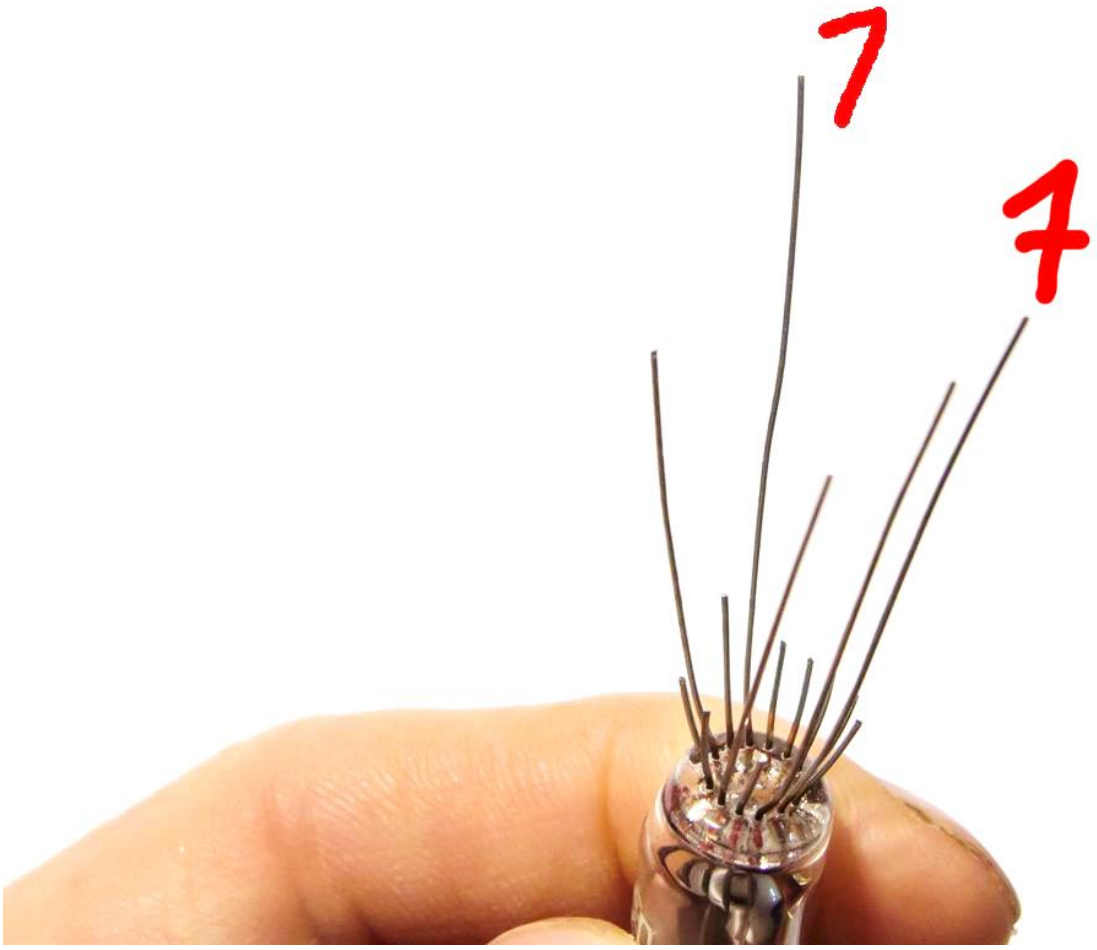






19) Place IV-1 tube. Pins of tubes cut spiral already too:

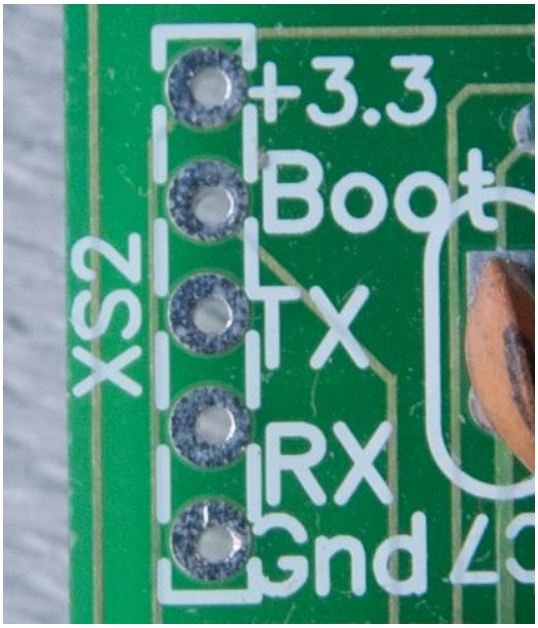




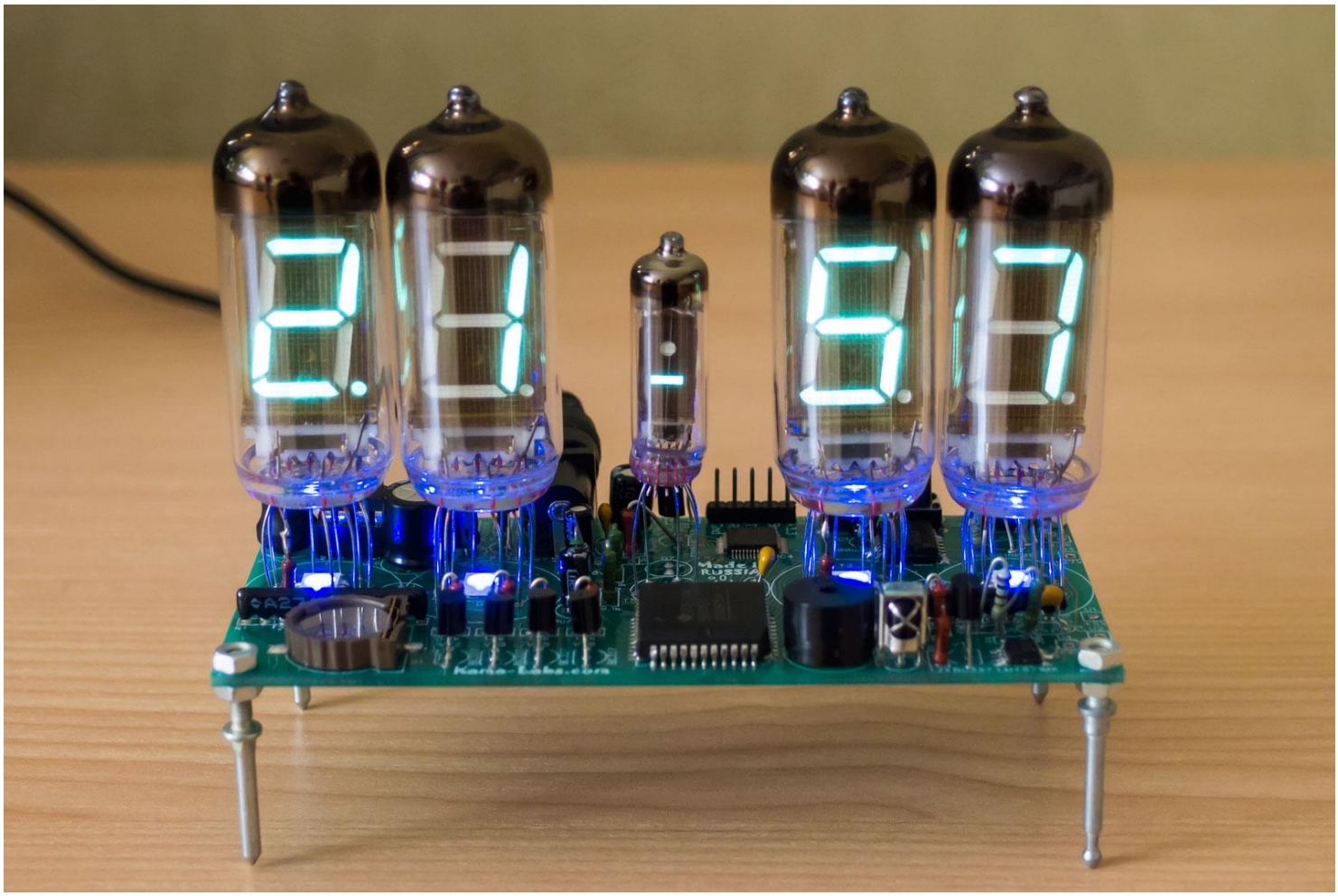
20) Now check the resistance between GND and +3.3V pins of XS2 again. It is should be ~3kOhm. However, not lower 1 kOhm.

