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ASSEMBLY MANUAL FOR ELENA

IV-11-4 CLOCK v10

If you will have any questions, contact with me here:
info@kama-labs.com

GOOD LUCK!

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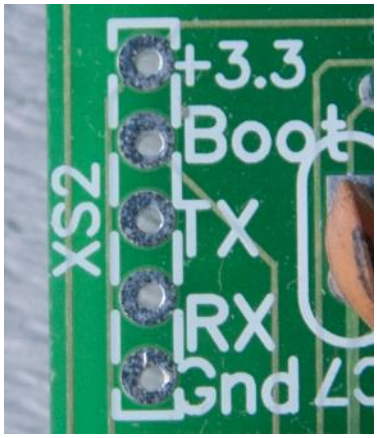
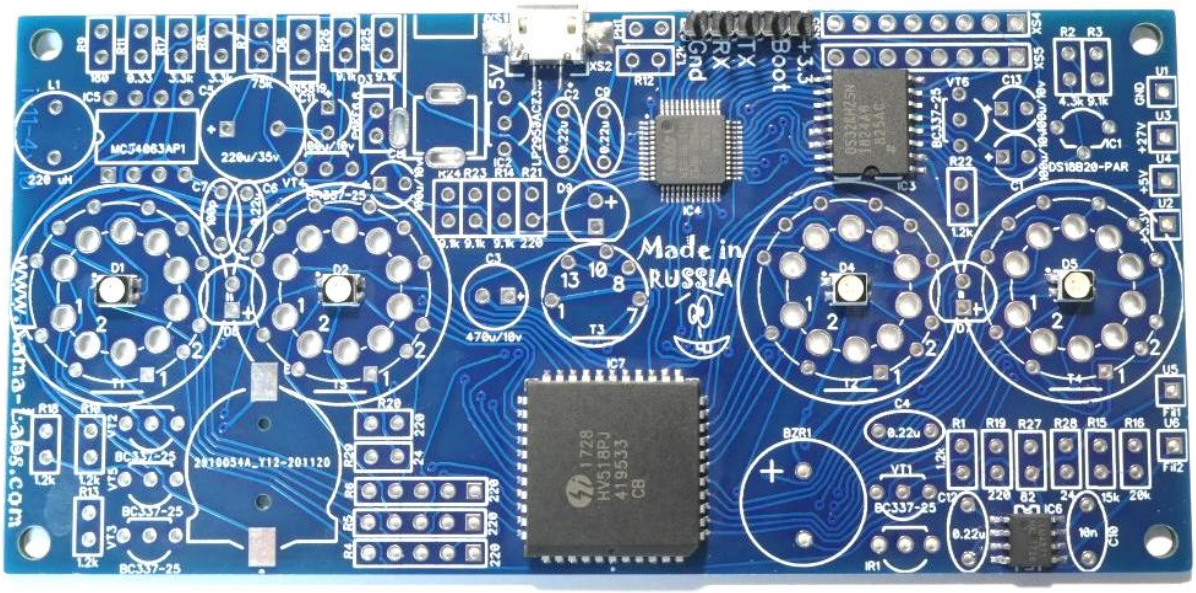
Be very careful with static electricity. If clock not work after build its mean that they been damaged by static electricity in process of assemble.

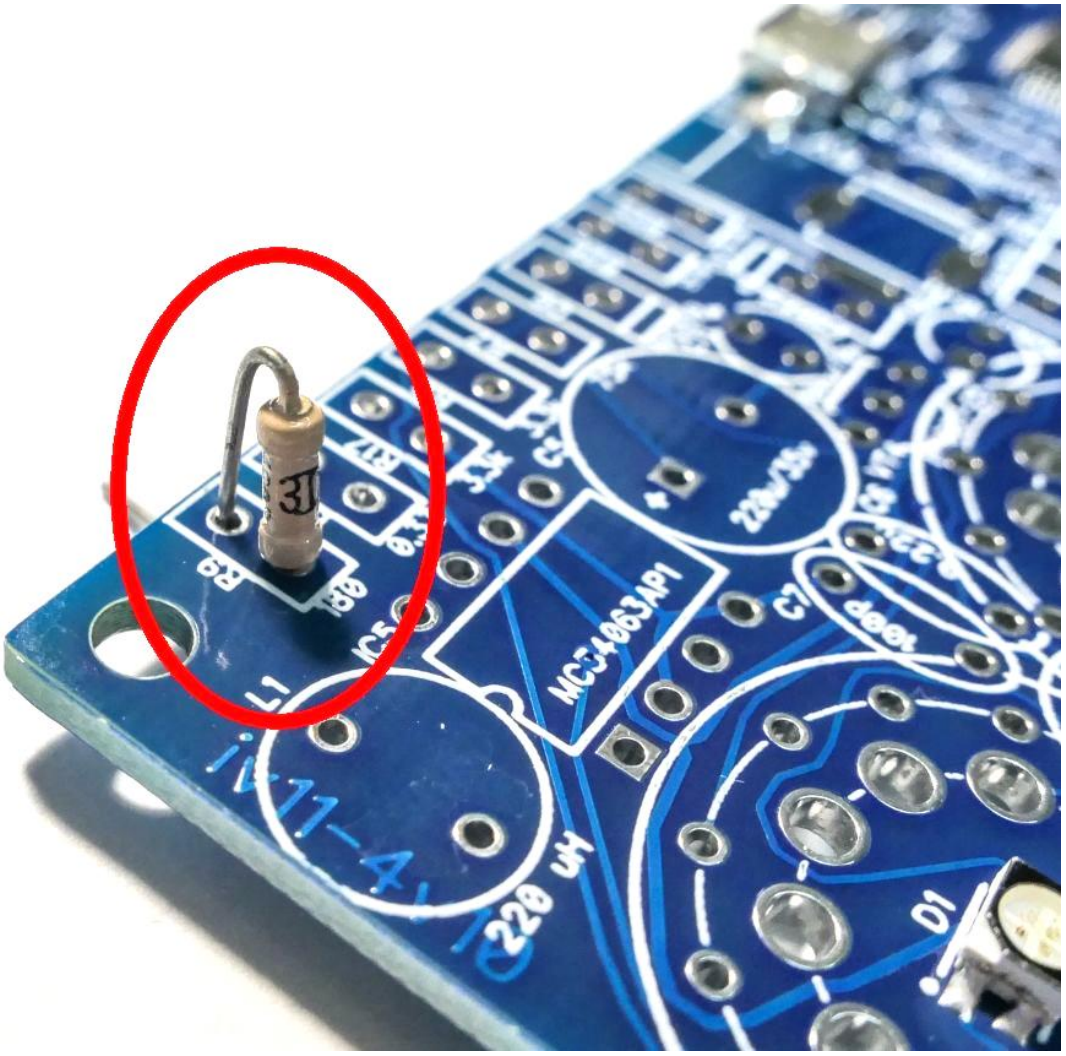
Check resistance between +3.3 and GND pins of XS2. The resistance should be not less than 1kOhm.



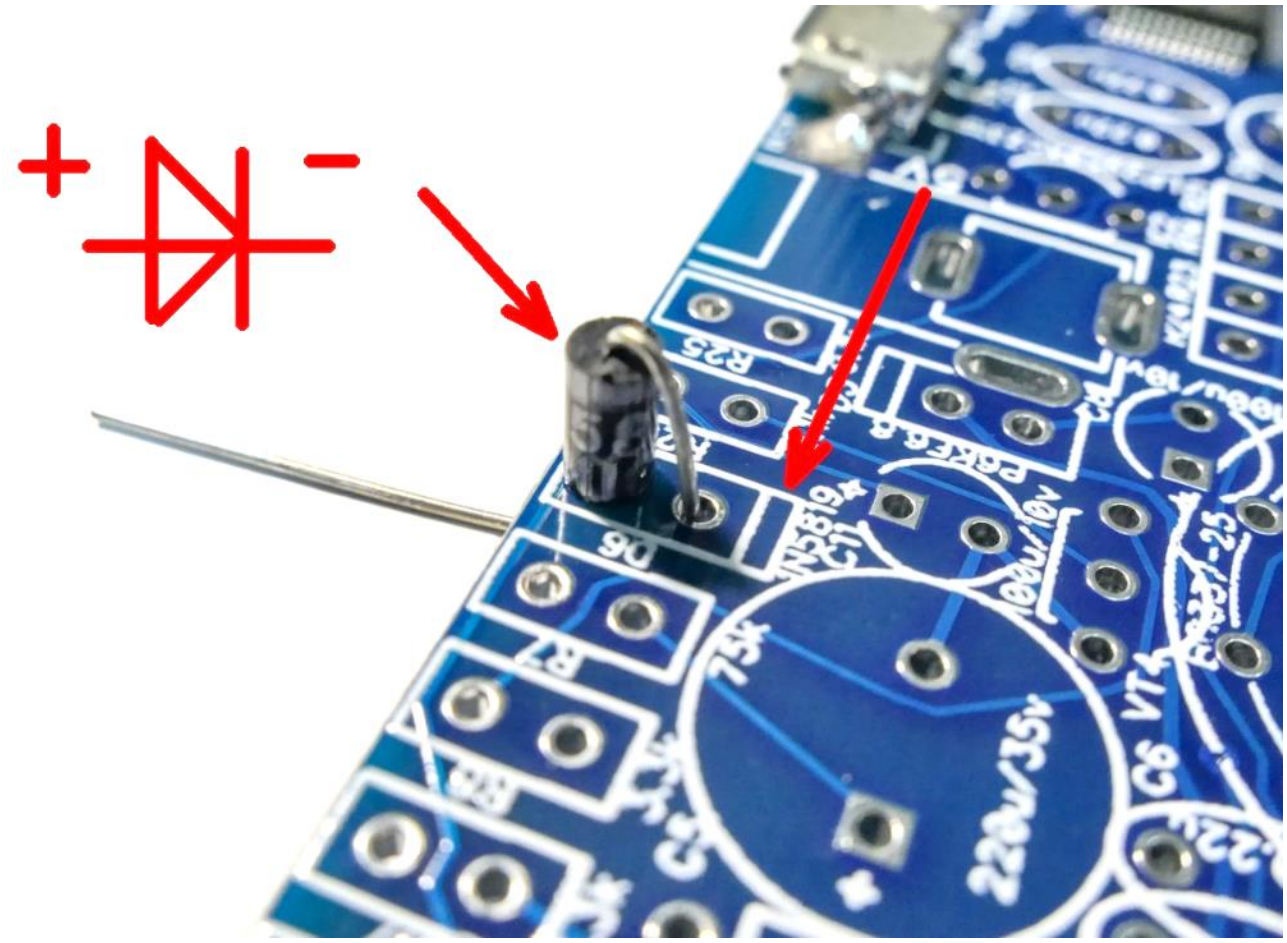
1) You have a PCB with ICs:

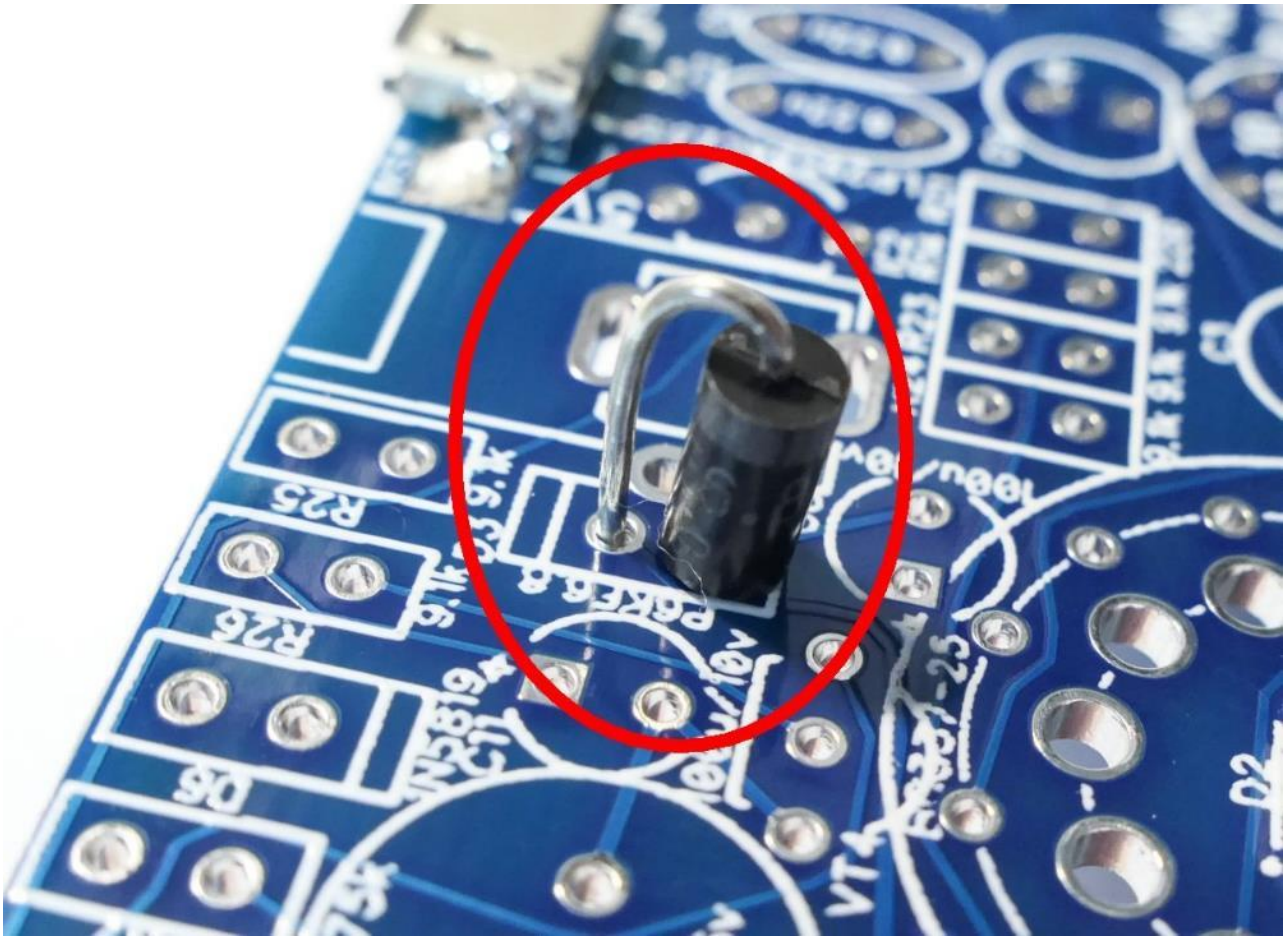


2) Place all resistors vertical:

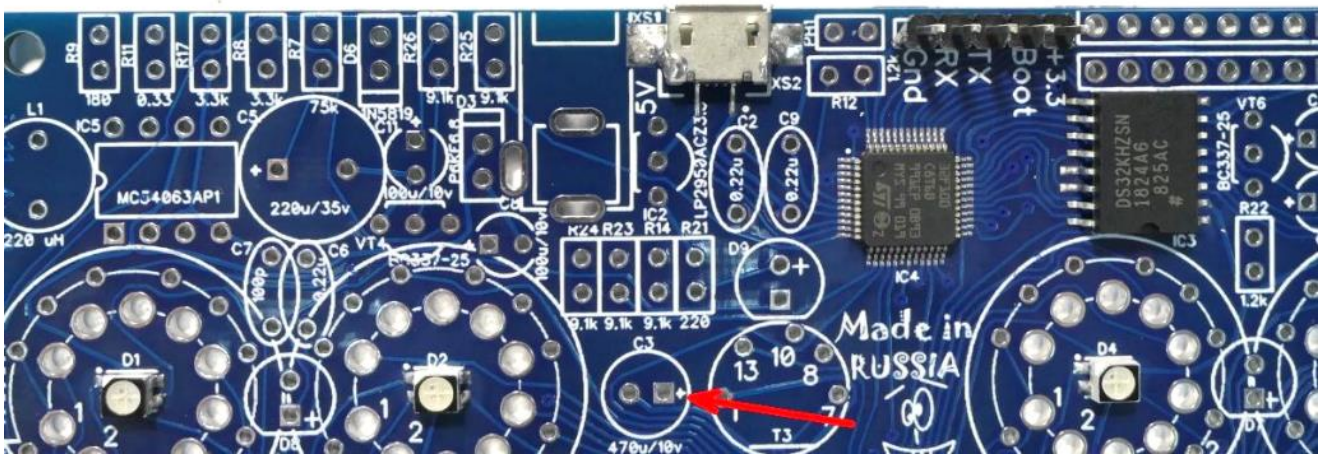


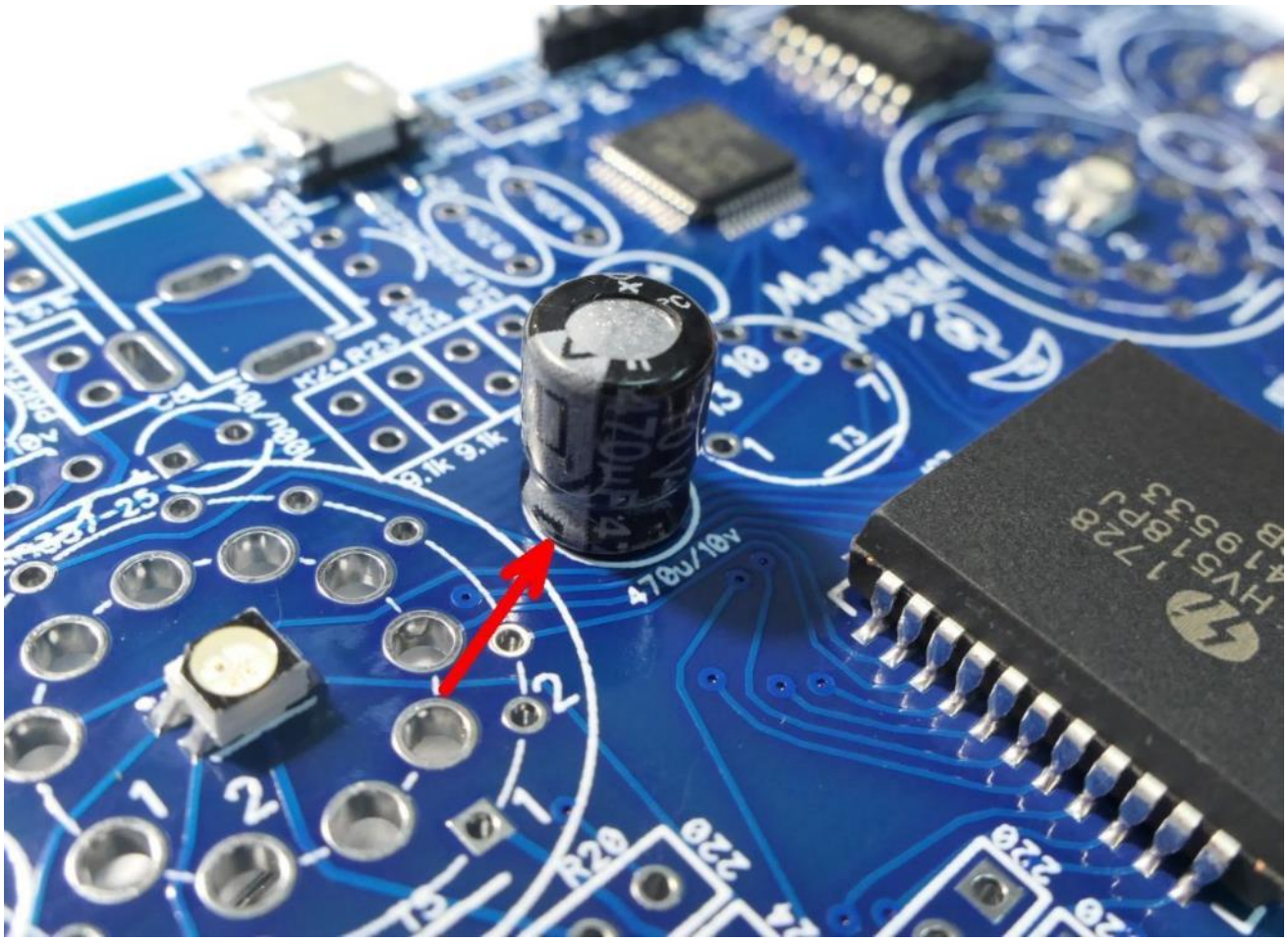
3) Place diodes according marking on PCB. Be careful with polarity!



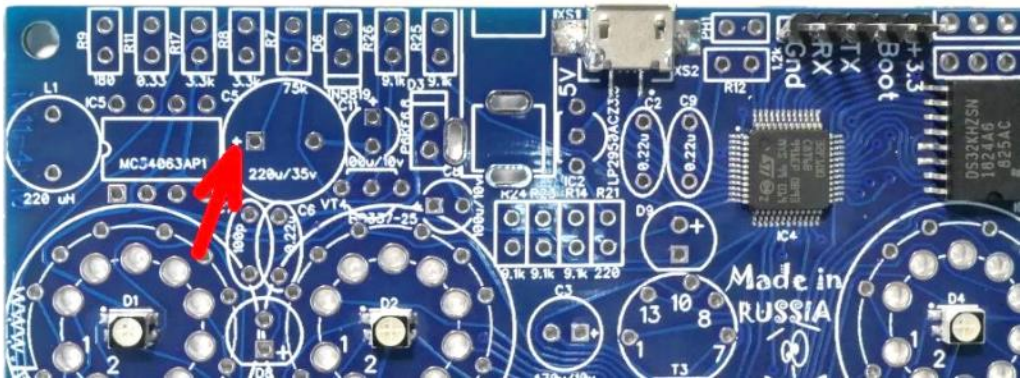


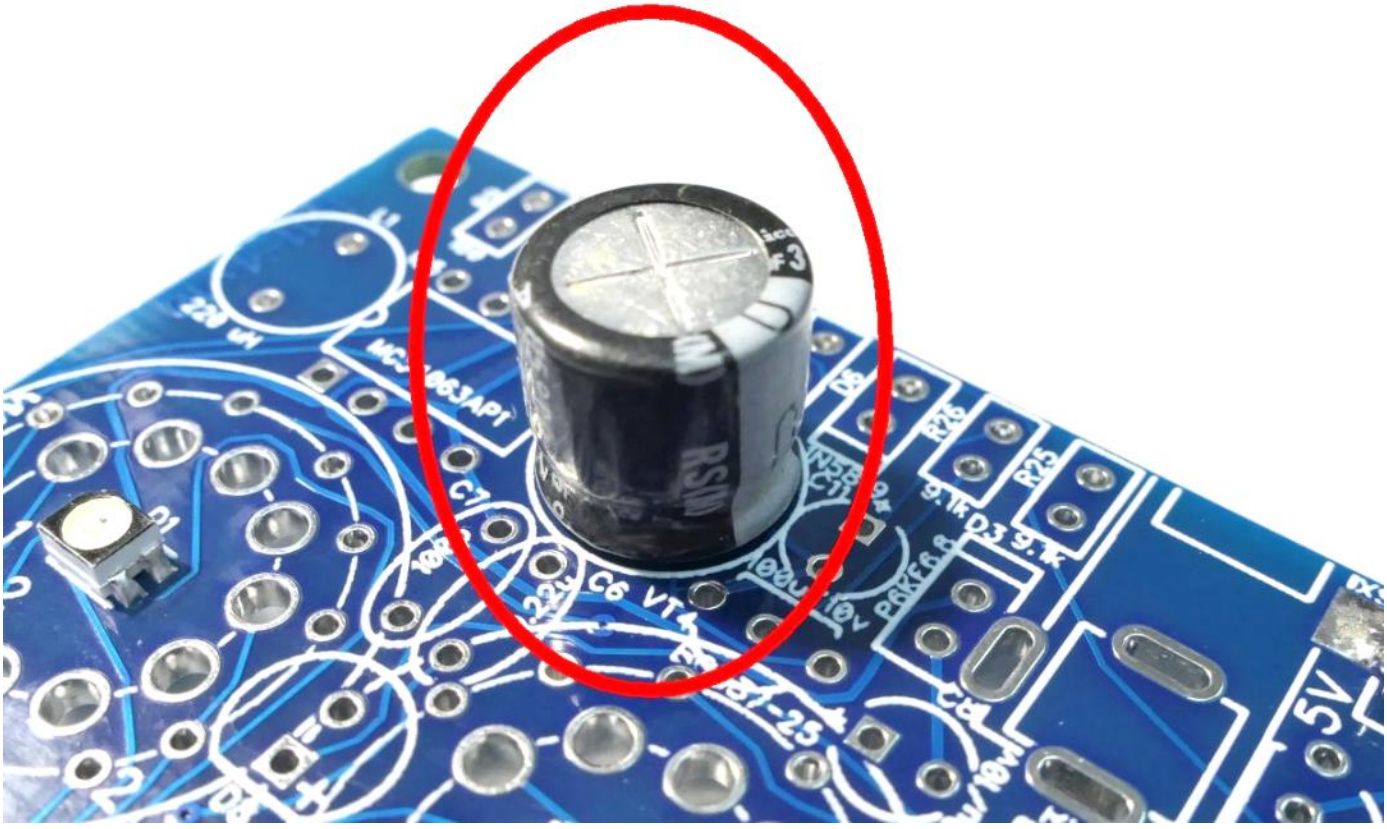
4) Place all electrolytic capacitors. Be careful with polarity!



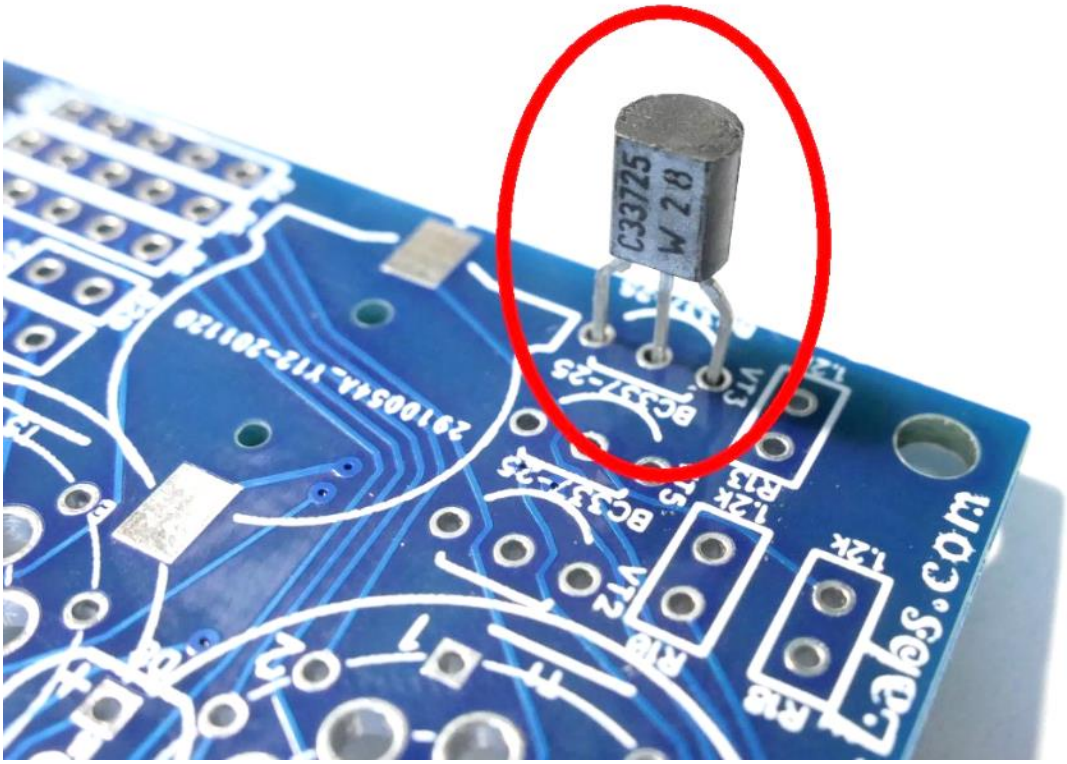


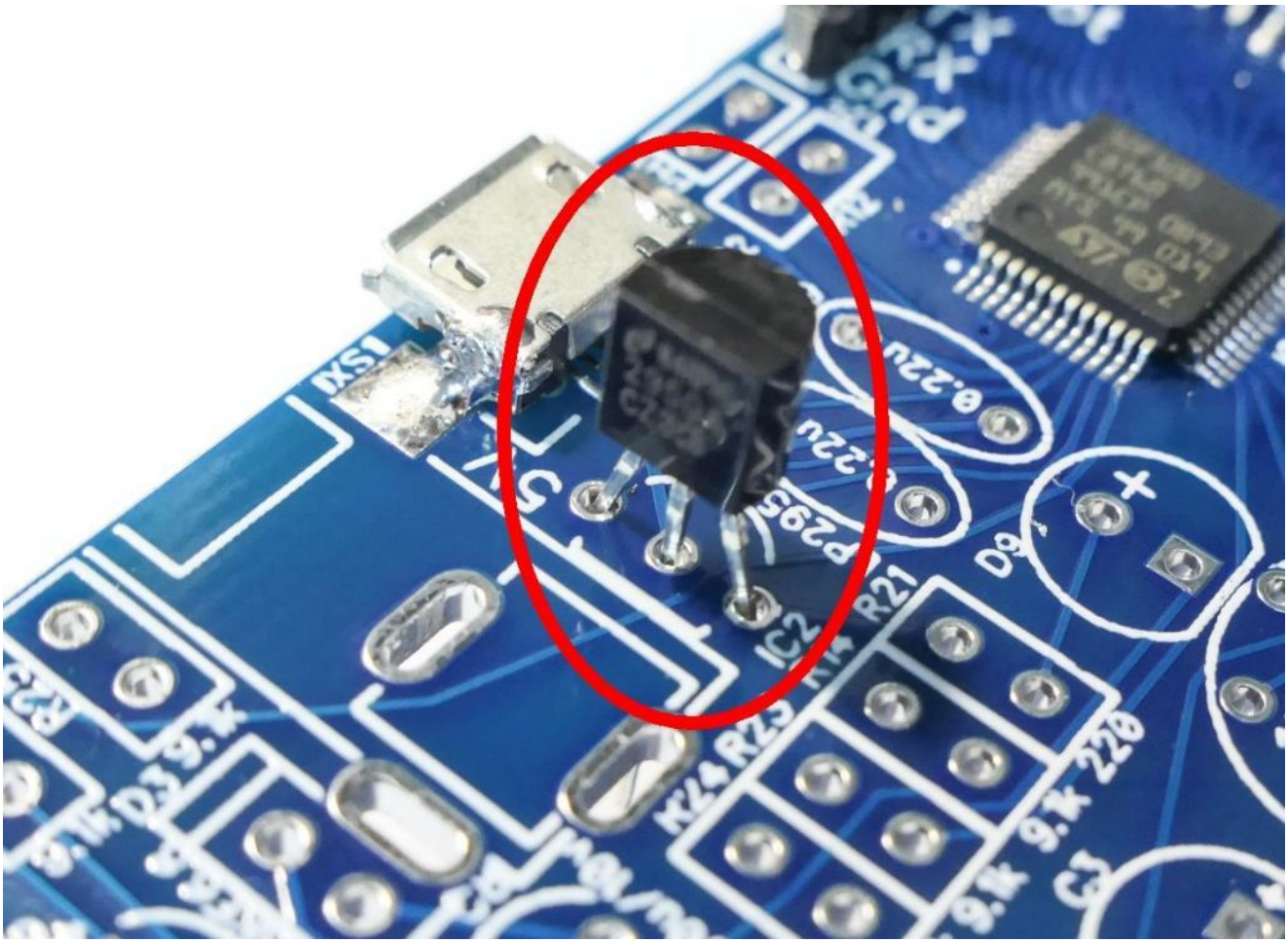

+
−


MC34063AP1
220u/35v
220 uH
Made in
RUSSIA
5V
Gnd
RX
TX
Boot
+3.3

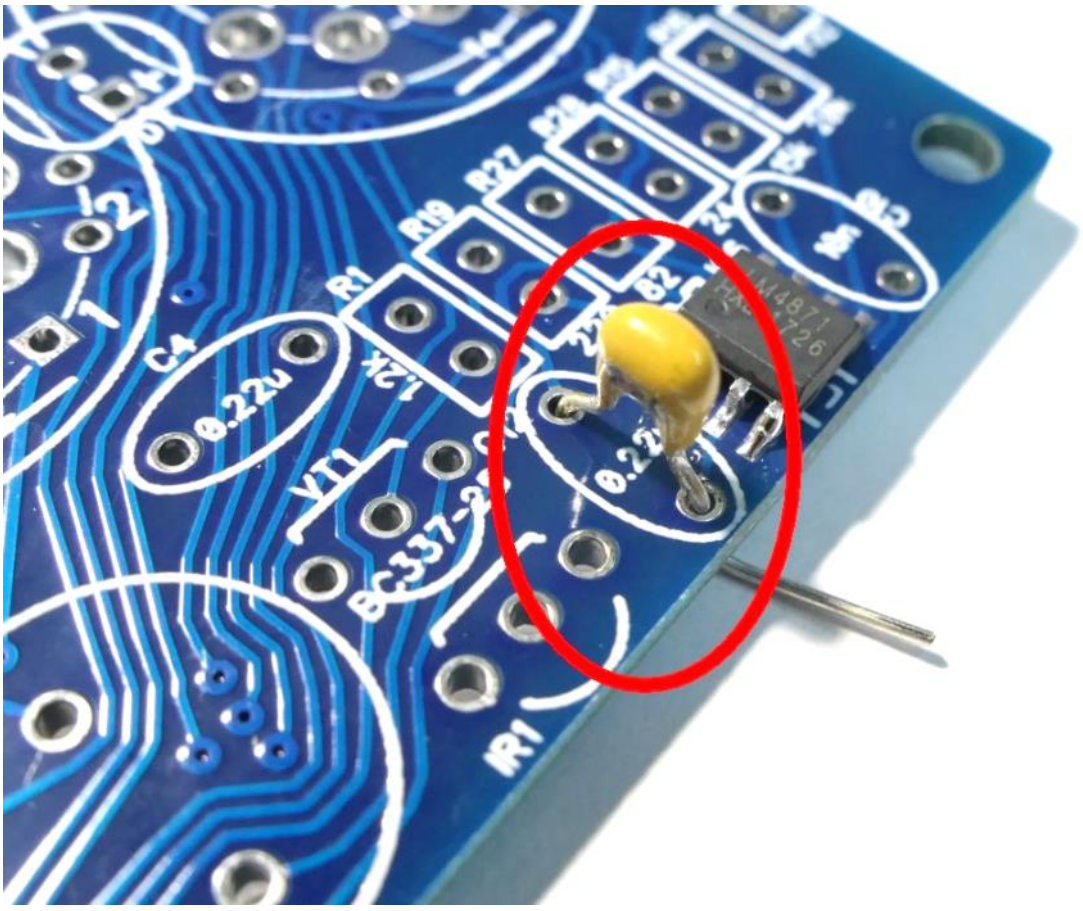

MC34063AP1
220 uH
C6 VT
5V

5) Install transistors and 3.3v voltage stabilizer IC2:

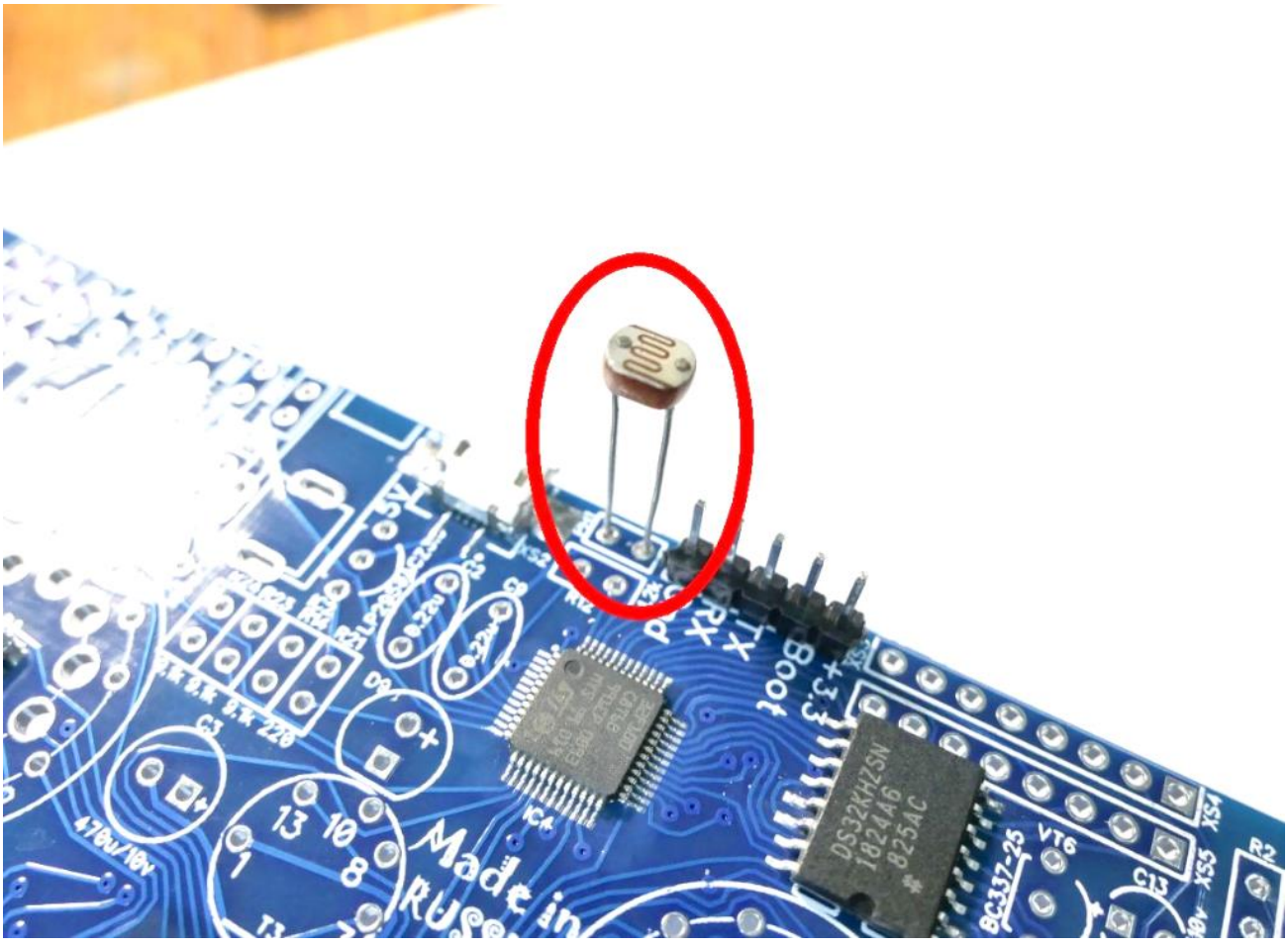


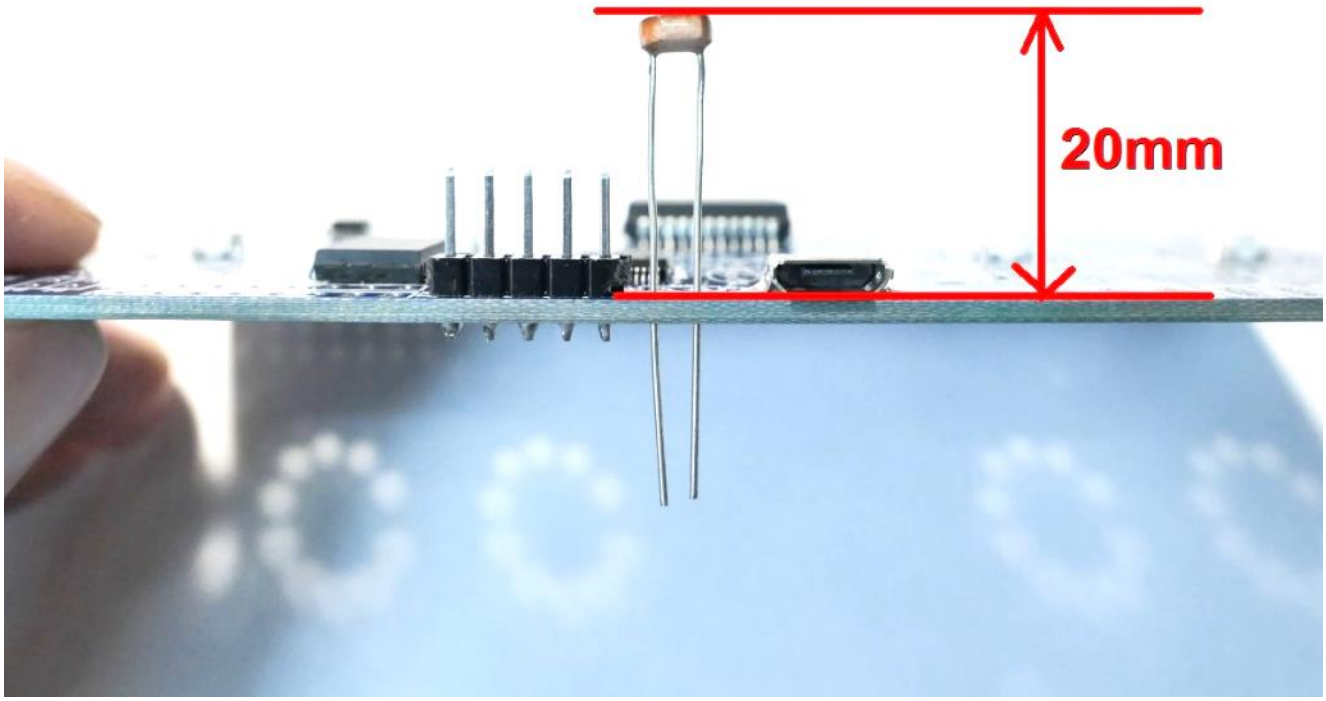


6) Place ceramic capacitors. Polarity is not matter:



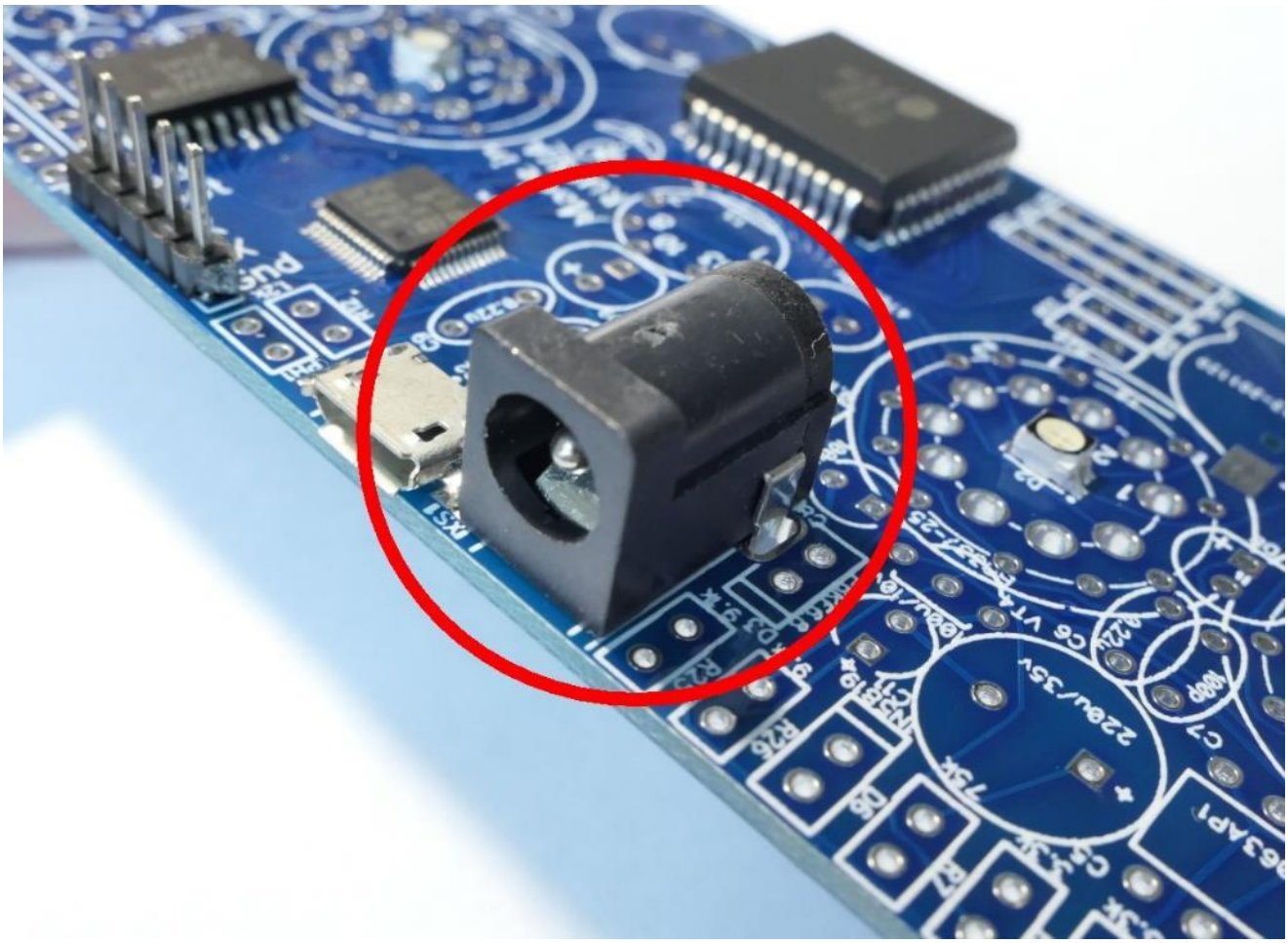
7) Place photoresistor.



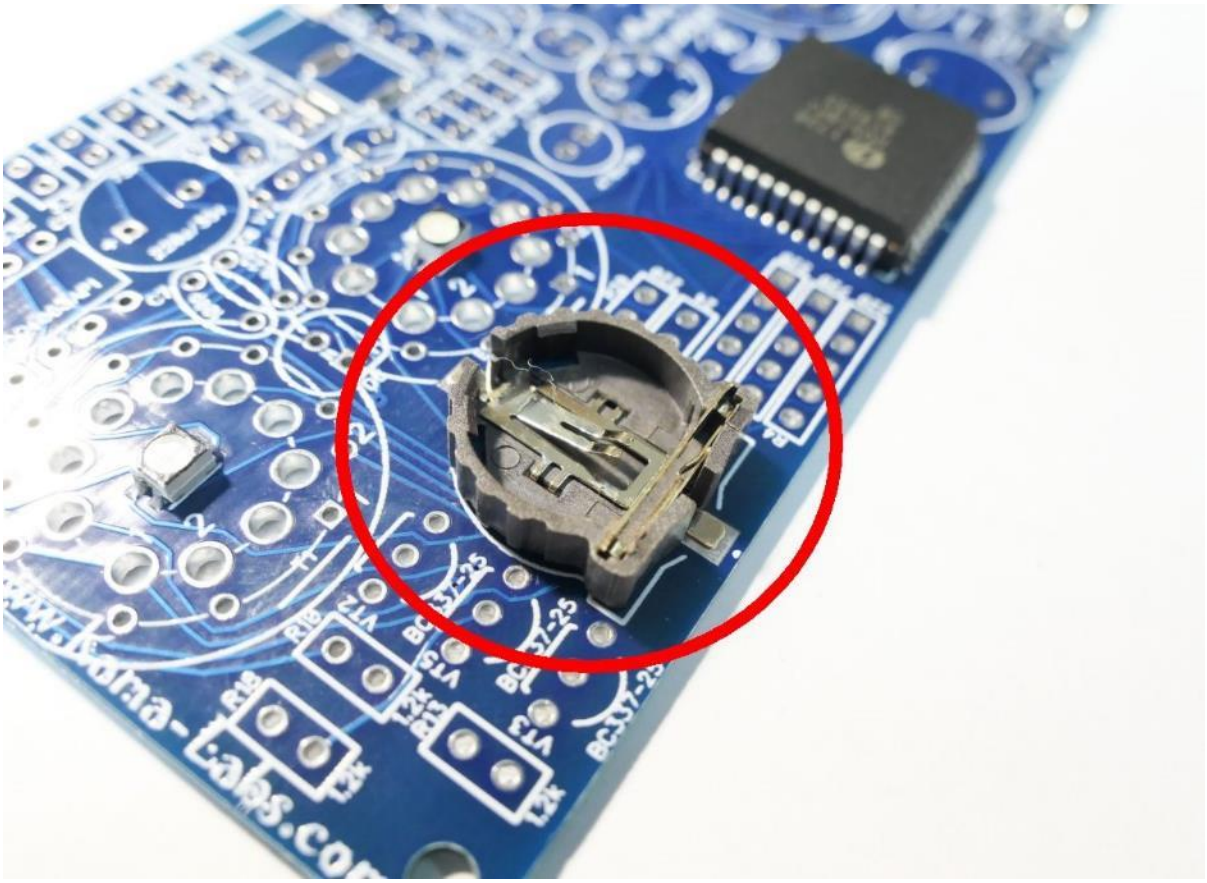


8) Place inductor:

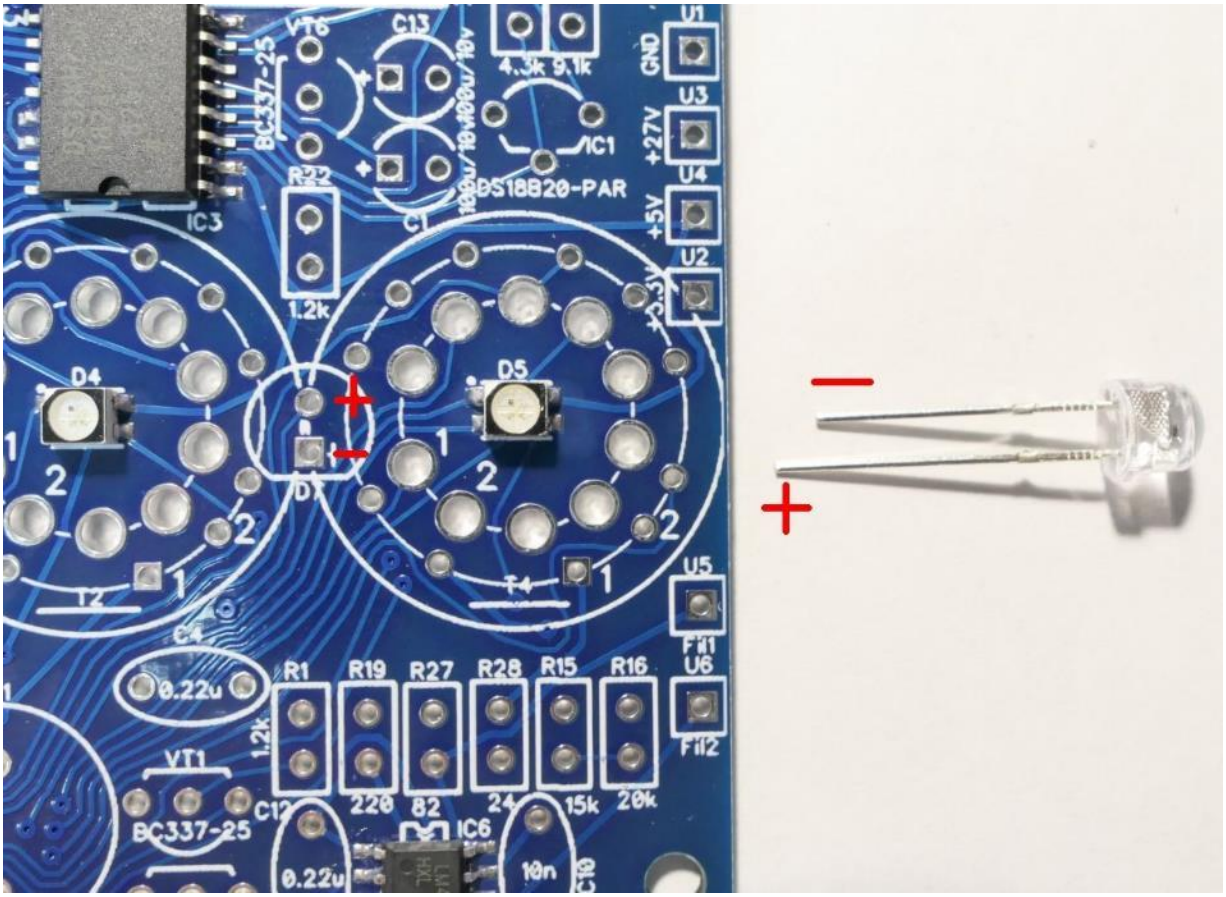
9) Place socket for power supply:

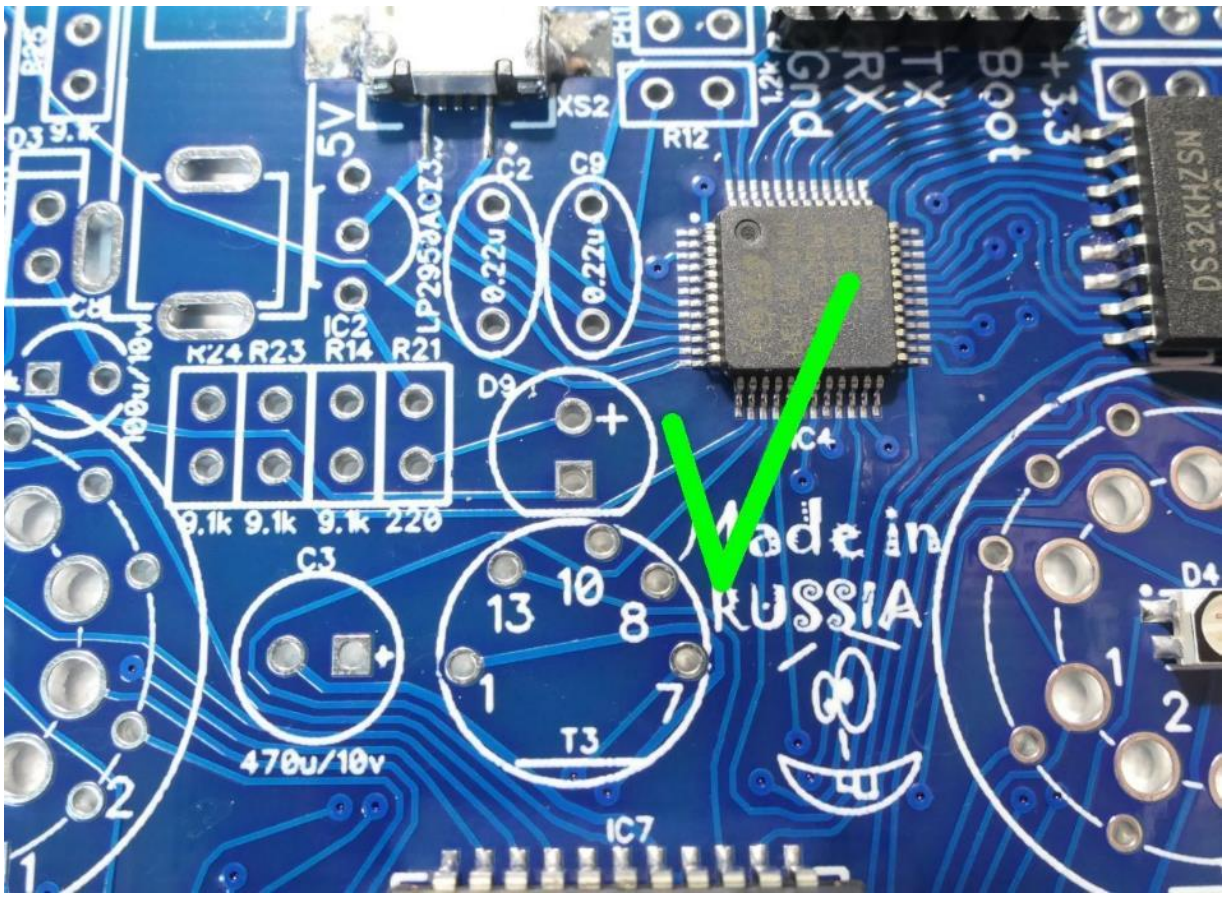


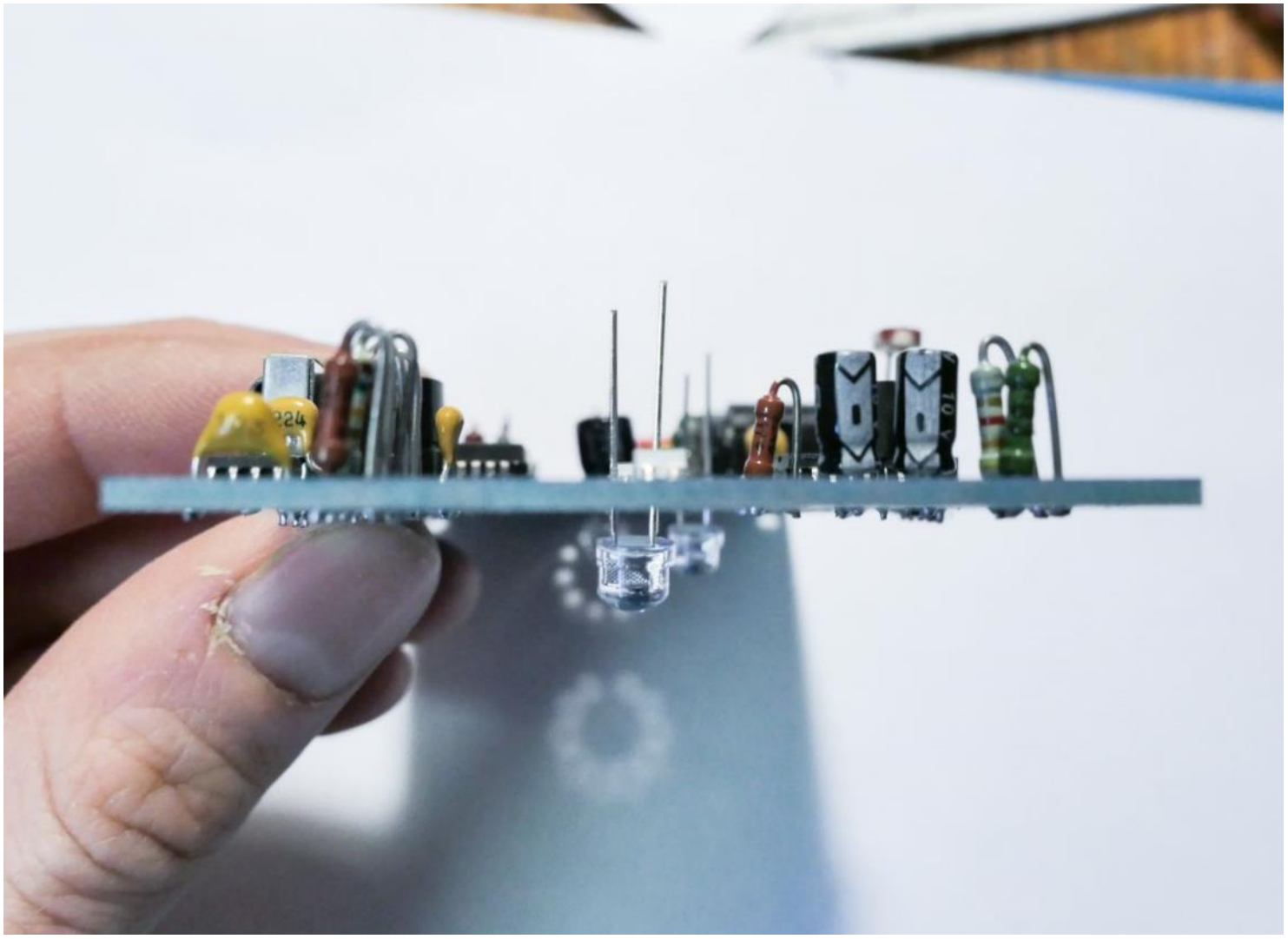
10) Place battery holder:



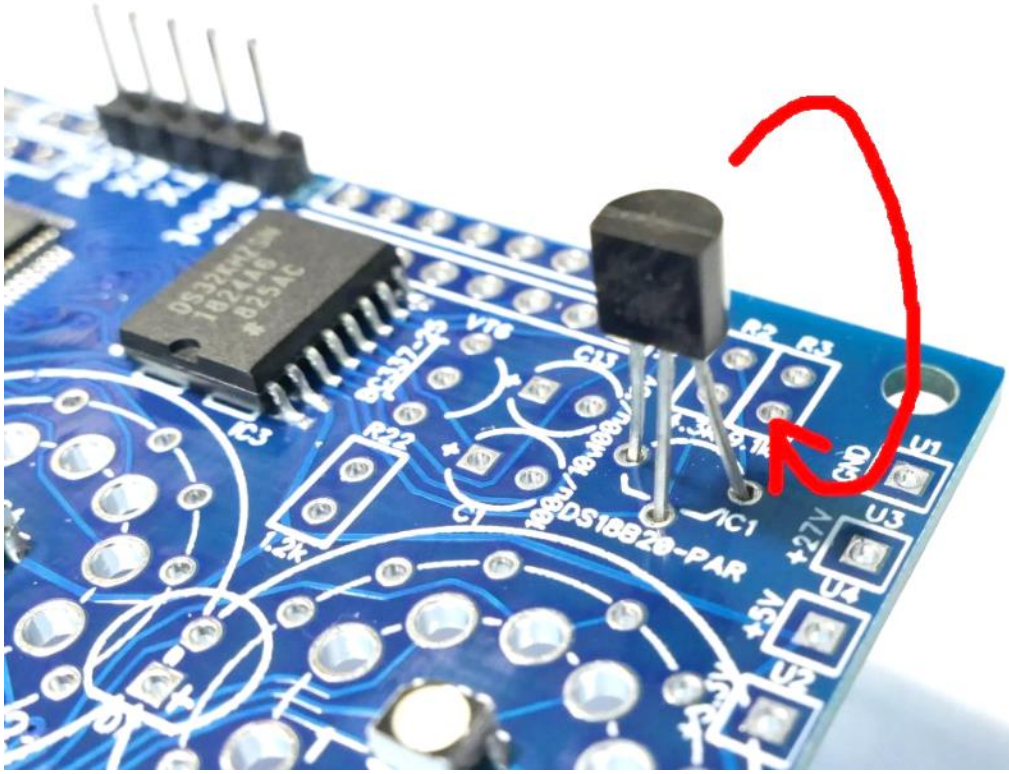
11) Install LEDs to bottom side of PCB. Be careful with polarity! The long pin of led – plus. **Marking on PCB have mistake: D8 and D7. D9 – have correct marking: round pad – plus, square pad – minus.**

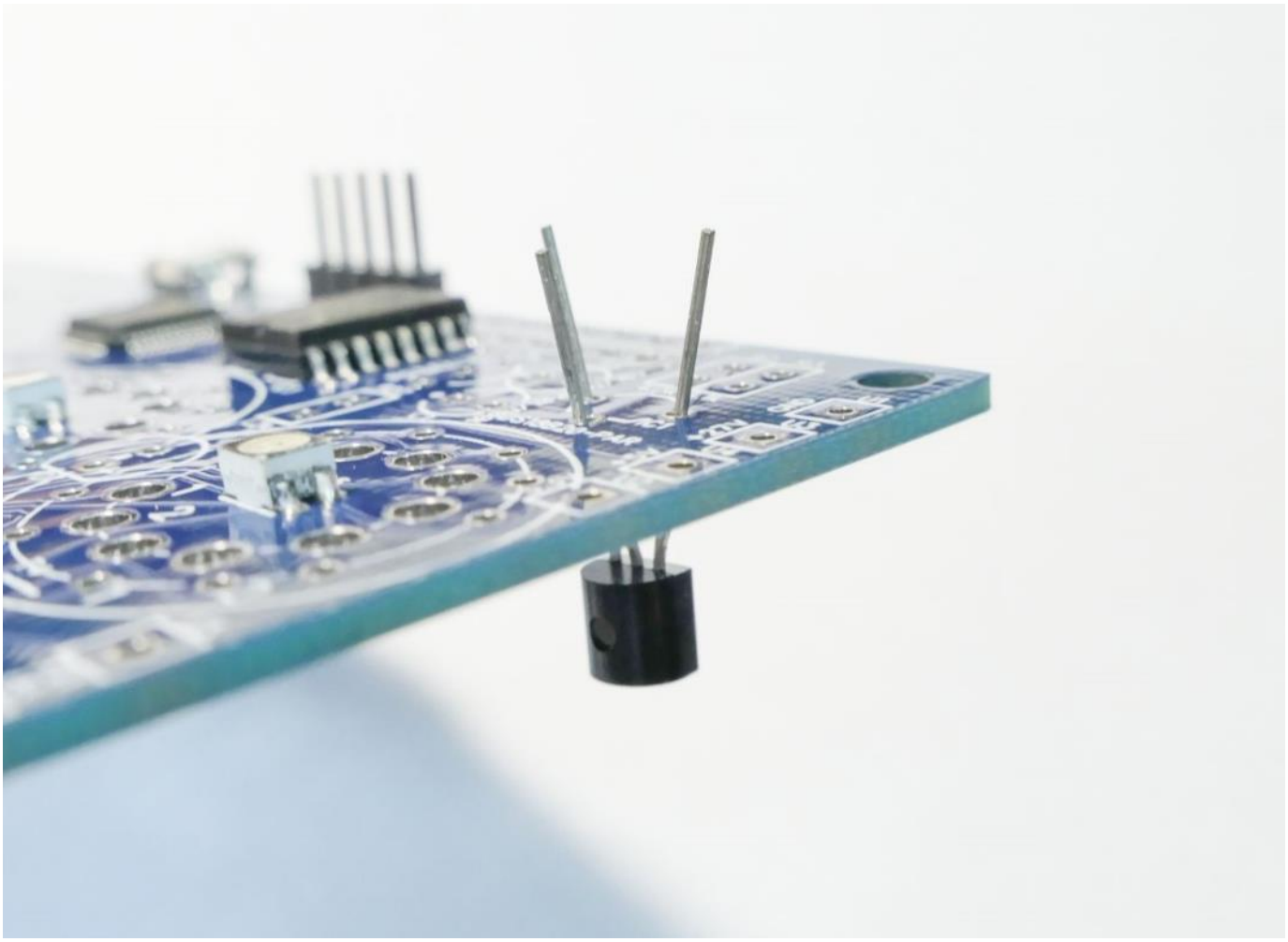


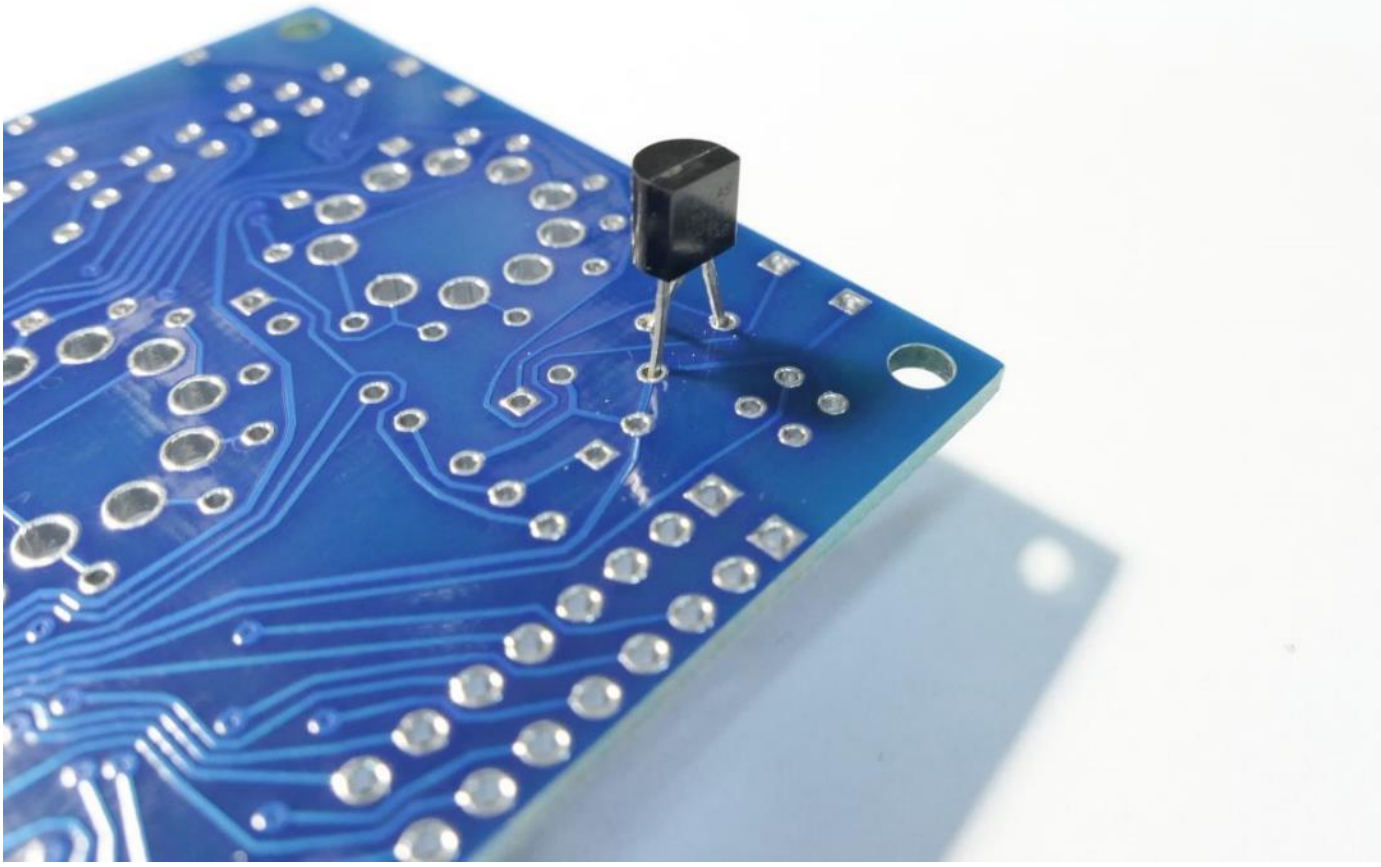


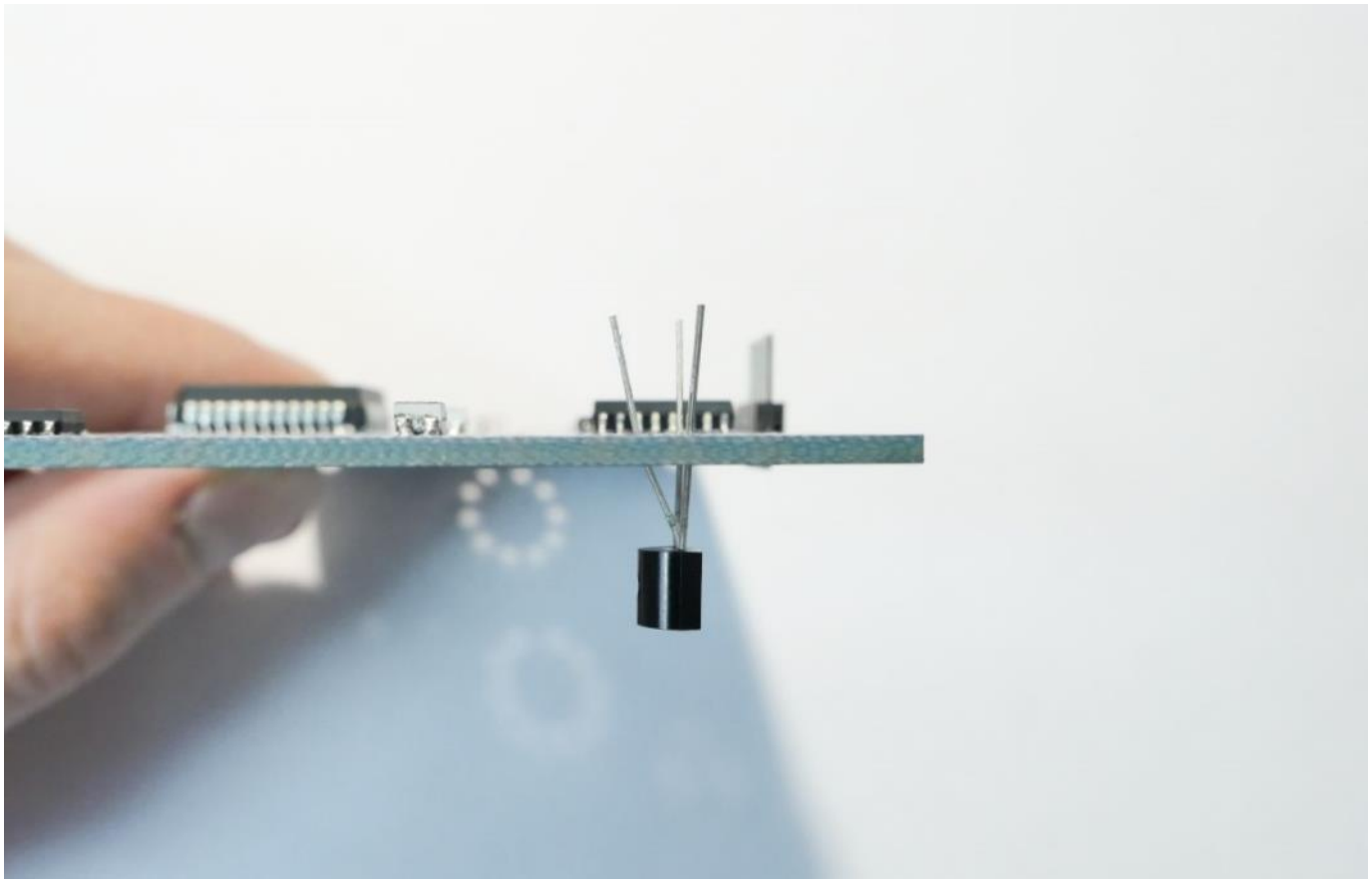


12) Install temperature sensor IC1 DS18B20 on BOTTOM side of PCB:

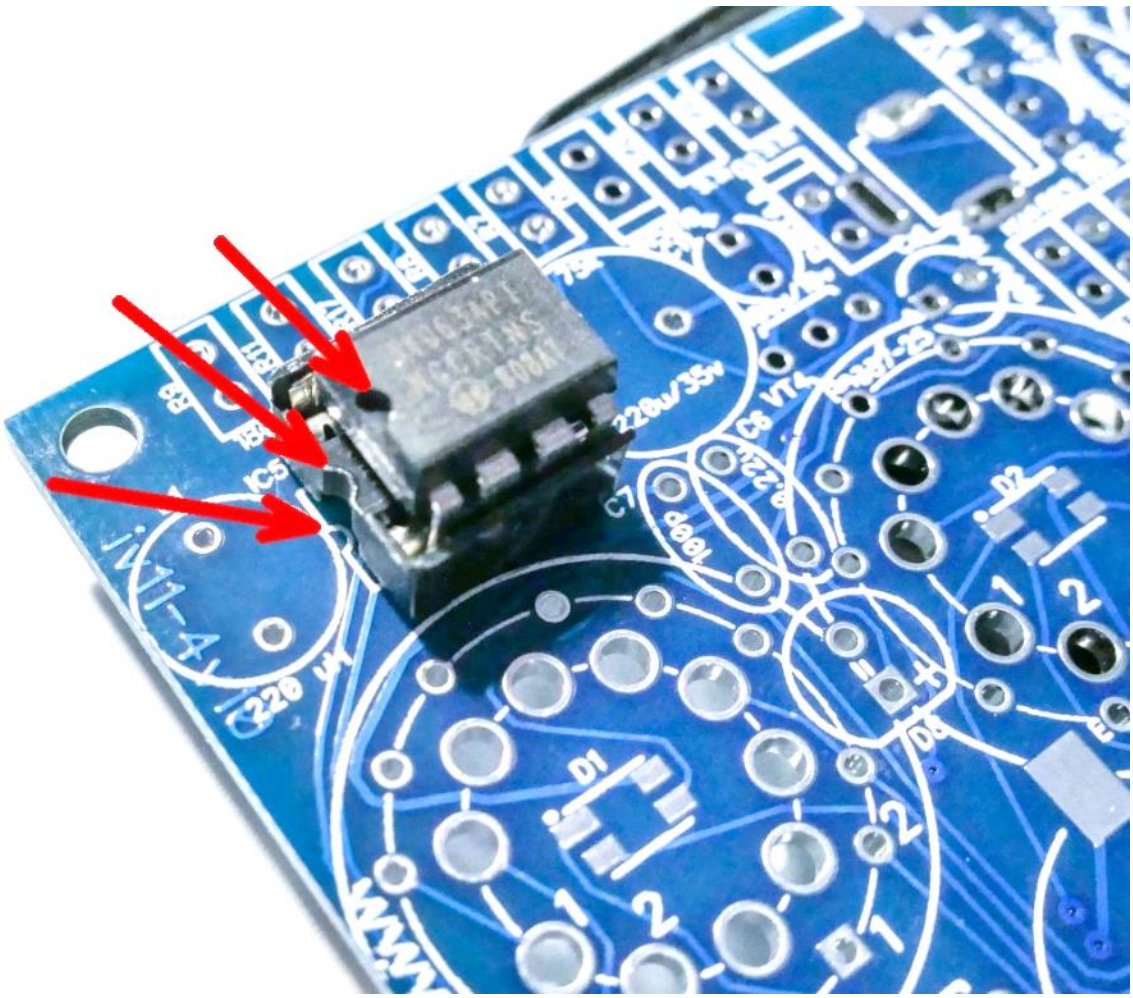




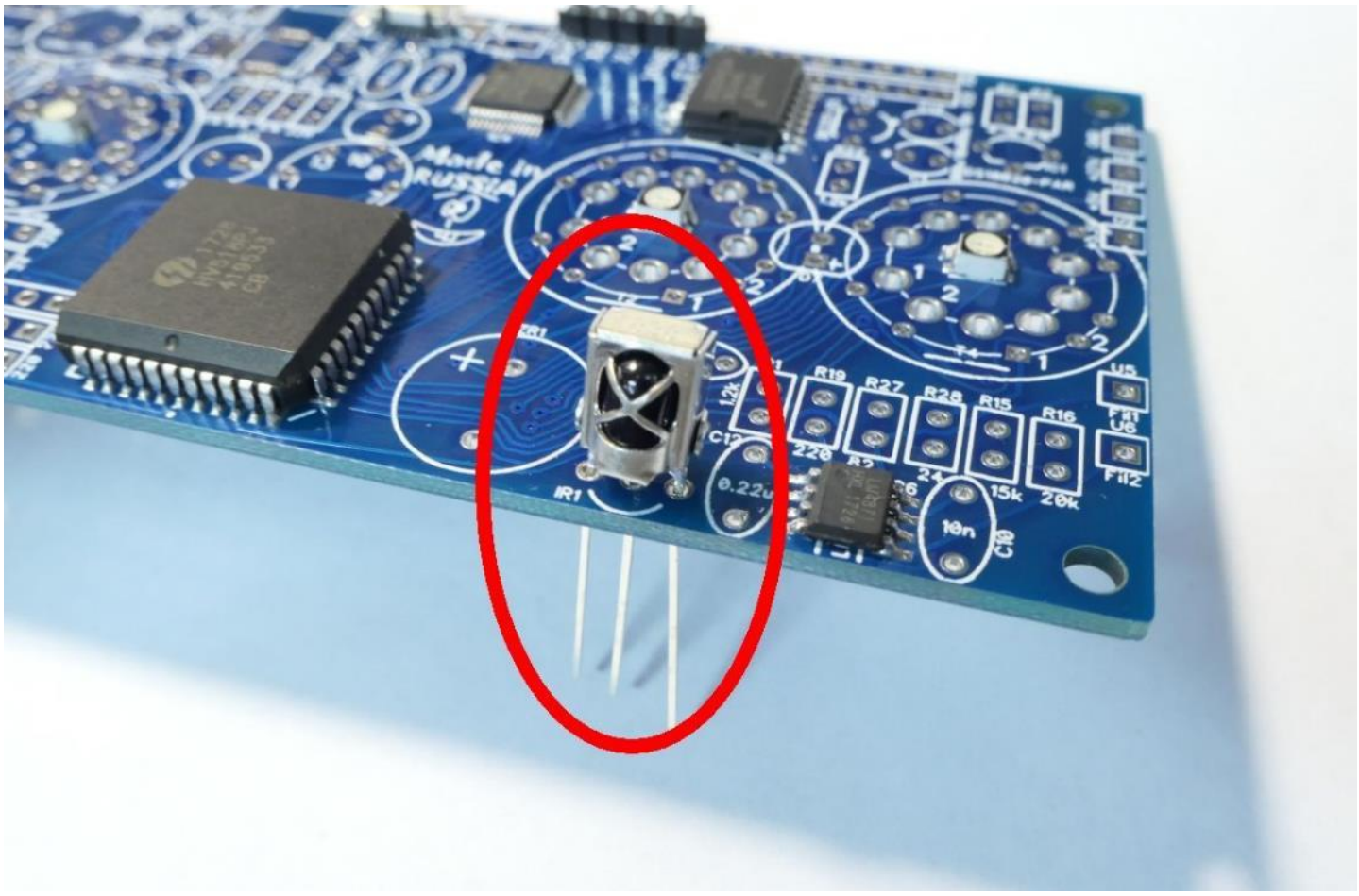




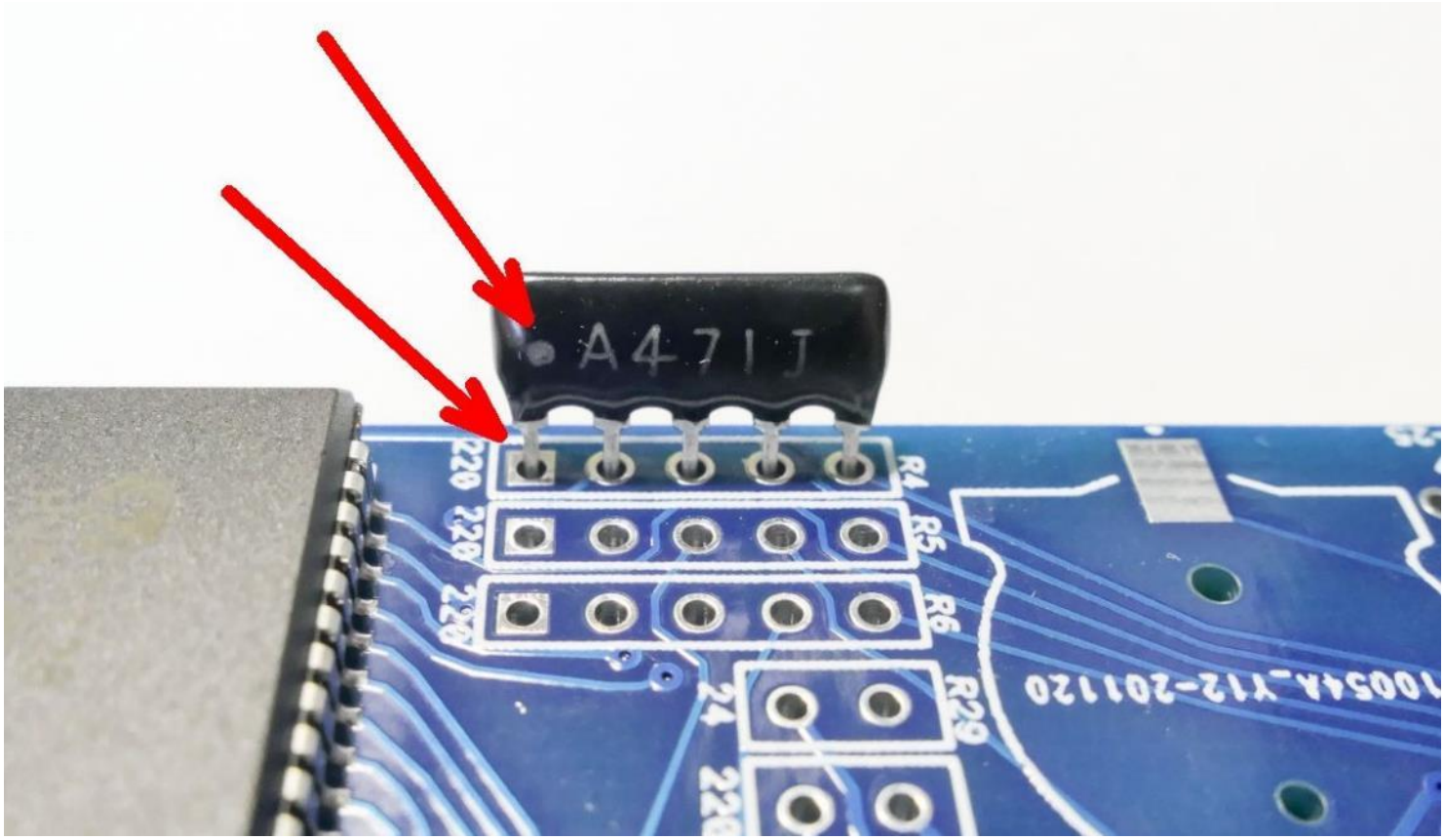
13) Place sockets for IC. Insert MC34063 chip at the end of assembling process:

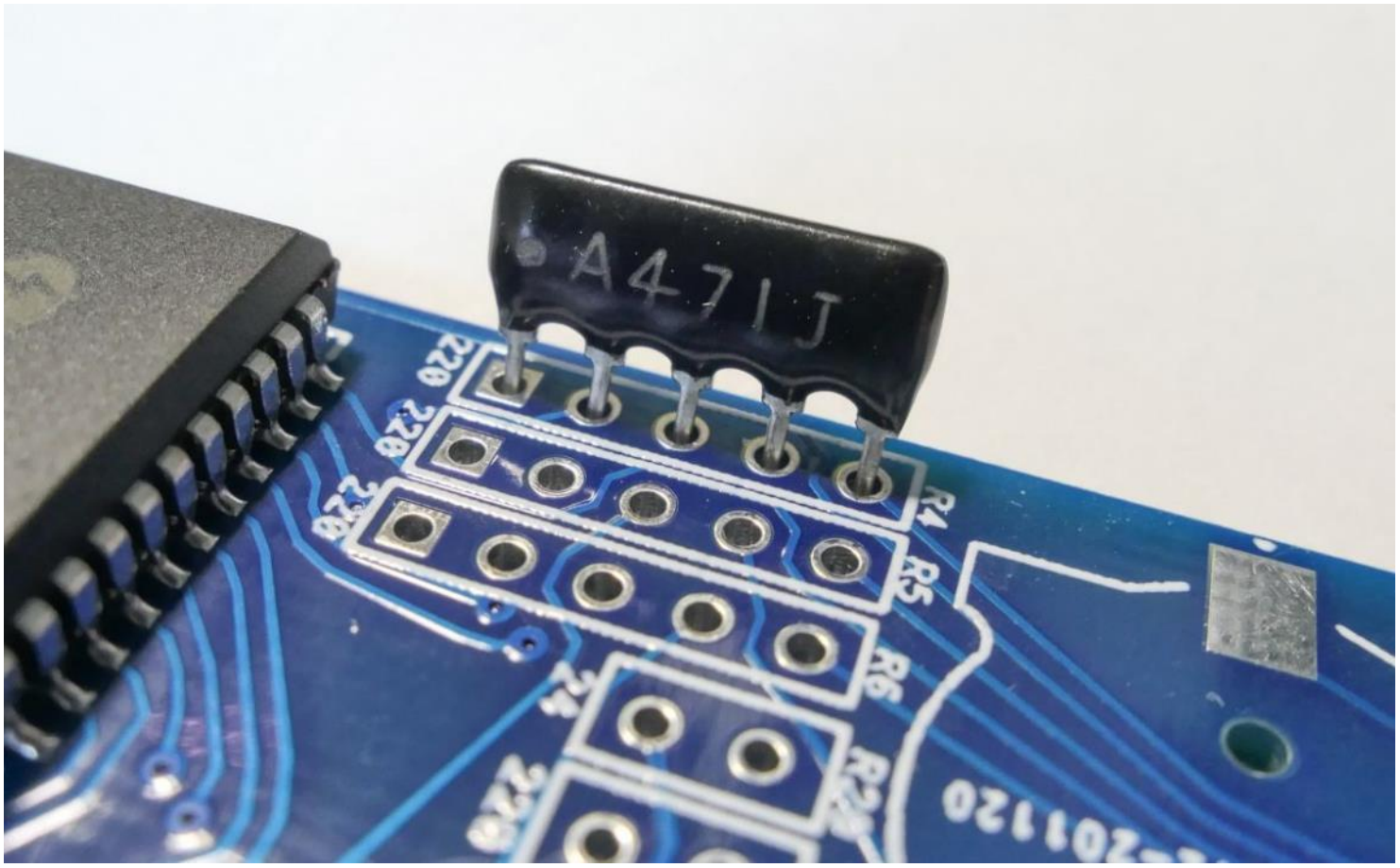


14) Install Infrared receiver:

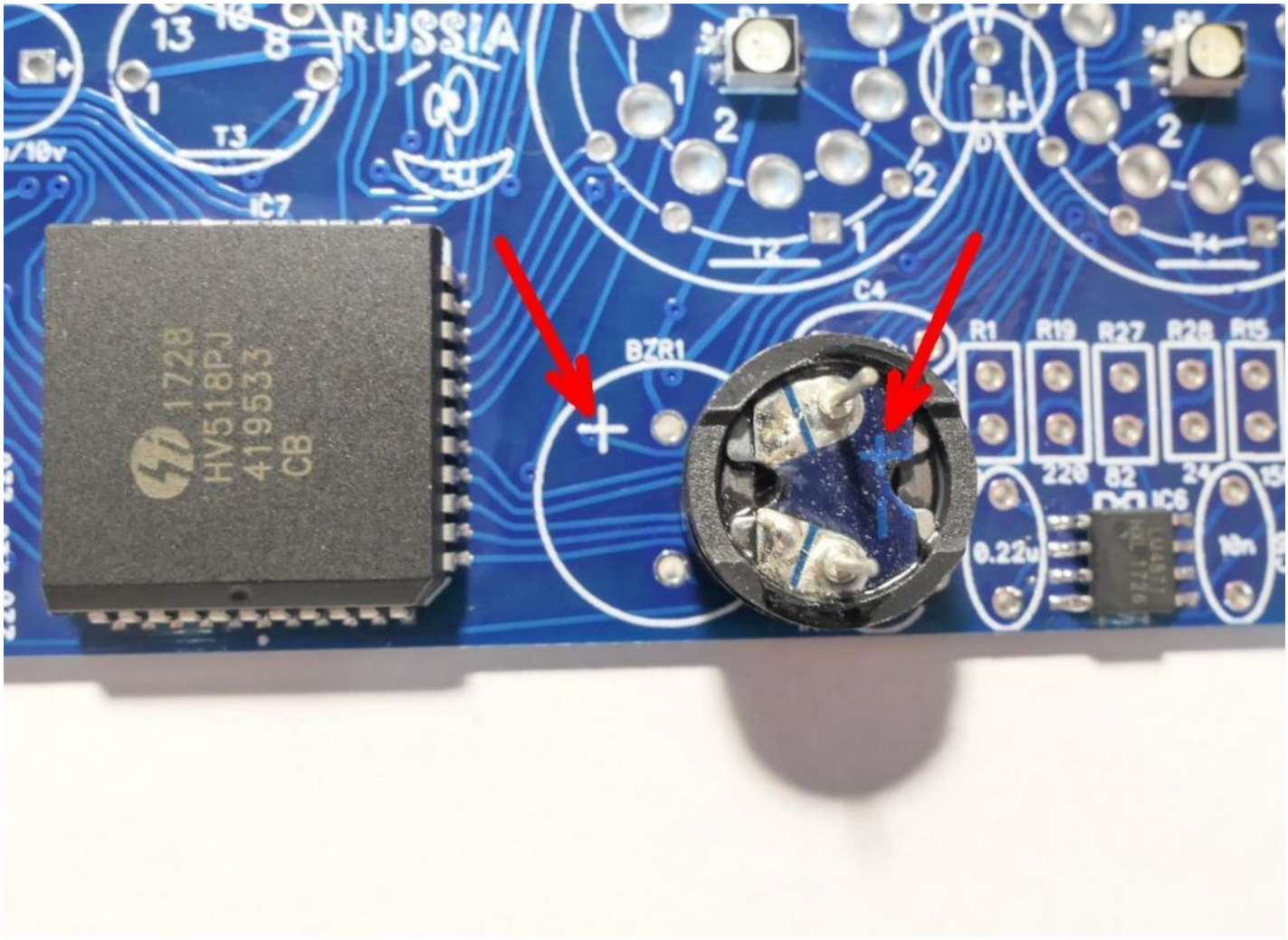


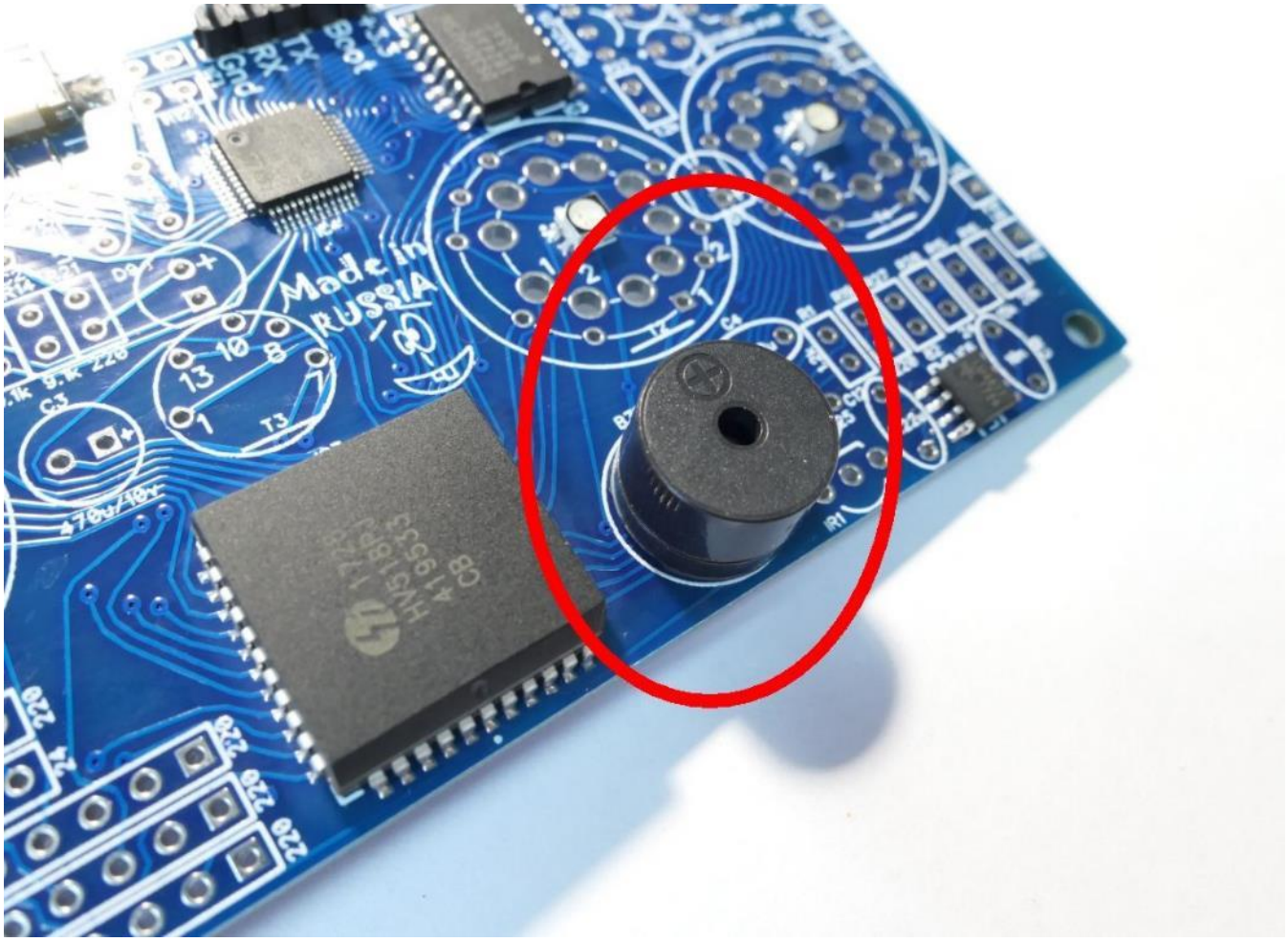
15) Place resistor array. Common pin to square pad!