21) Then plug 5V DC adapter. The microcontroller starts work and you will hear short melody.

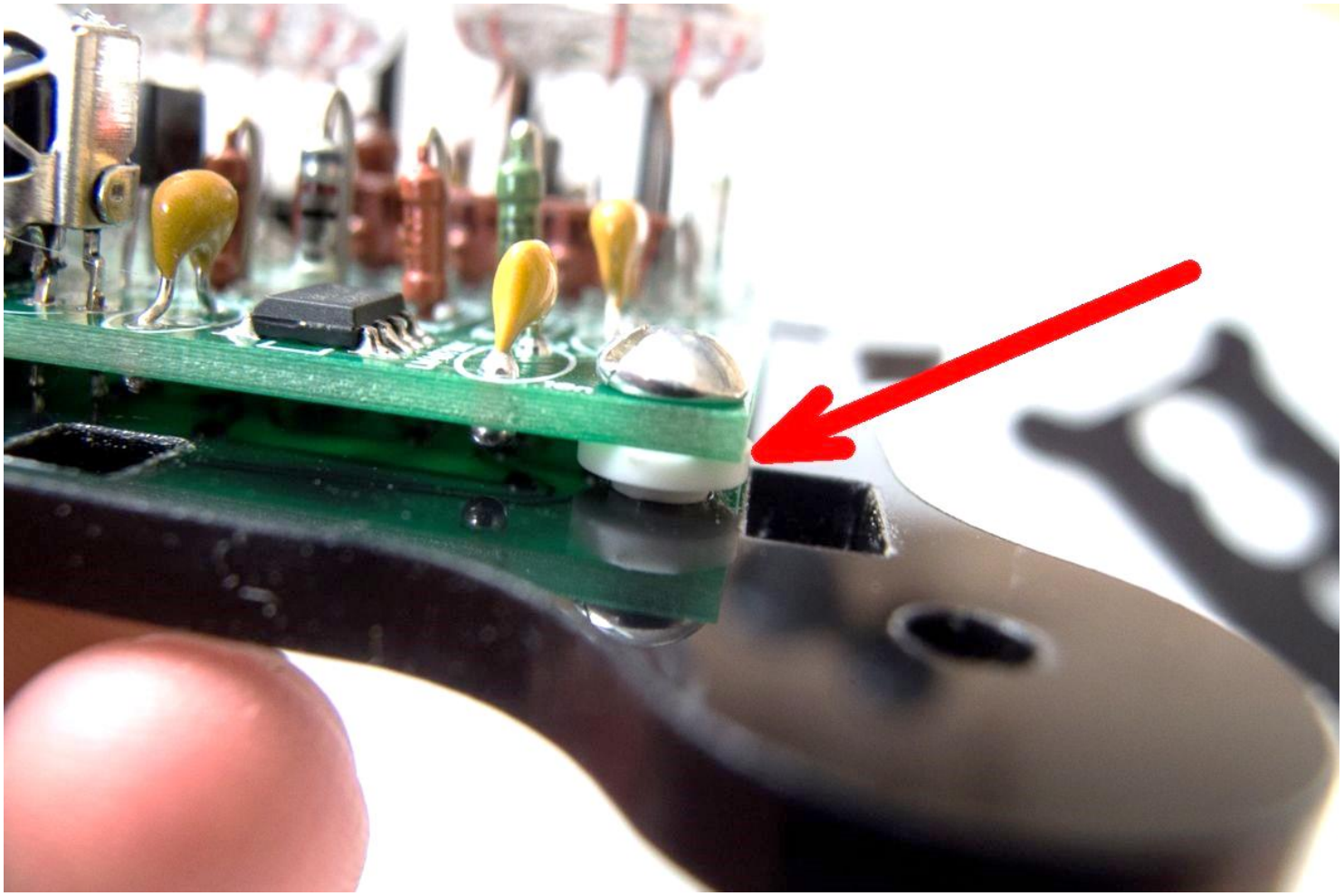
If it not happens, check the 3.3V on XS2 between GND and +3.3 pins.



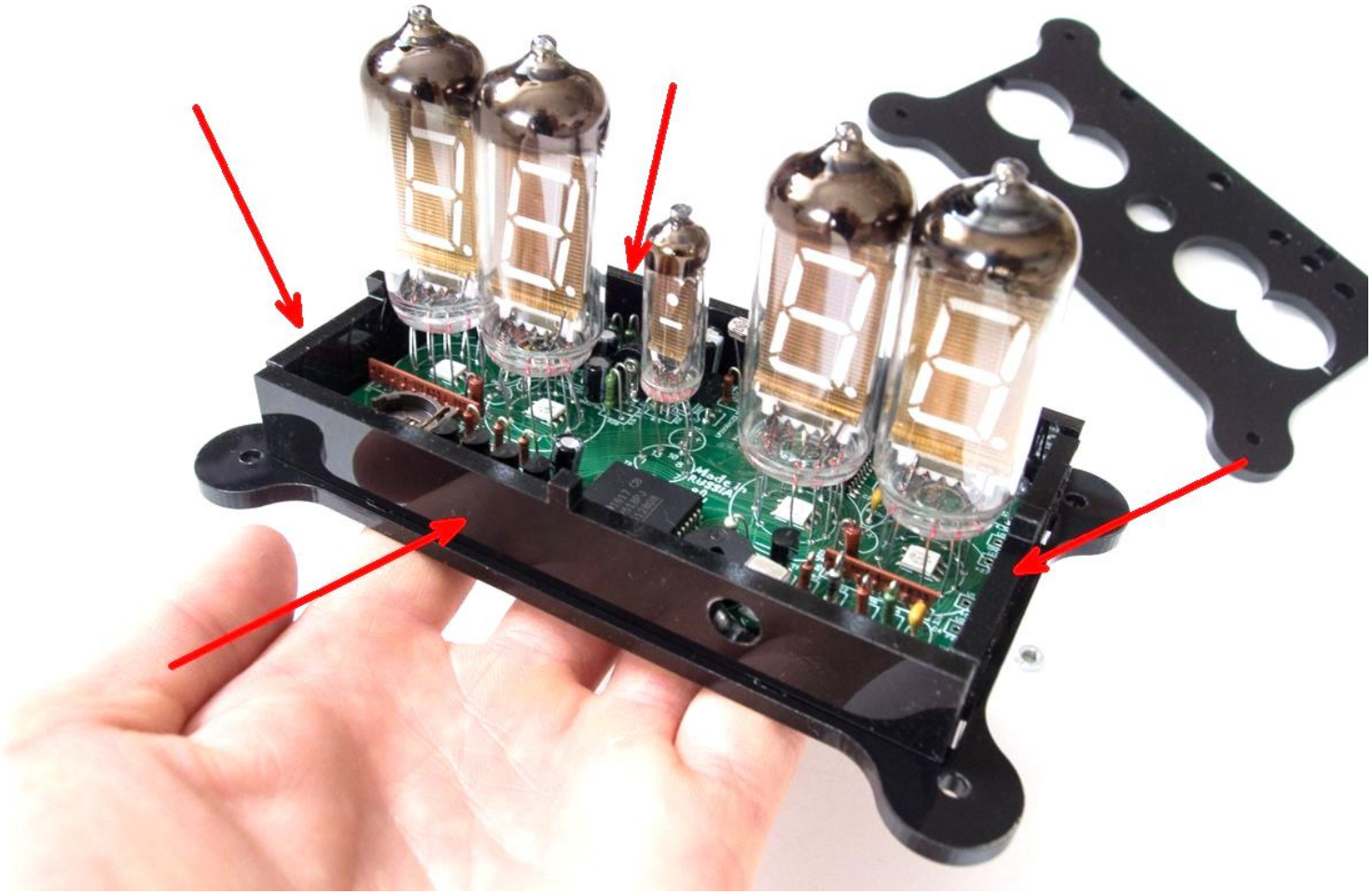
22) After all clock should work.