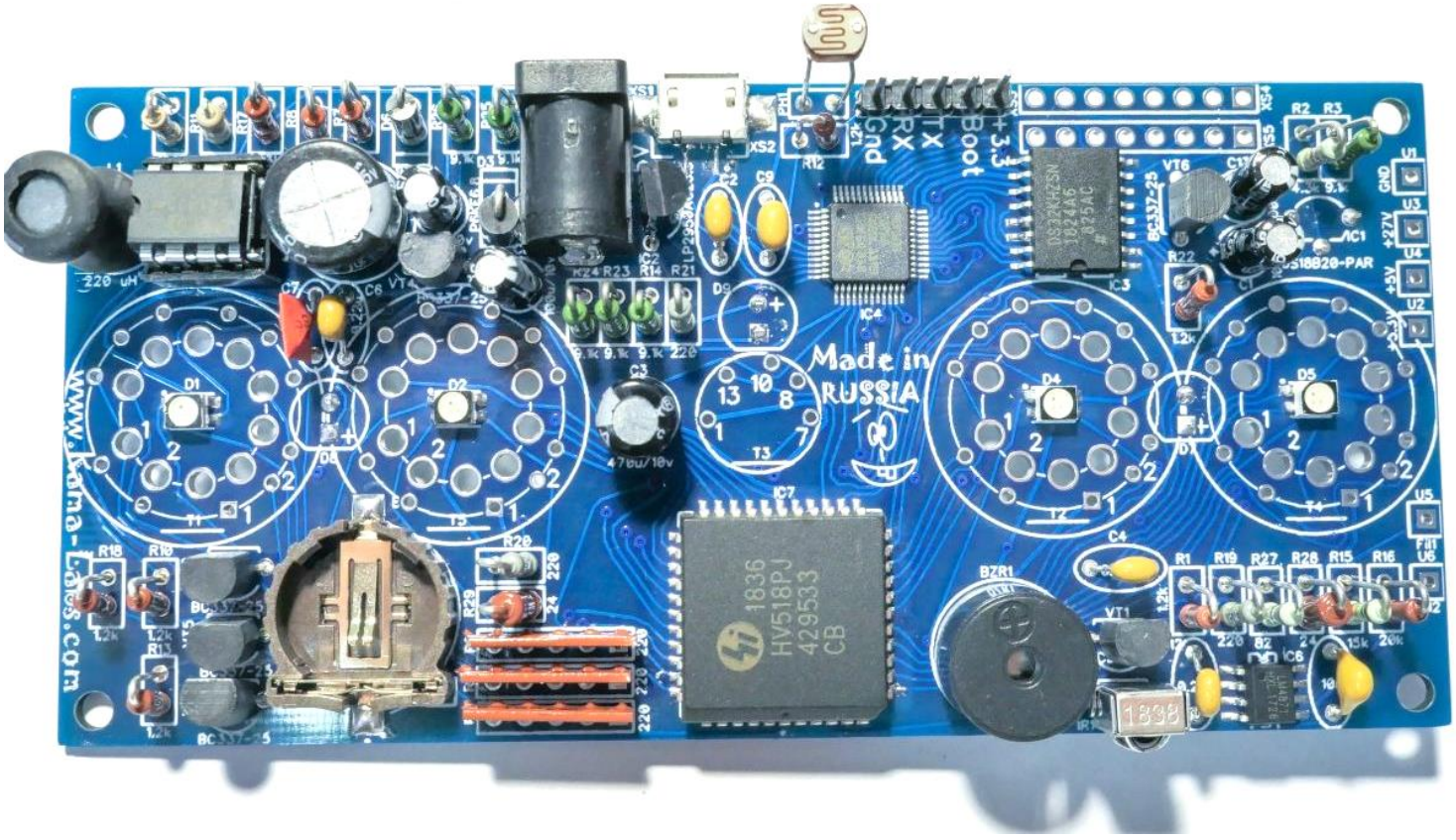


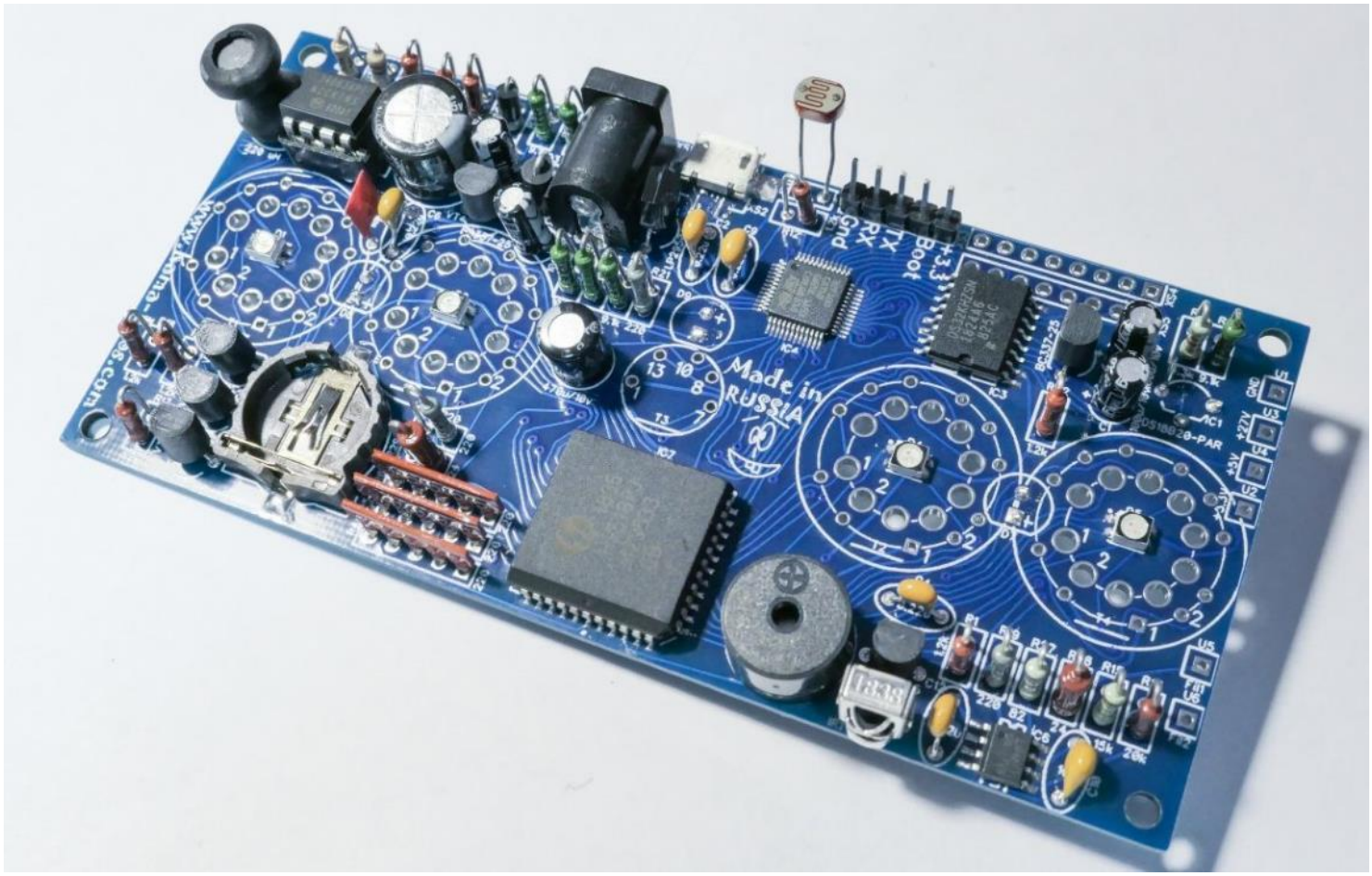
16) Install buzzer:

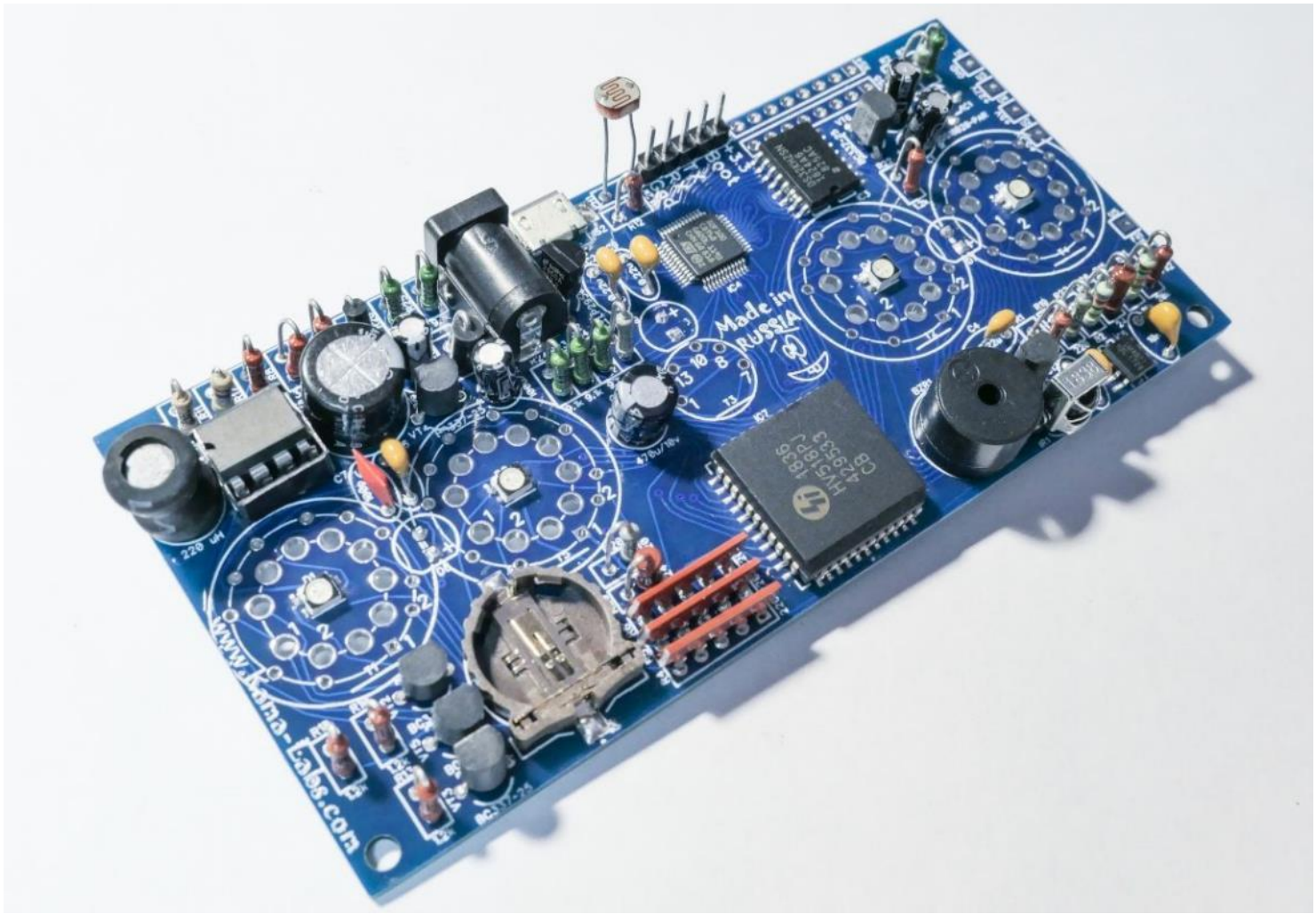


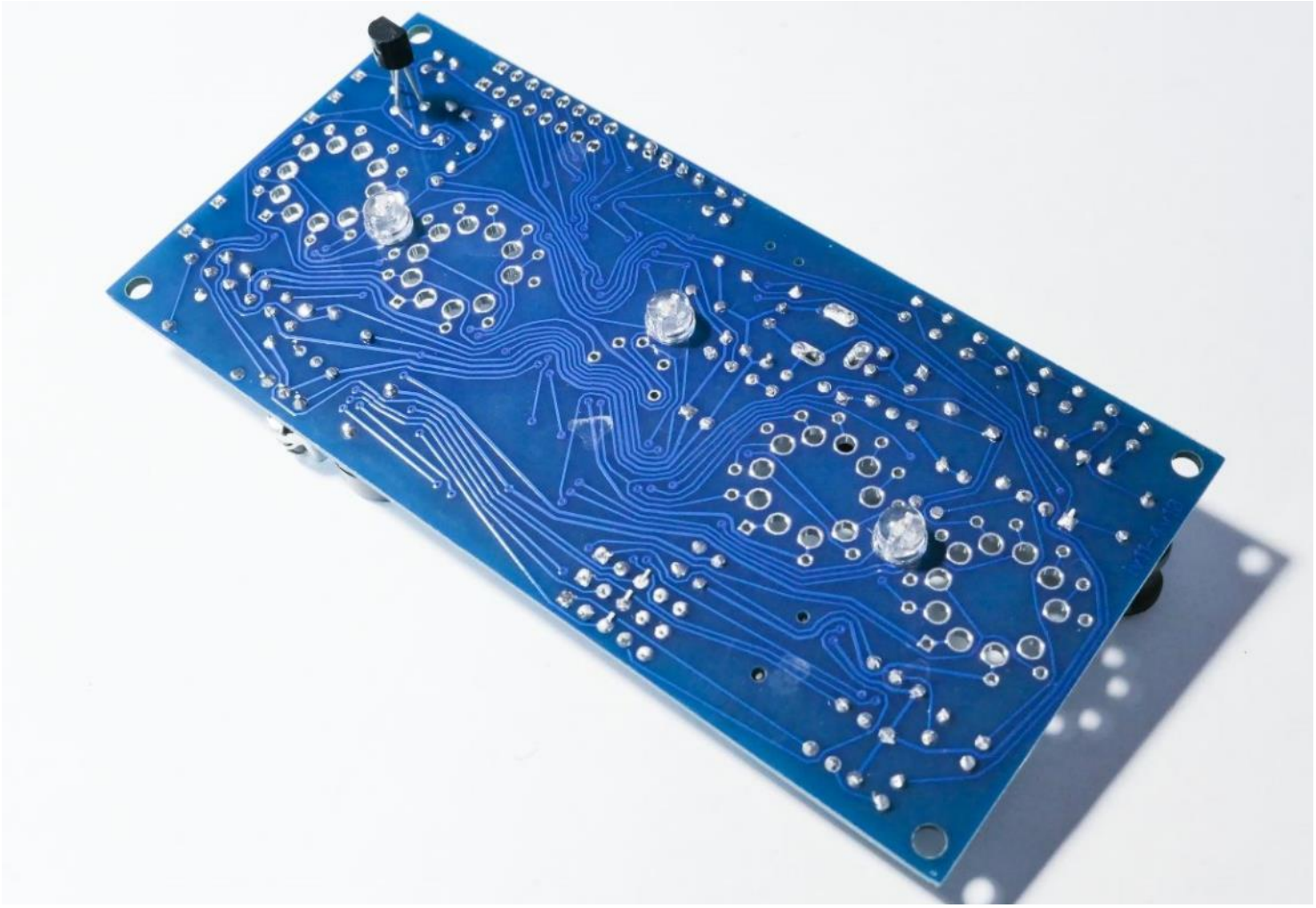


17) After all, your clock should looks like on photo:

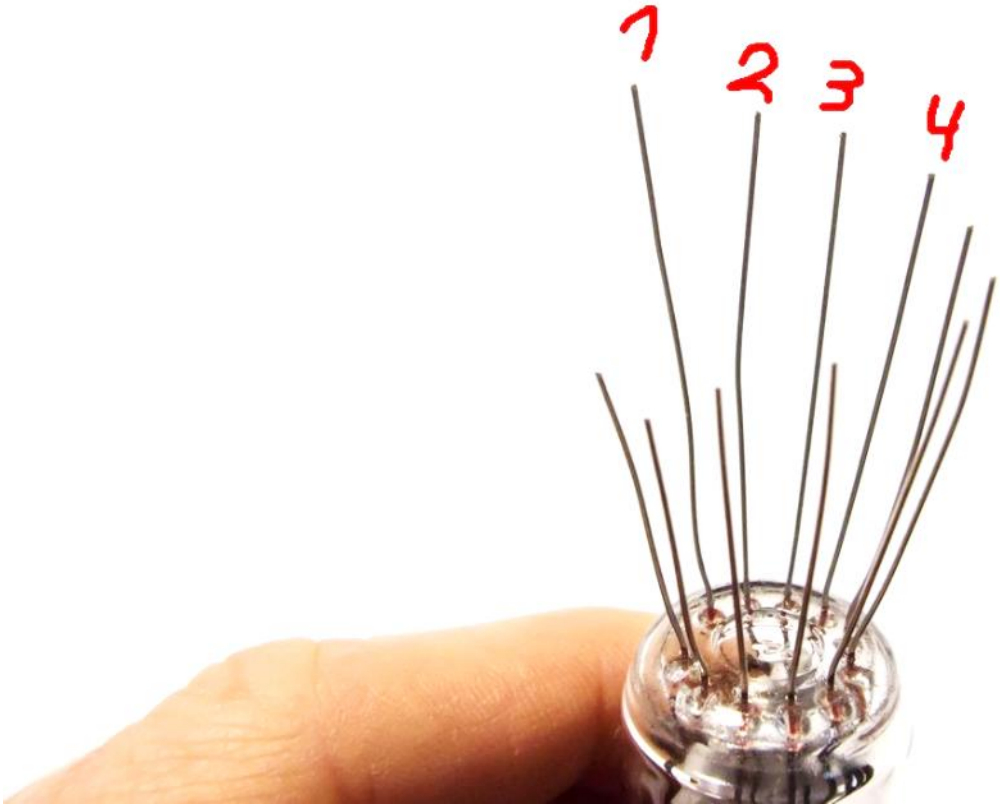



Made in
RUSSIA

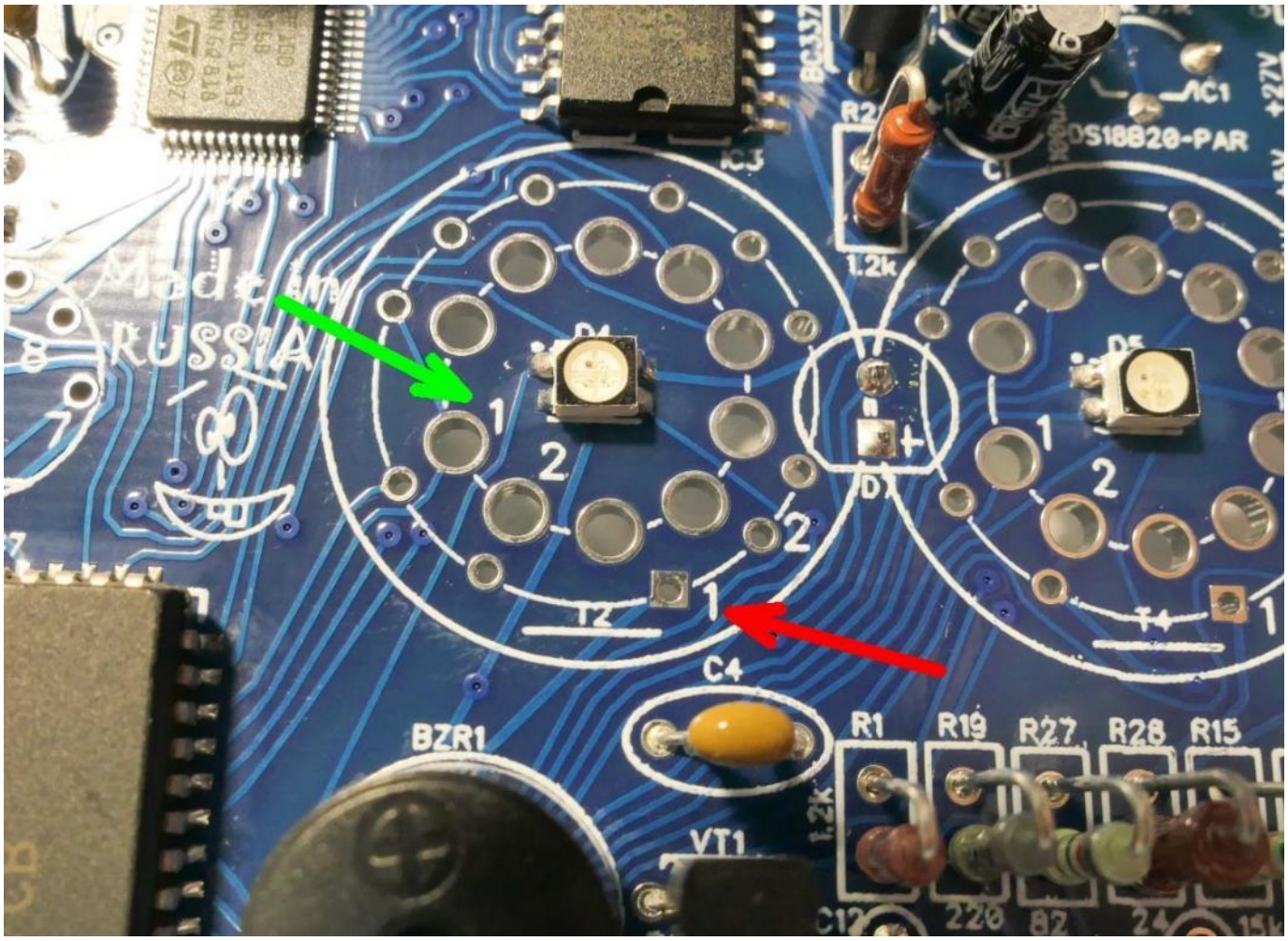

Made in
RUSSIA

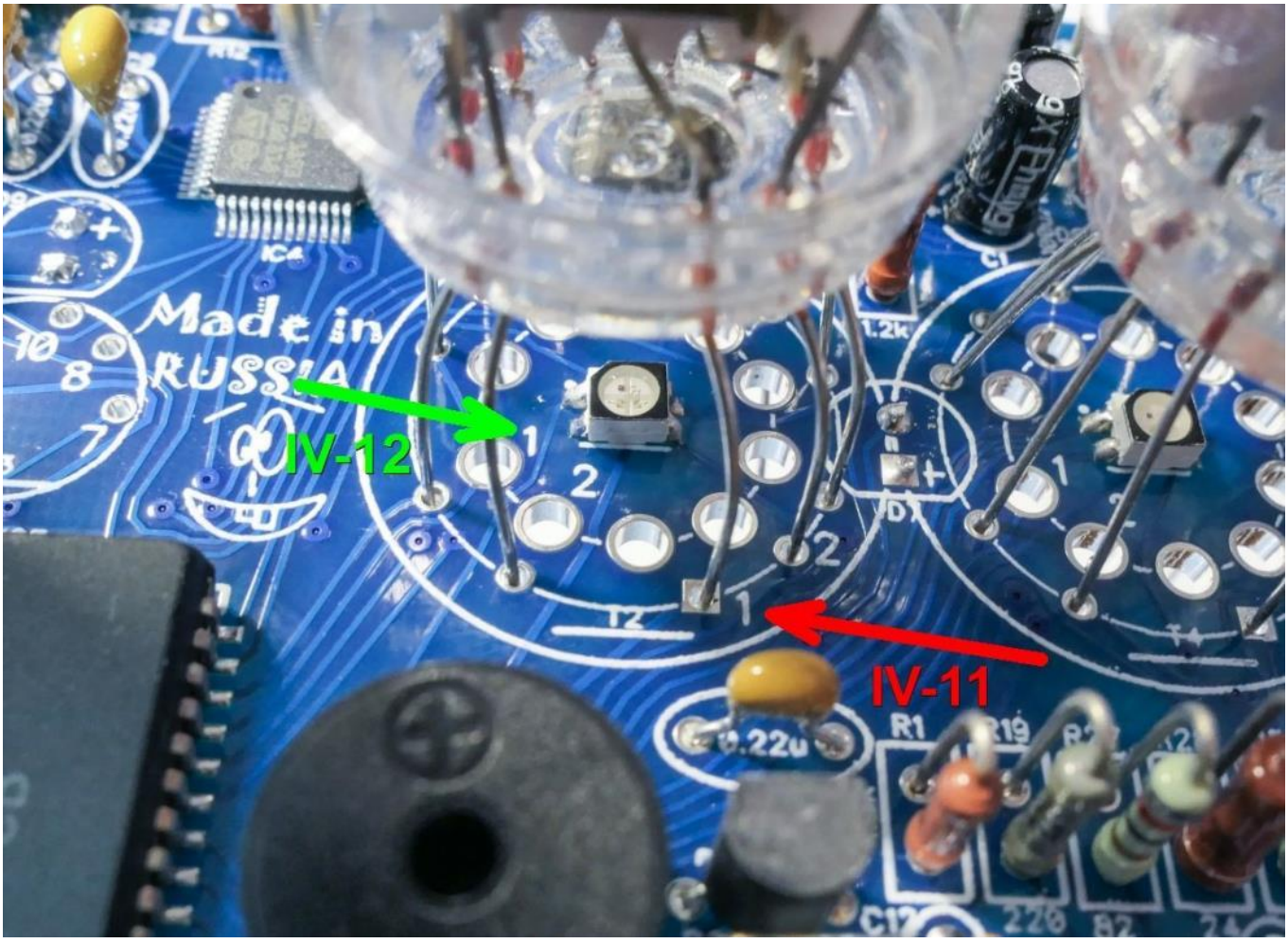


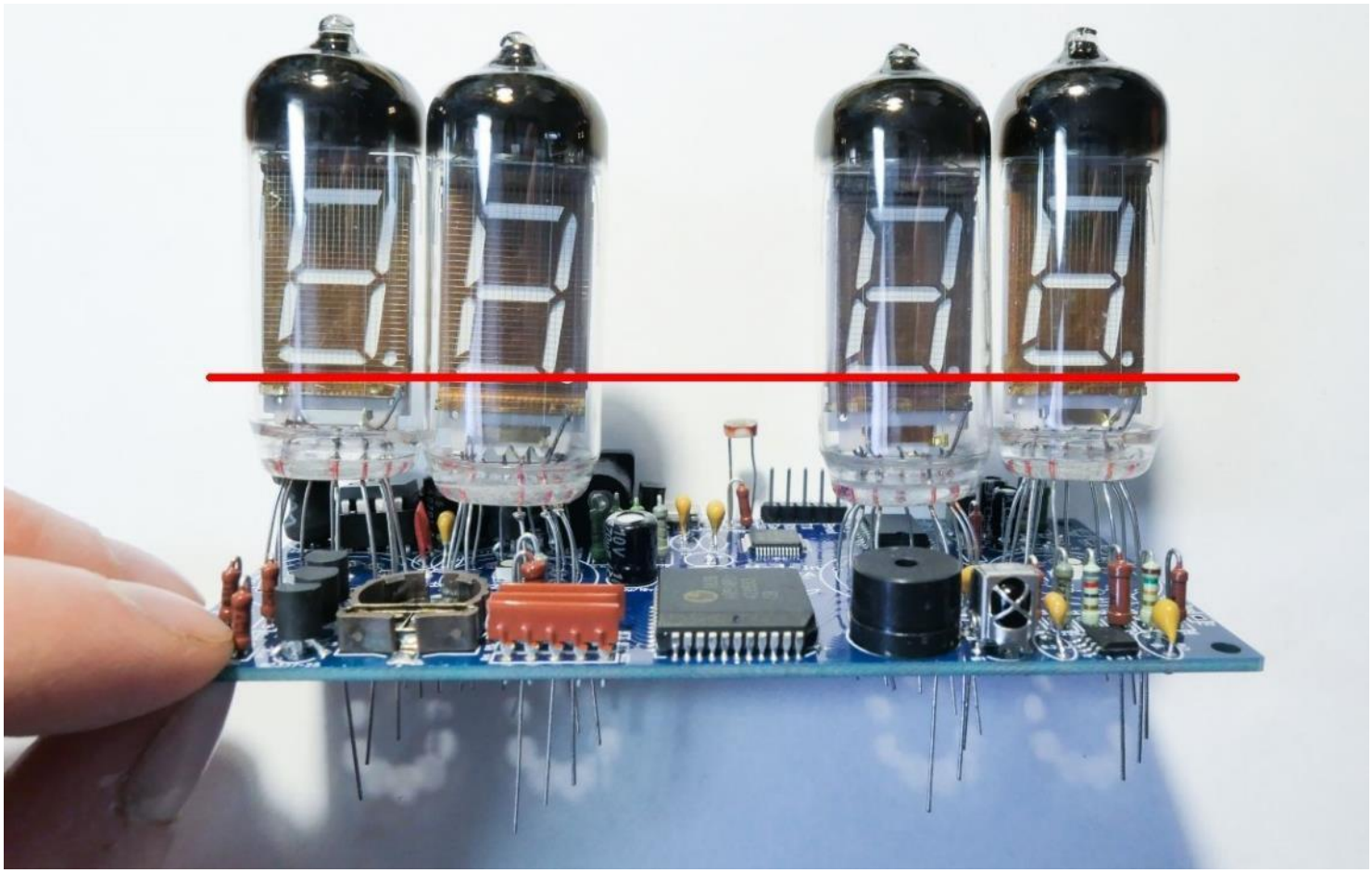
18) Prepare and install all IV-11 tubes. You can see that pins of tubes cuts spiral already. The longest pin – the first pin:



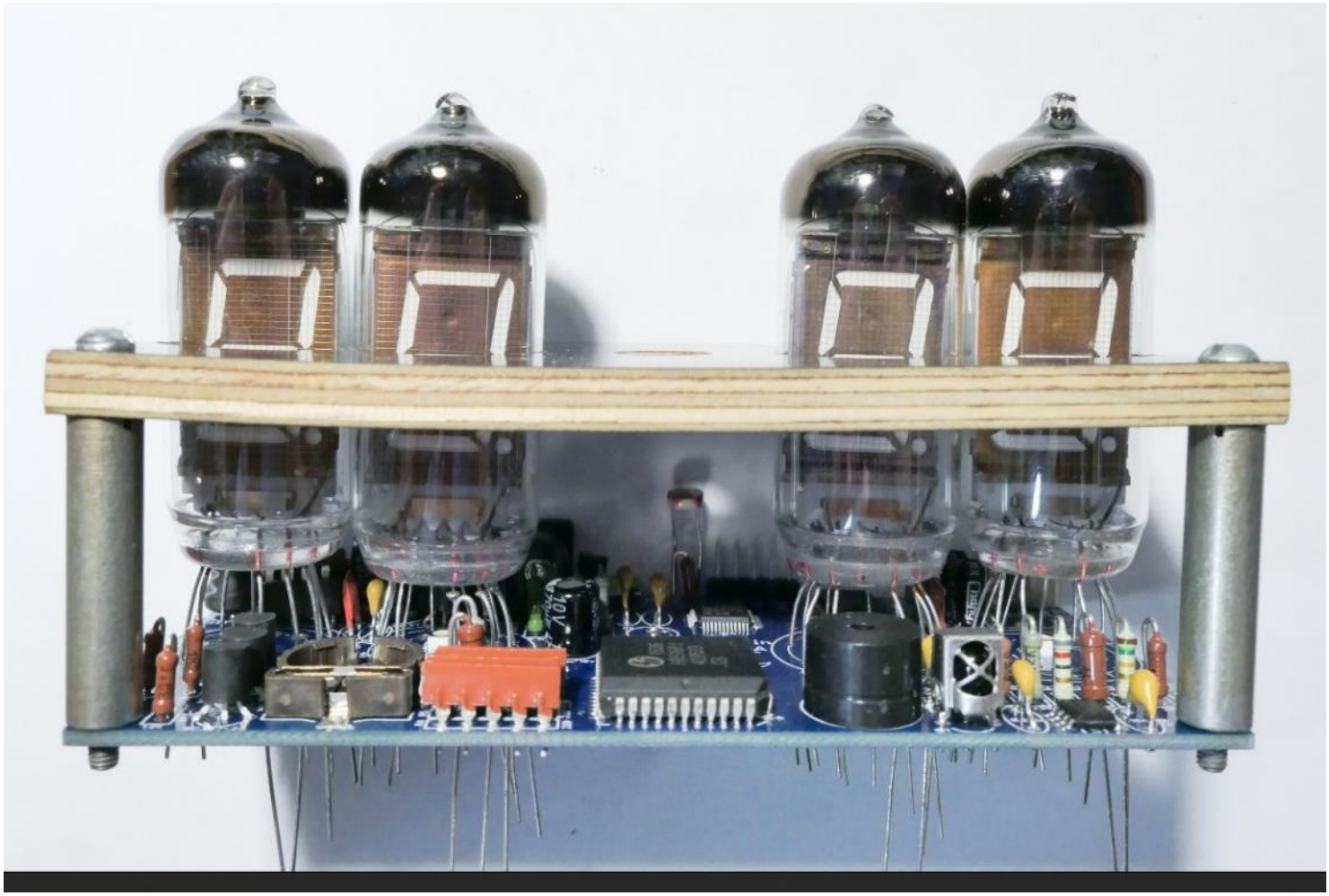
First pin for IV-12 green arrow, first pin for IV-11 red arrow.

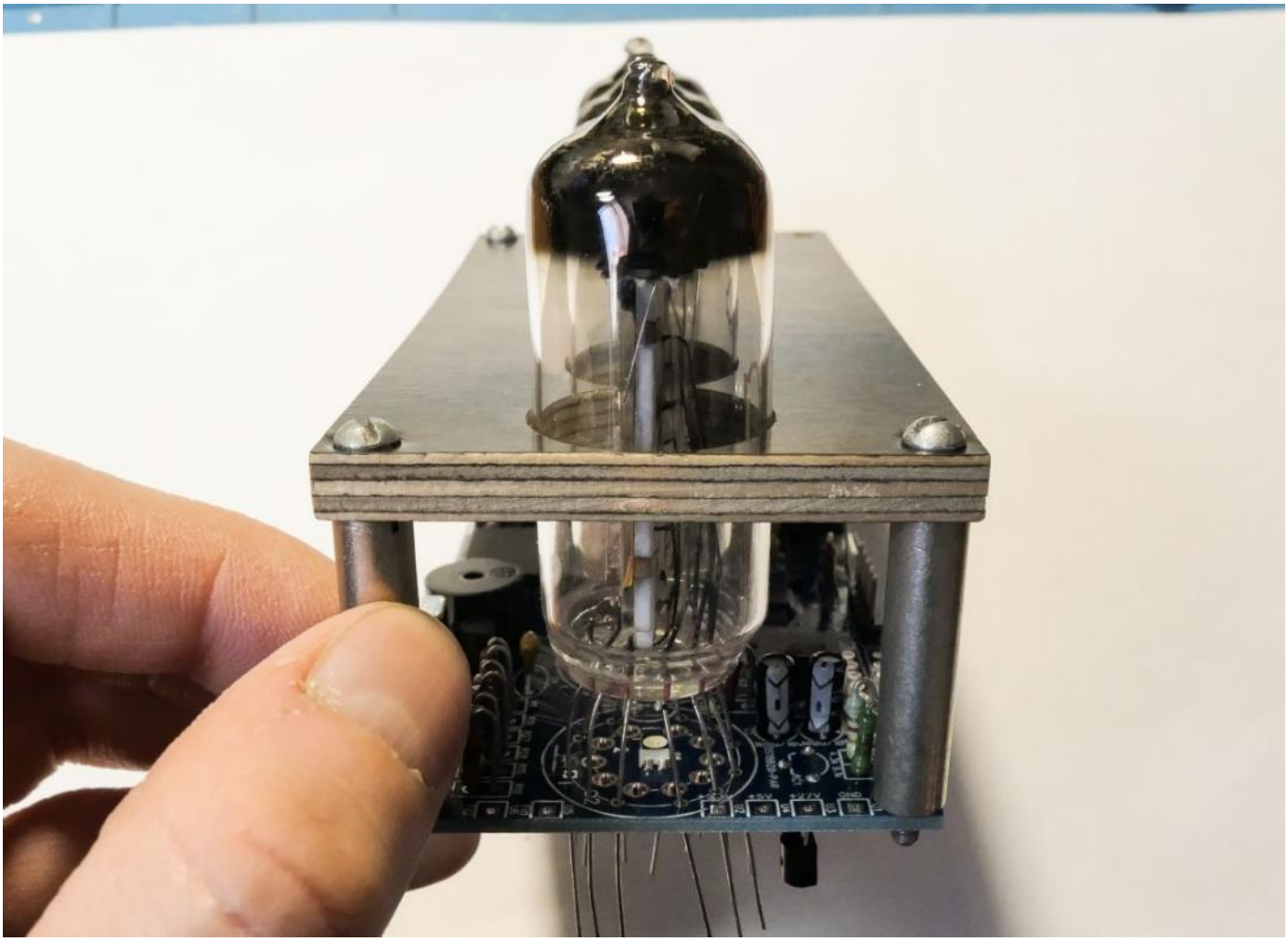




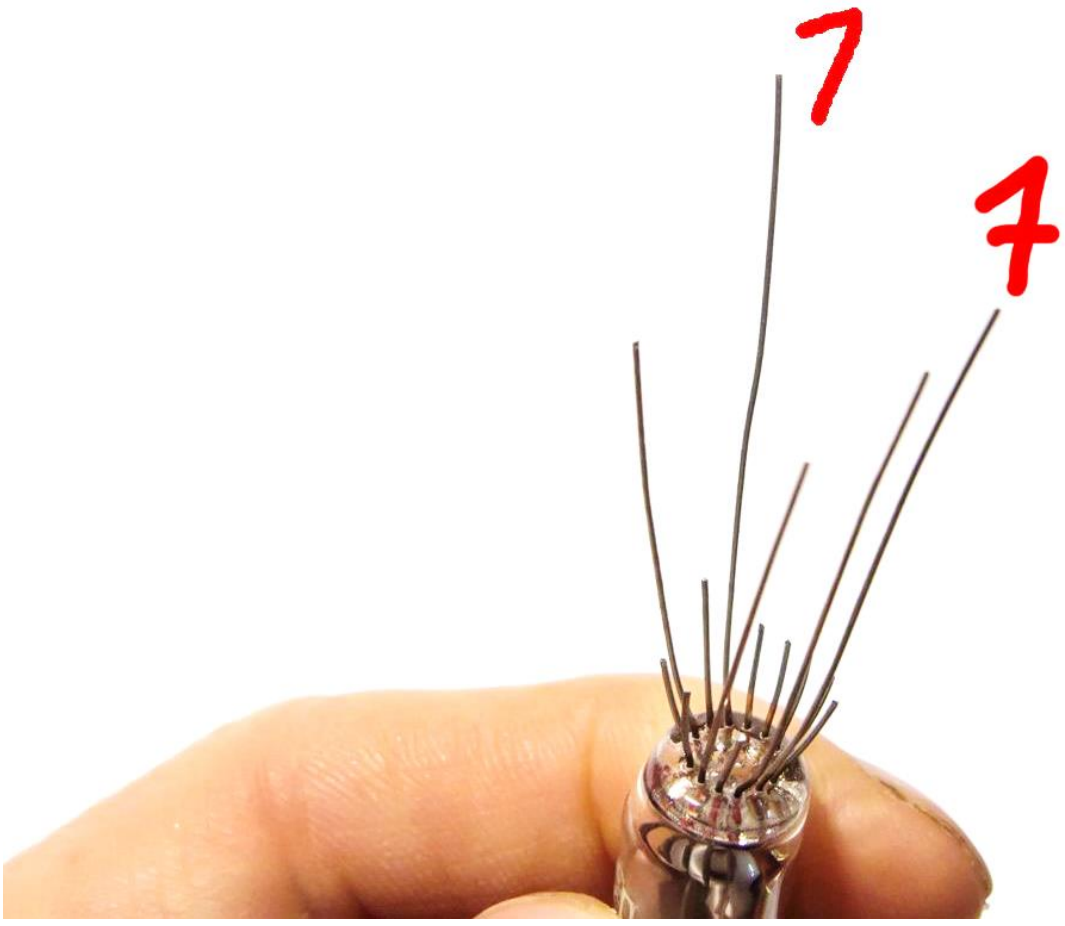


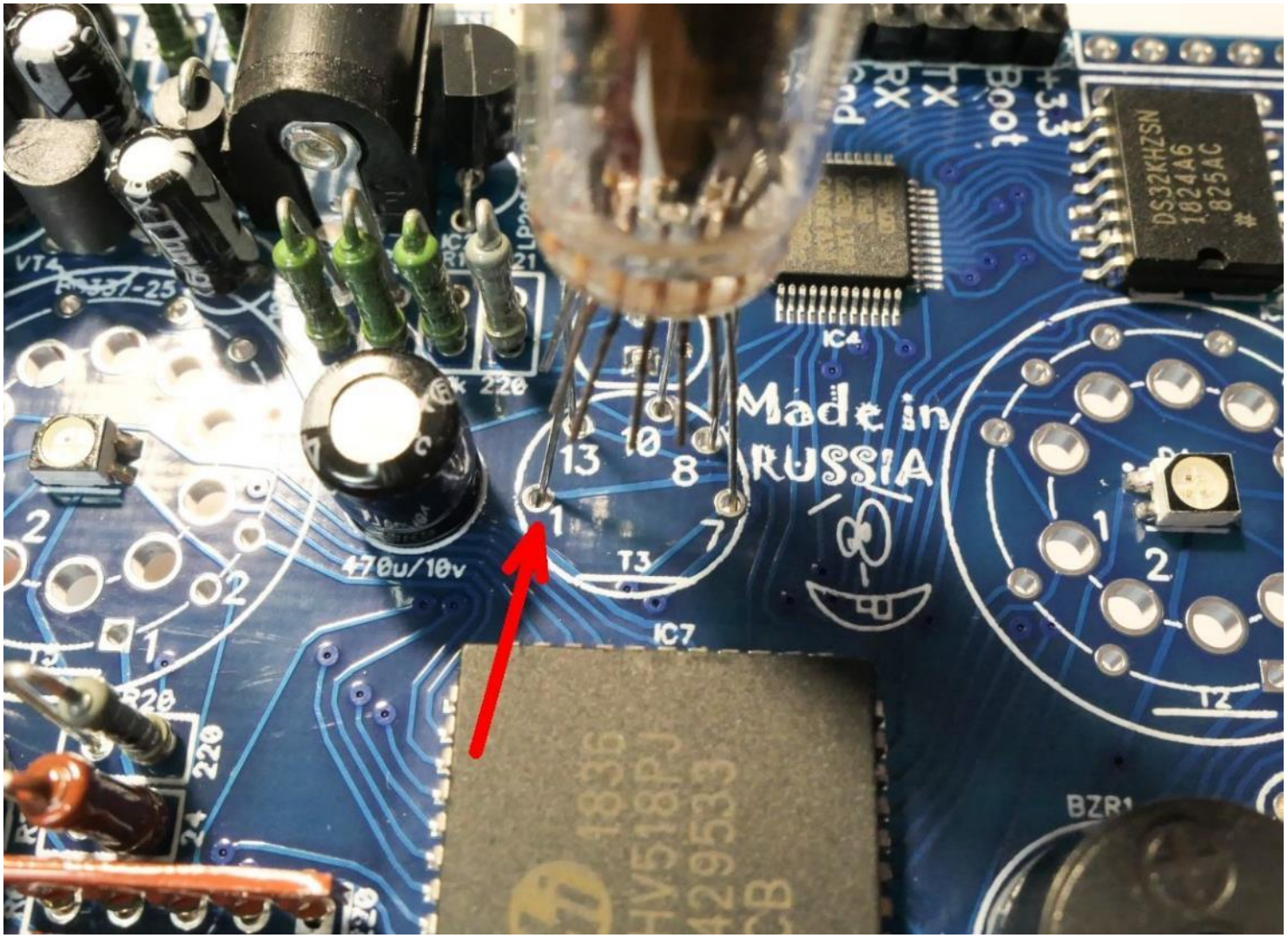
Use wooden fixture to align tubes in straight line.