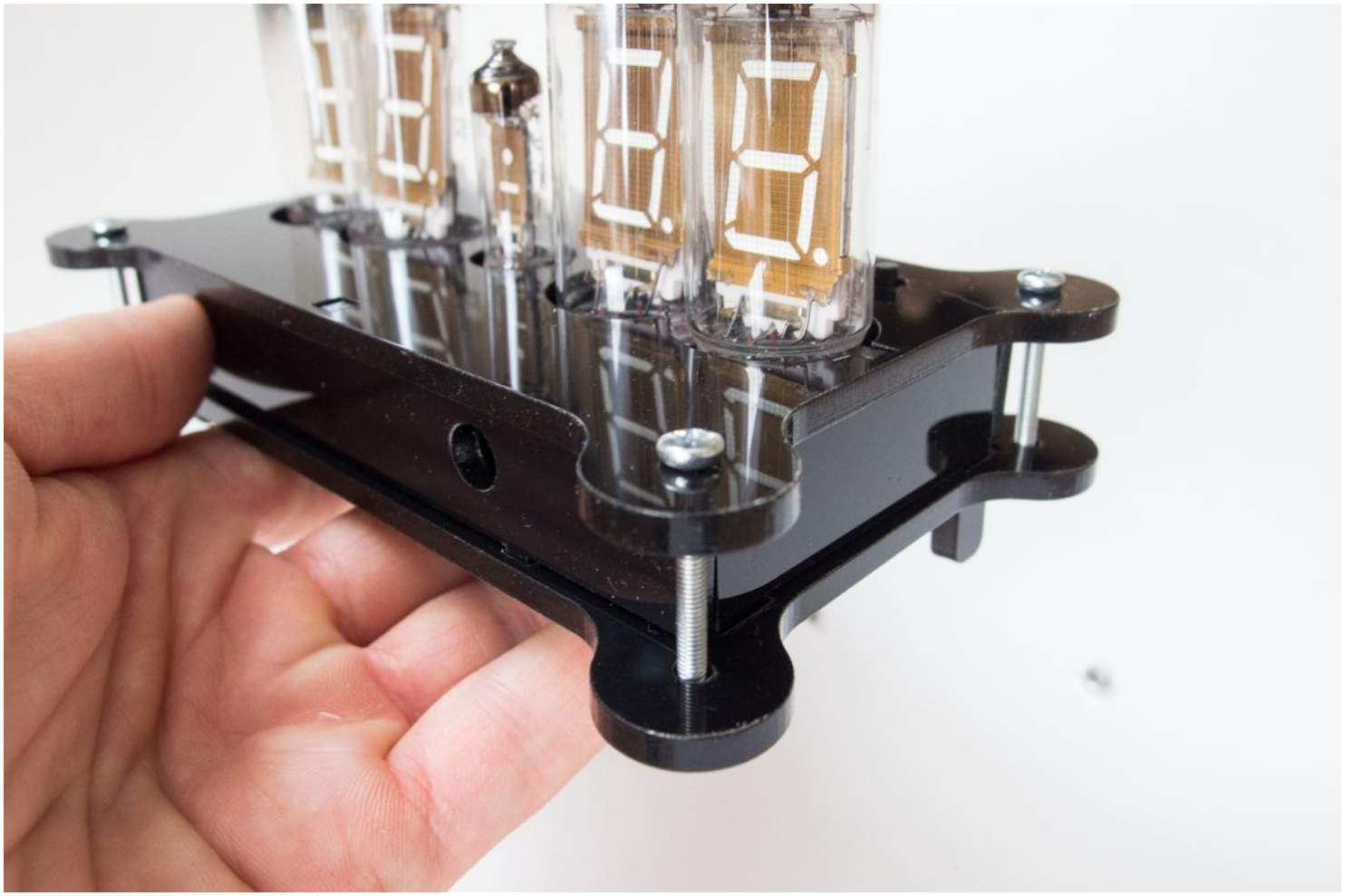
23) Assembling of plastic case. Firstly, remove protection film. Then, take bottom panel in hand and put clock above.



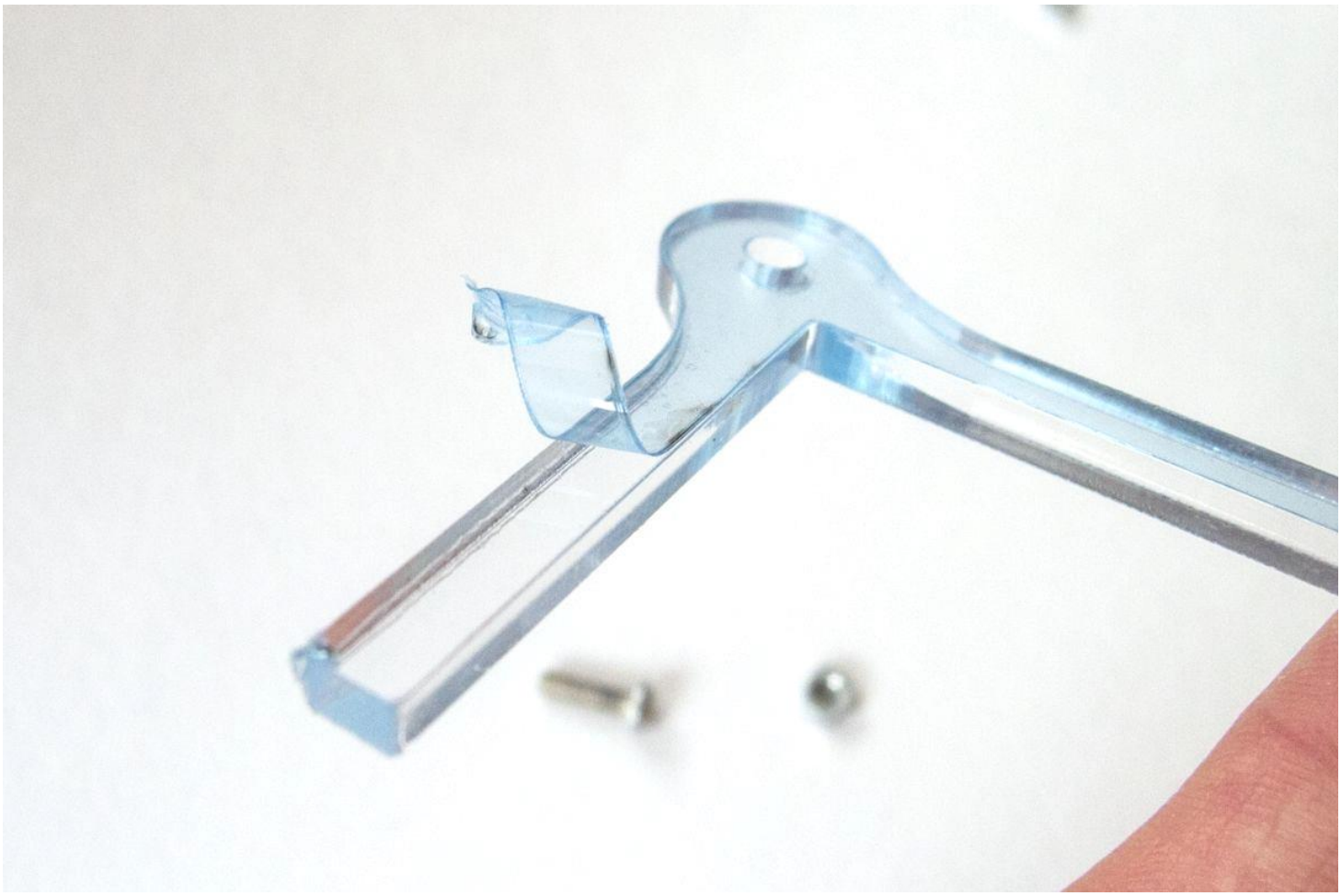
24) Then insert back, front and side panels:

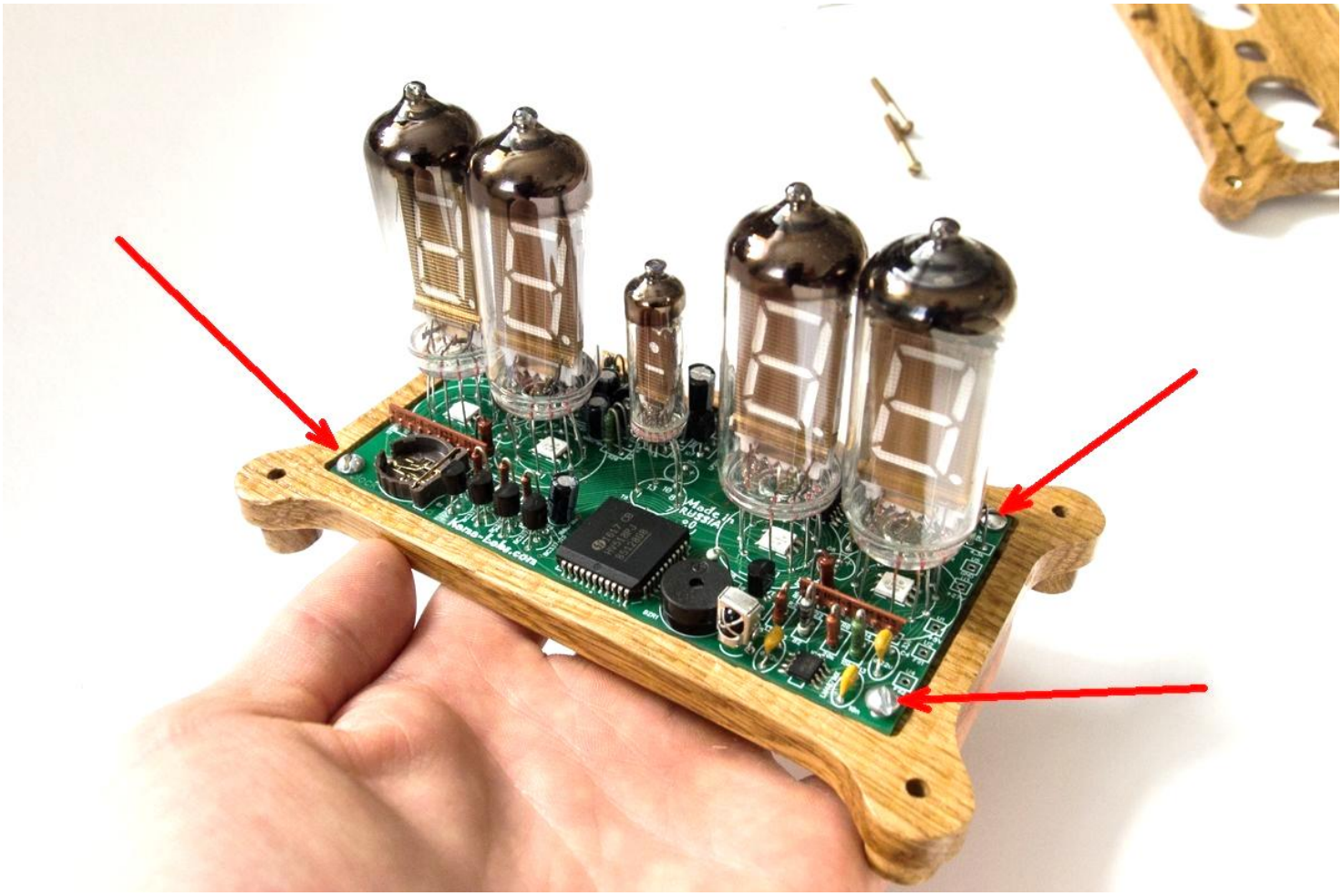


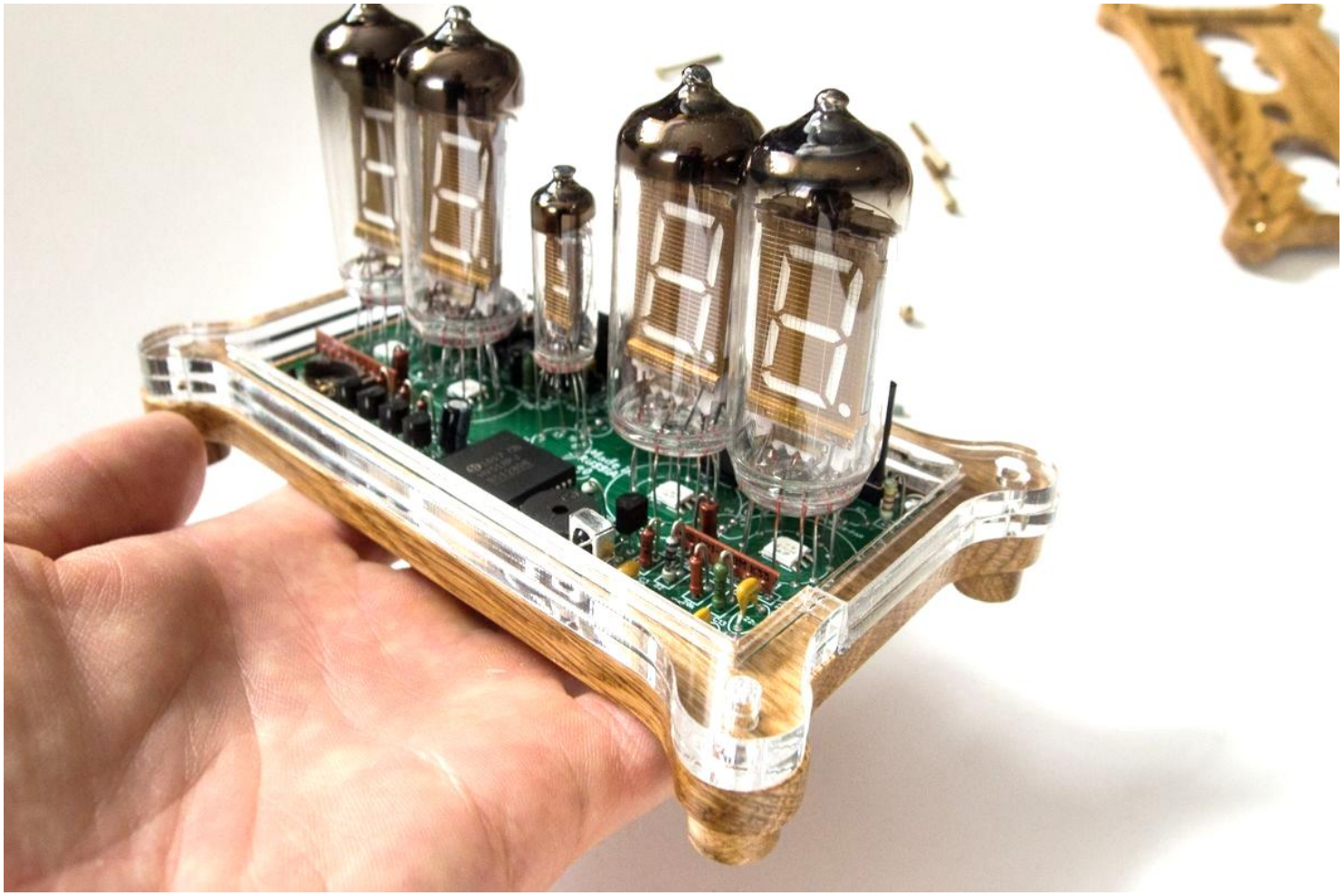
25) At last, insert top panel and tighten the nuts.

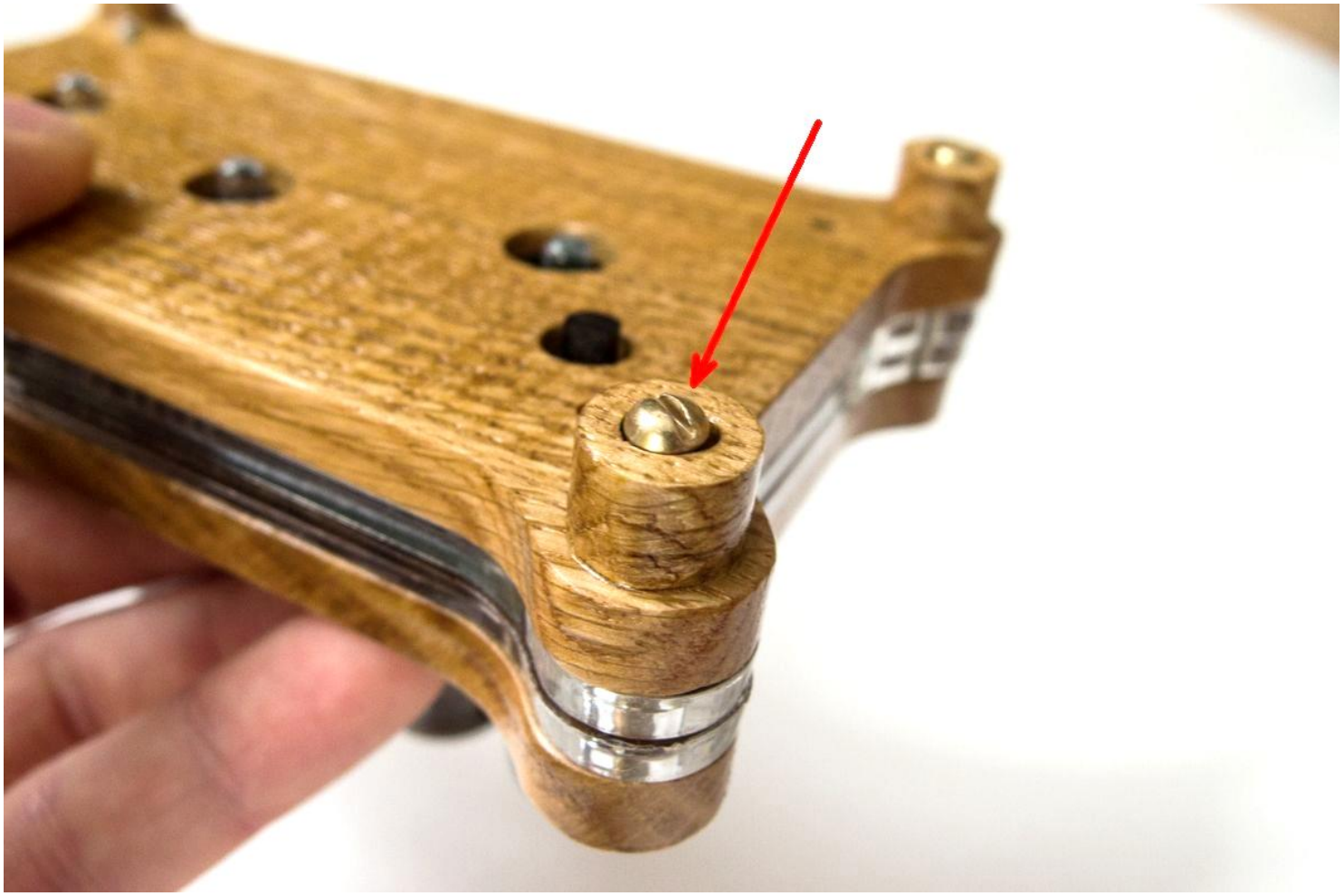


26) Assembling wooden case:









CONGRATULATIONS!

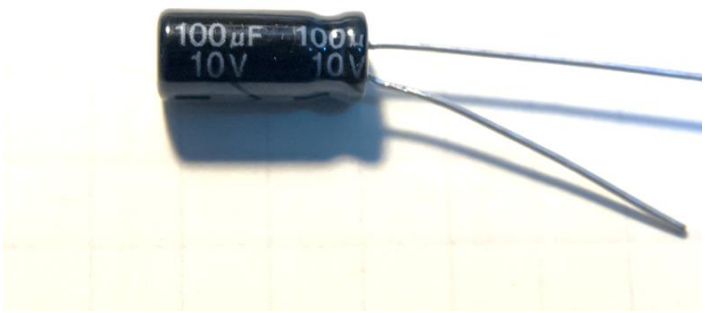
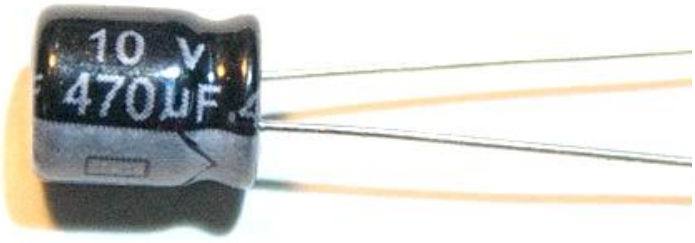
(^_^)

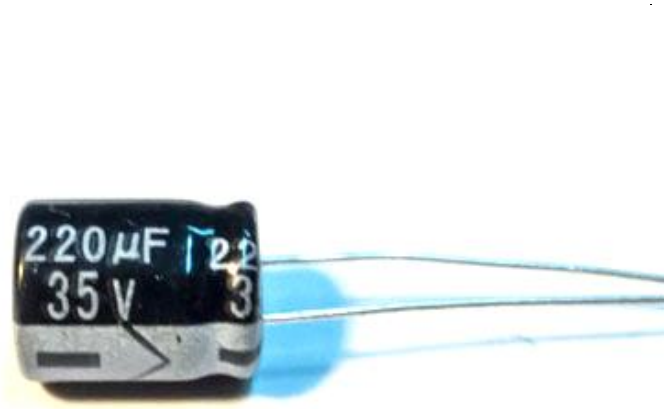
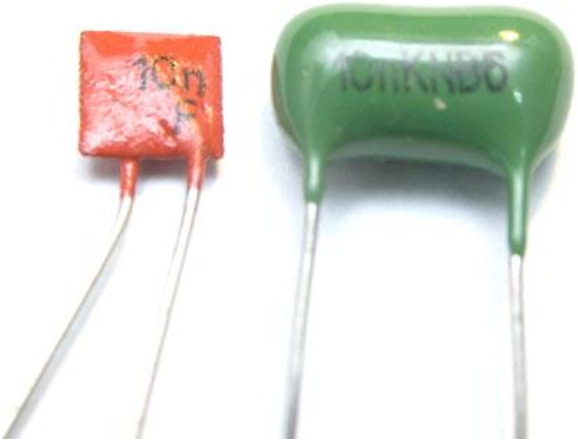
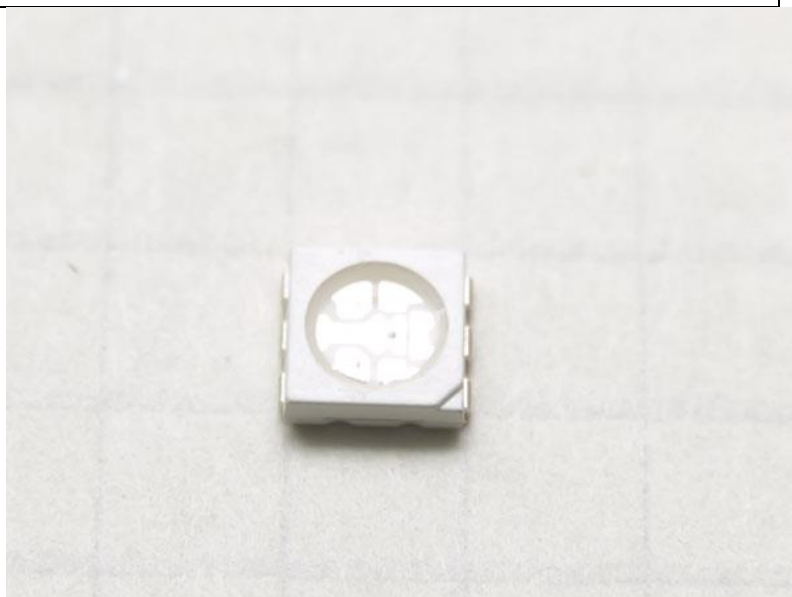
SPECIFICATION

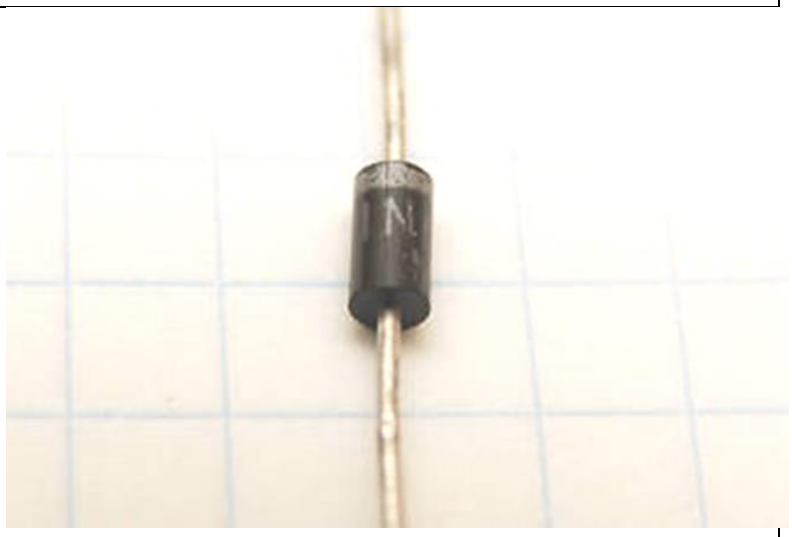
Please note, that elements in kit can be a little different. If you doubt value of element, check it with multimeter.

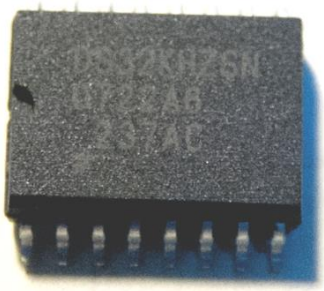
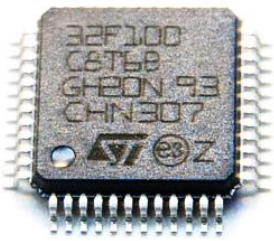
IF VALUE OF ELEMENT IN SPECIFICATION AND ON PCB IS DEFFERENT, PLEASE USE VALUES FROM SPECIFICATION or SCHEMATIC.

Label	Value	Qty	Photo
B1	Battery CR1220		
BZR1	Buzzer		

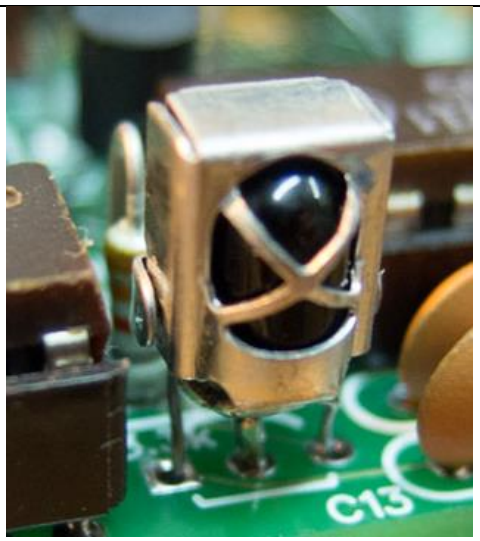
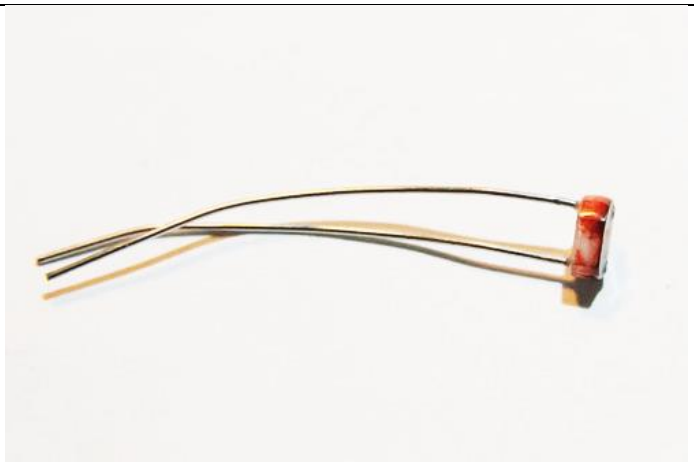
C1, C10, C11, C12	100u/10v	4	
C2, C3, C4, C7, C9	0.22u	5	
C5	470u/10v		

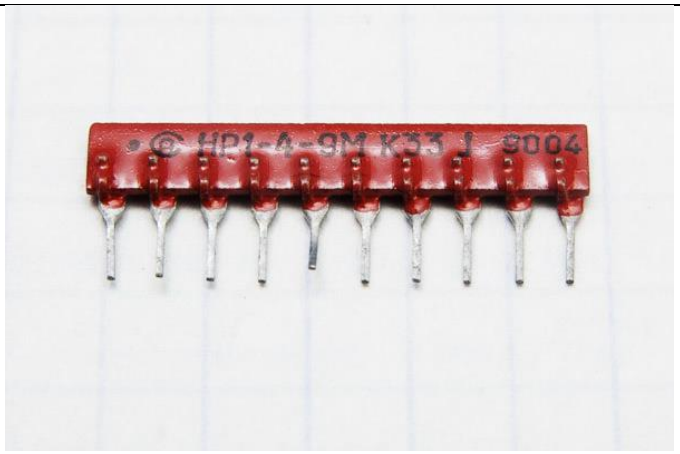
C6	220u/35v		
C8	100p		
C13	10n		
D1, D3, D4, D5	Led RGB 5050	4	

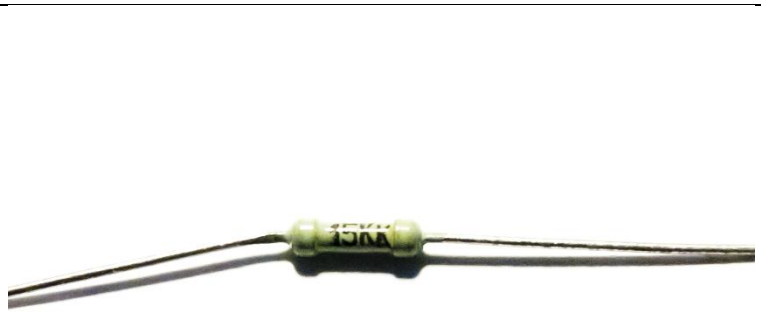
D2	1N4001		
D6, D7, D8	LED AUTO	3	
D9	1N5819		

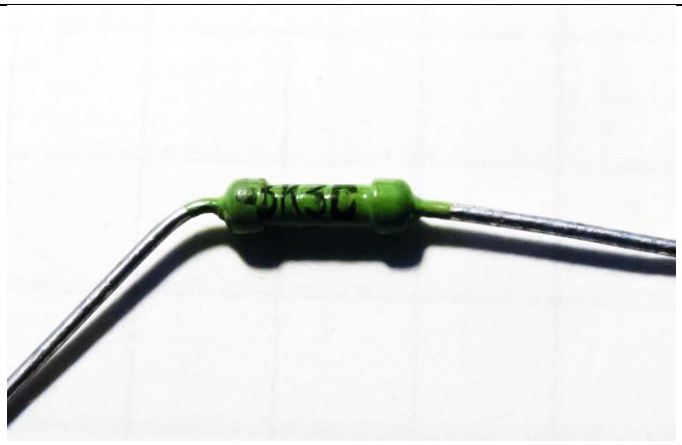
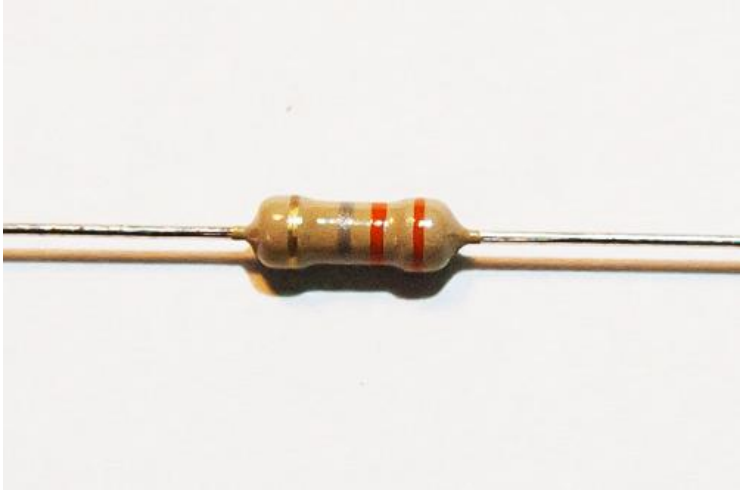
IC1	DS18B20-PAR		
IC2	HV518		
IC3	DS32kHz		
IC4	STM32F100C6T		

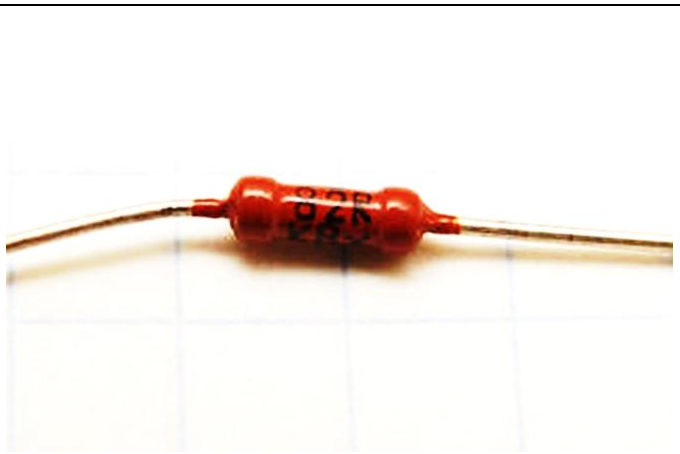
IC5	LM4871MX		
IC6	MC34063AP1		
IC7	LP2950ACZ3.3		

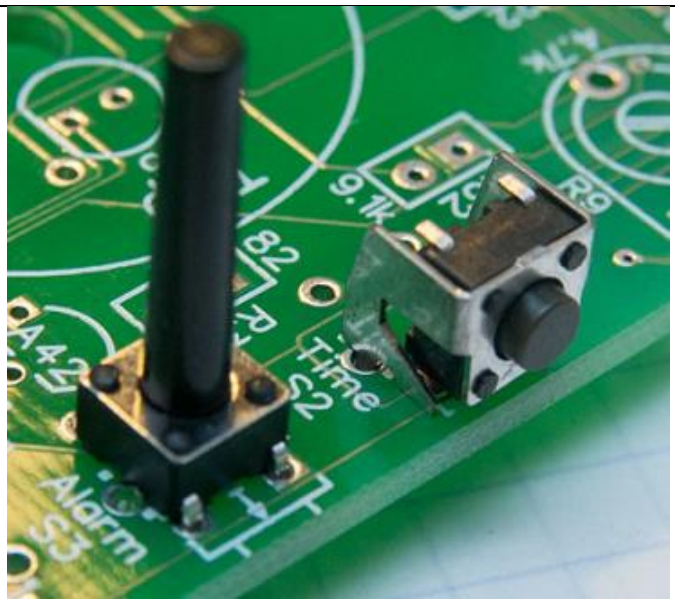
IR1	IR-sensor		
L1	220 uH		
PH1	SF2-1		

R1, R5	270 resistor array	2	
R2, R11, R13, R16, R19, R23	1.2k	6	
R3	4.3k		

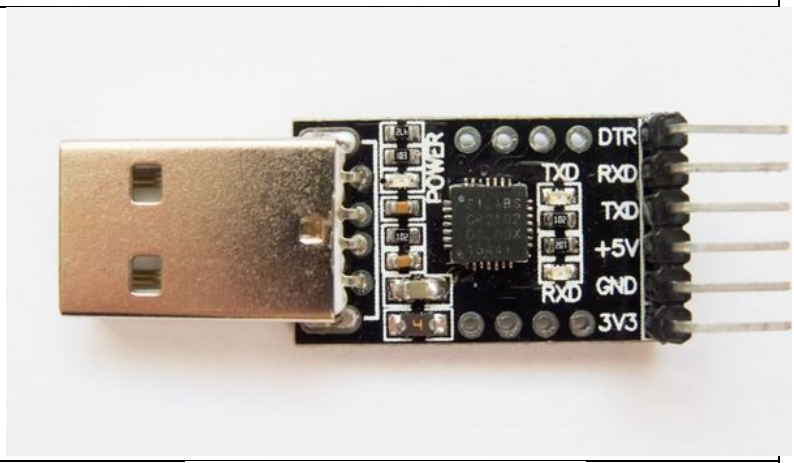
R4	15k		
R6	20k		
R7	75k		

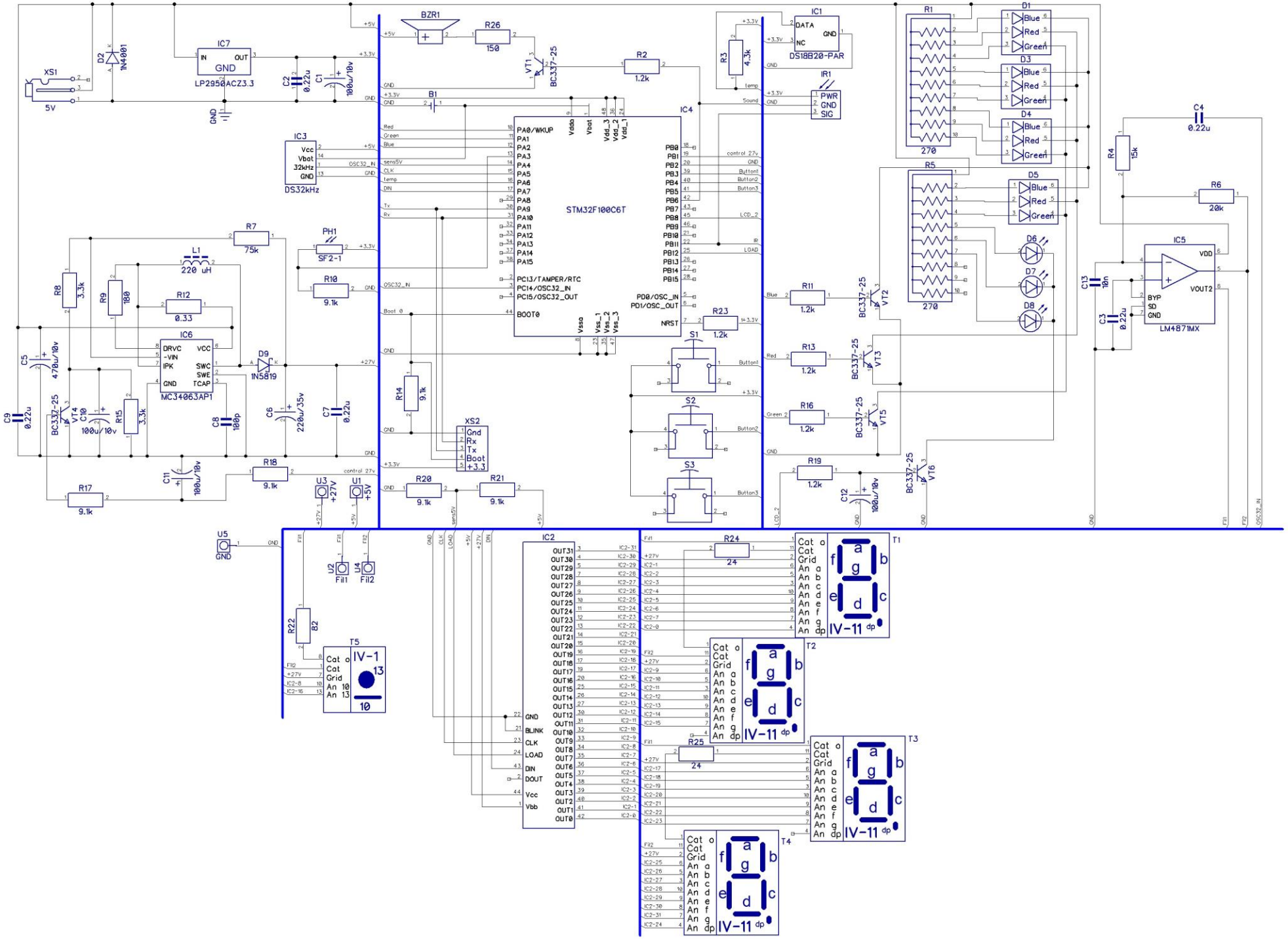
R8, R15	3.3k	2	
R9	180		
R10	~~300k~~ **9.1k**		
R12	0.33		

R14, R17, R18, R20, R21	9.1k	5	
R22	82		
R24, R25	24	2	
R26	150		

S1-S3	Кнопки средние		
T1, T2, T3, T4	IV-11 tubes	4	
T5	IV-1 tube		

VT1, VT2, VT3, VT4, VT5, VT6	BC337-25	6	
XS1	Power plug		
Battery holder			
Plastic/wooden case			

5V power supply			
USB-UART converter			
Remote control			


STM32F100C6T
MC34063AP1
DS32kHz
DS18B20-PAR
LP2950ACZ3.3
LM4871MX
BC337-25
1N4001
1N5819
SF2-1
IV-11
IV-1