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

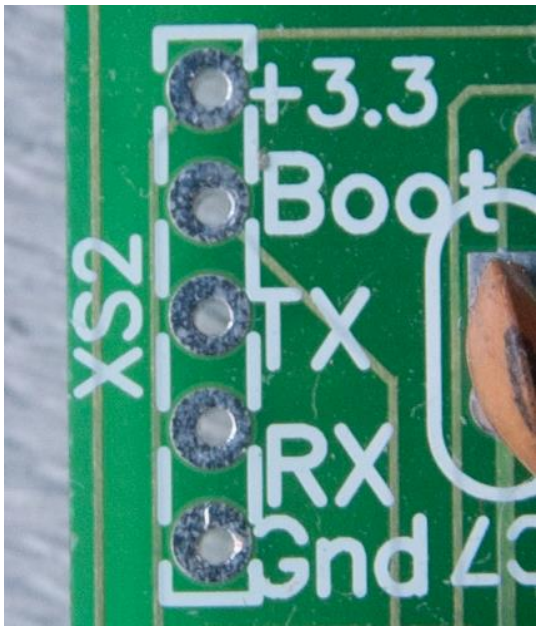




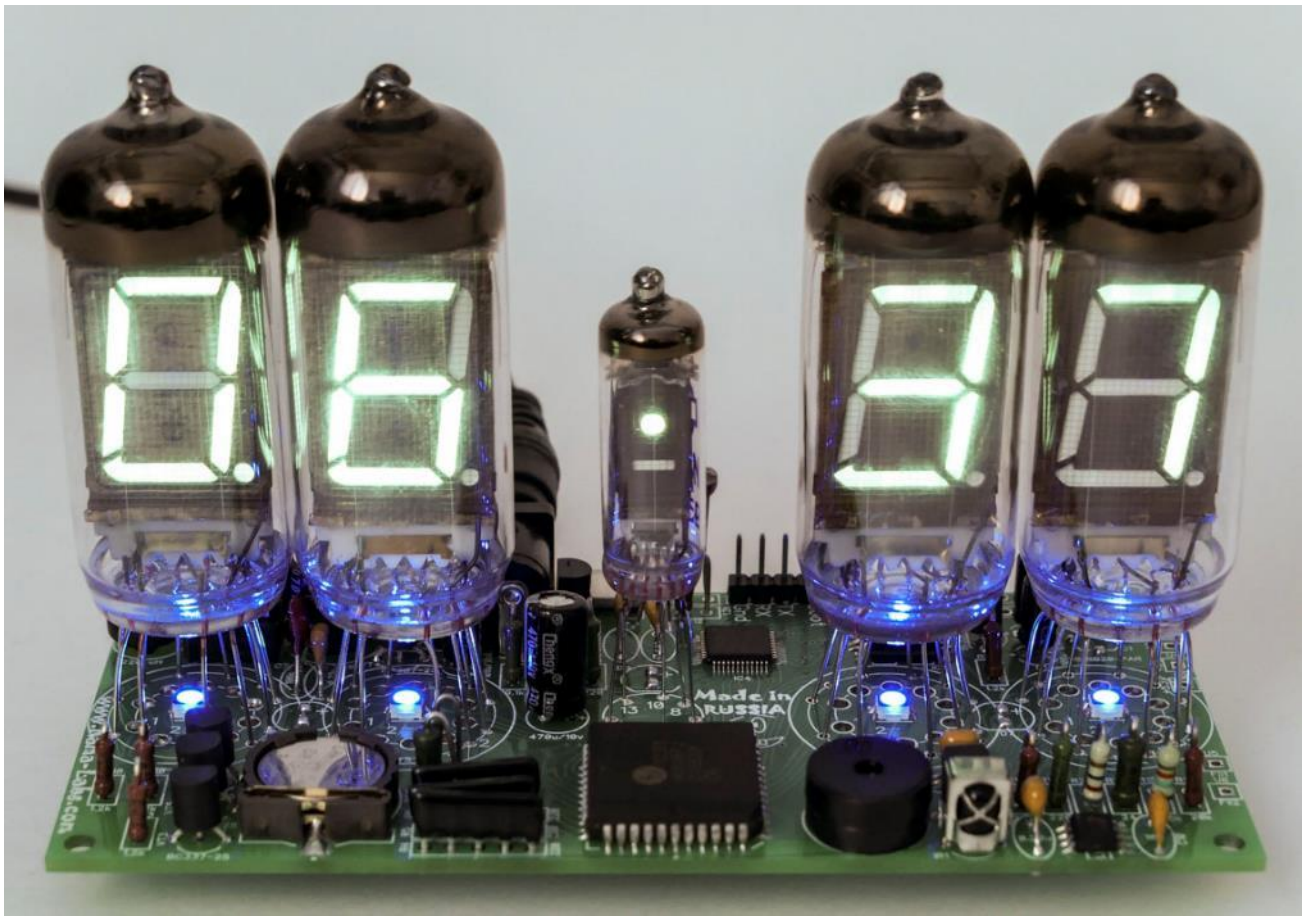
20) Now check the resistance between GND and +3.3V pins of XS2 again. It is should be ~3kOhm. However, not lower 1 kOhm.

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

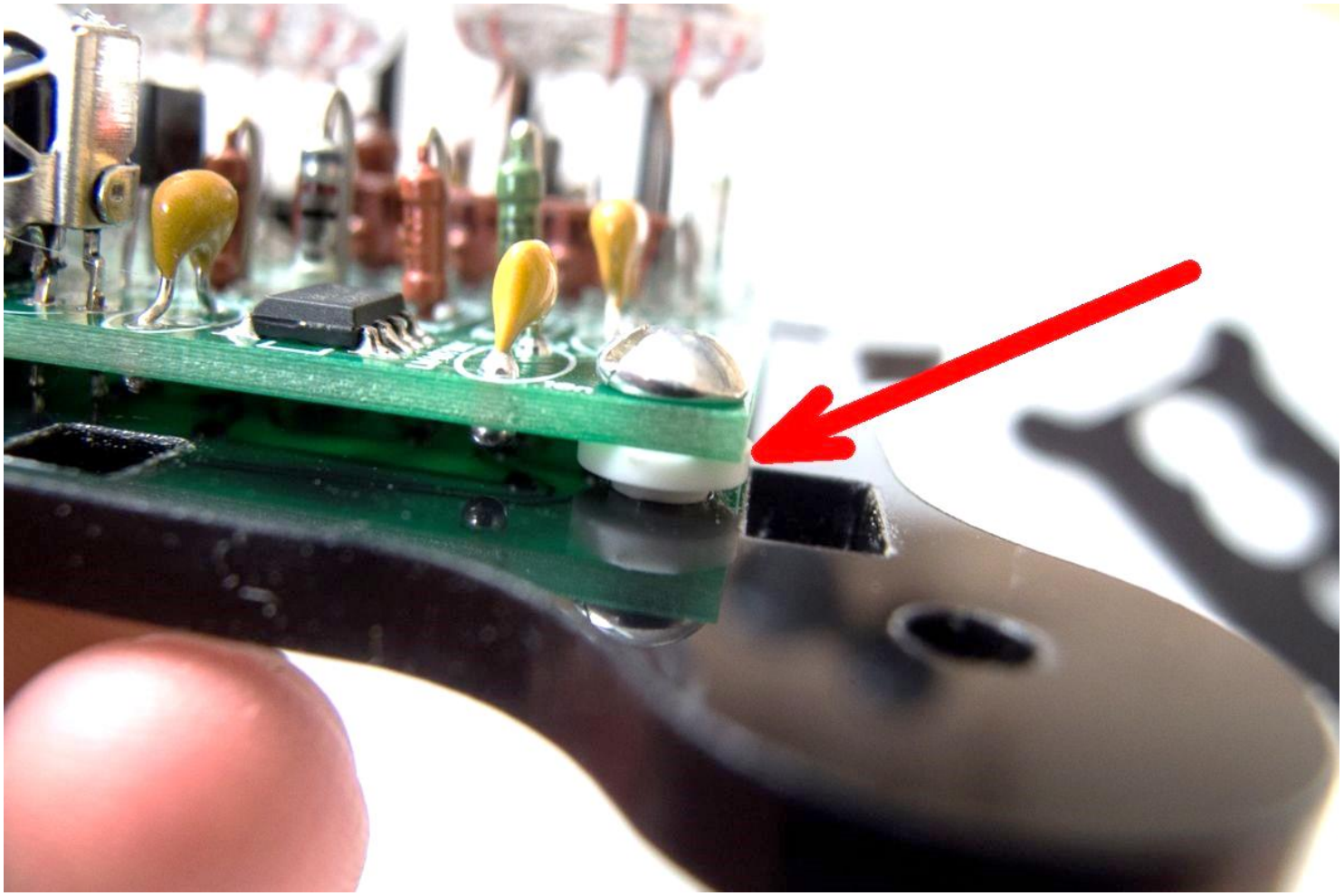
If it not happens, check the 3.3V on XS2 between GND and +3.3 pins.



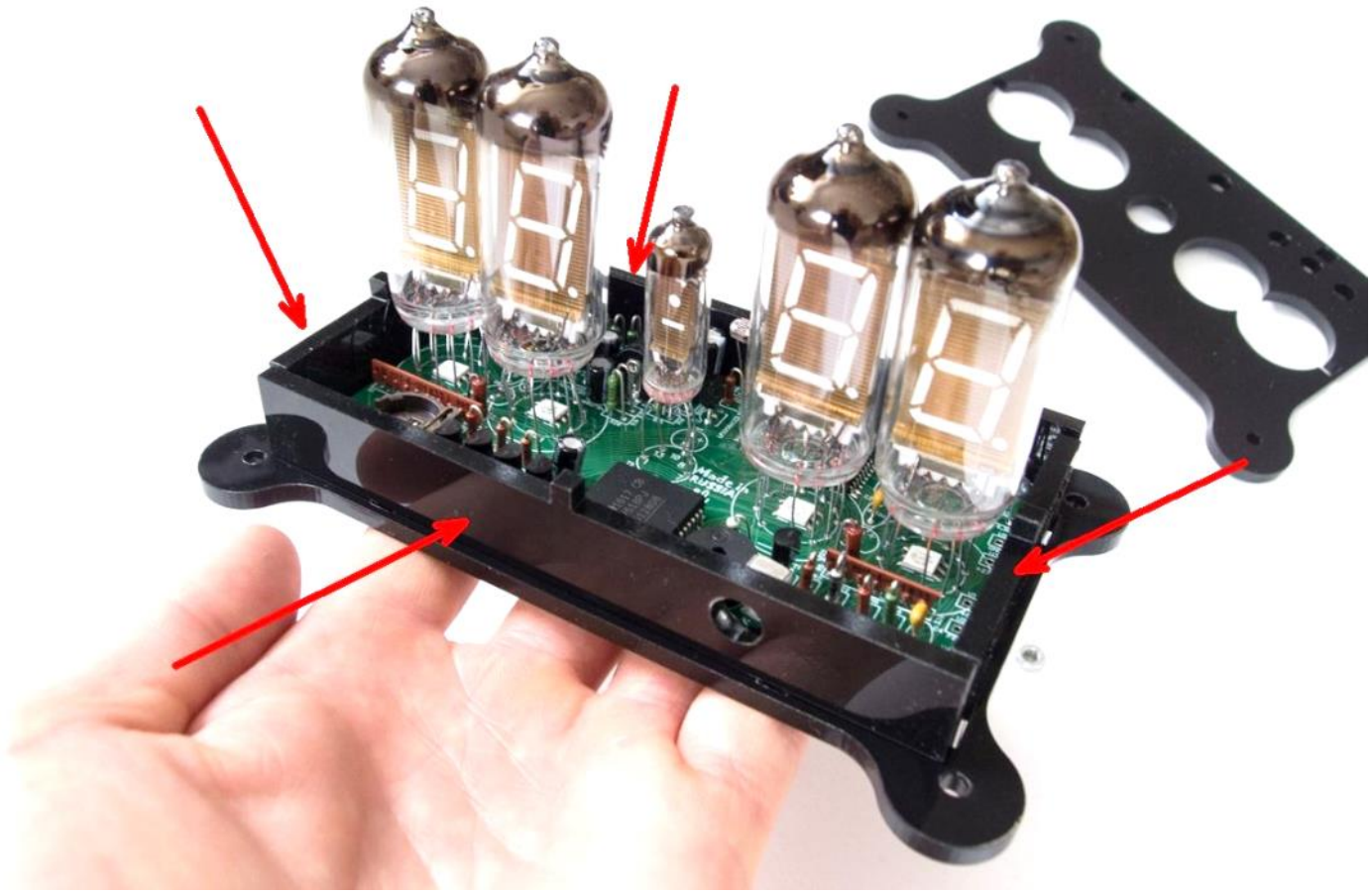
22) After all clock should work.



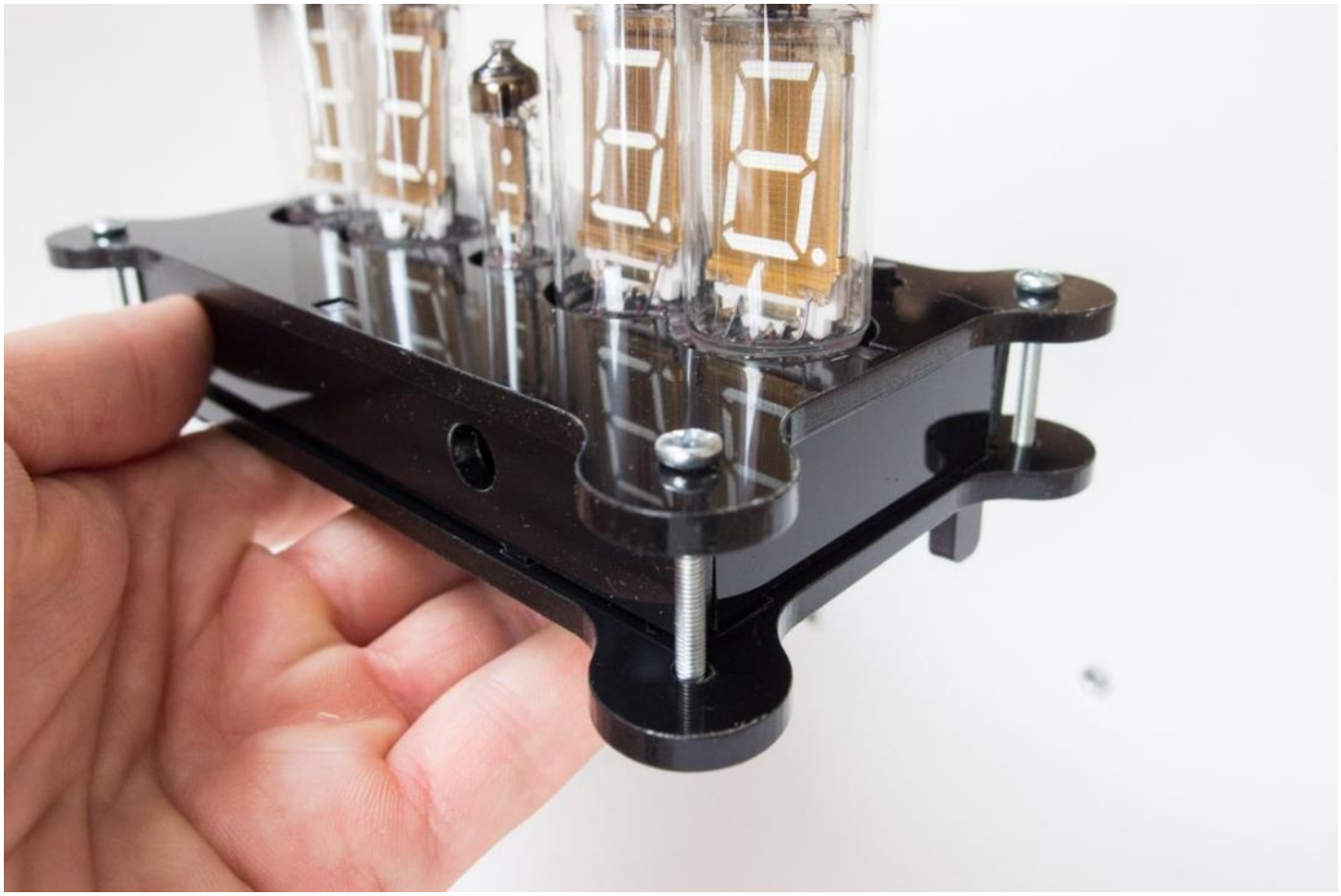
23) Assembling of plastic case. Firstly, remove protection film. Then, take bottom panel in hand and put clock above.



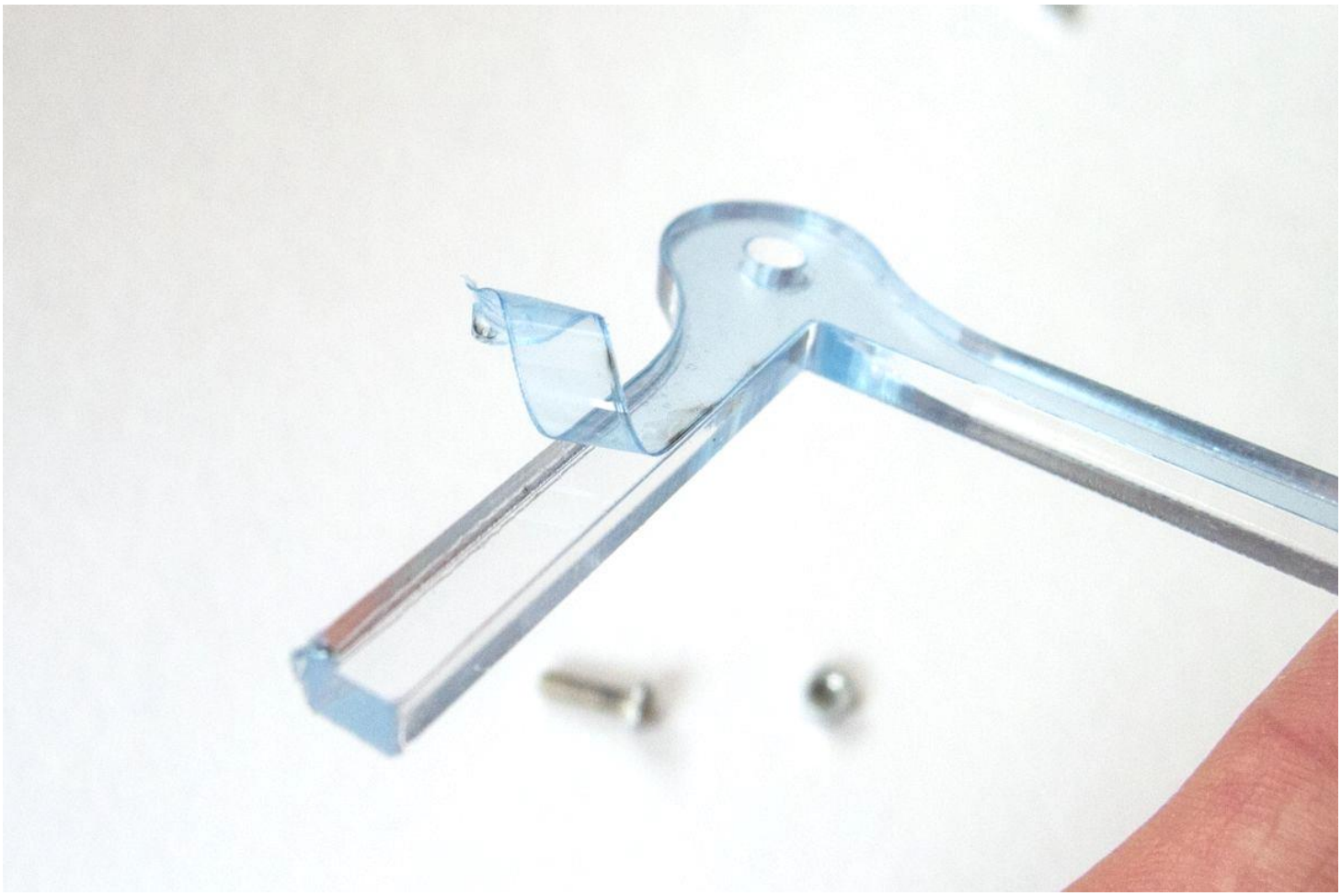
24) Then insert back, front and side panels:

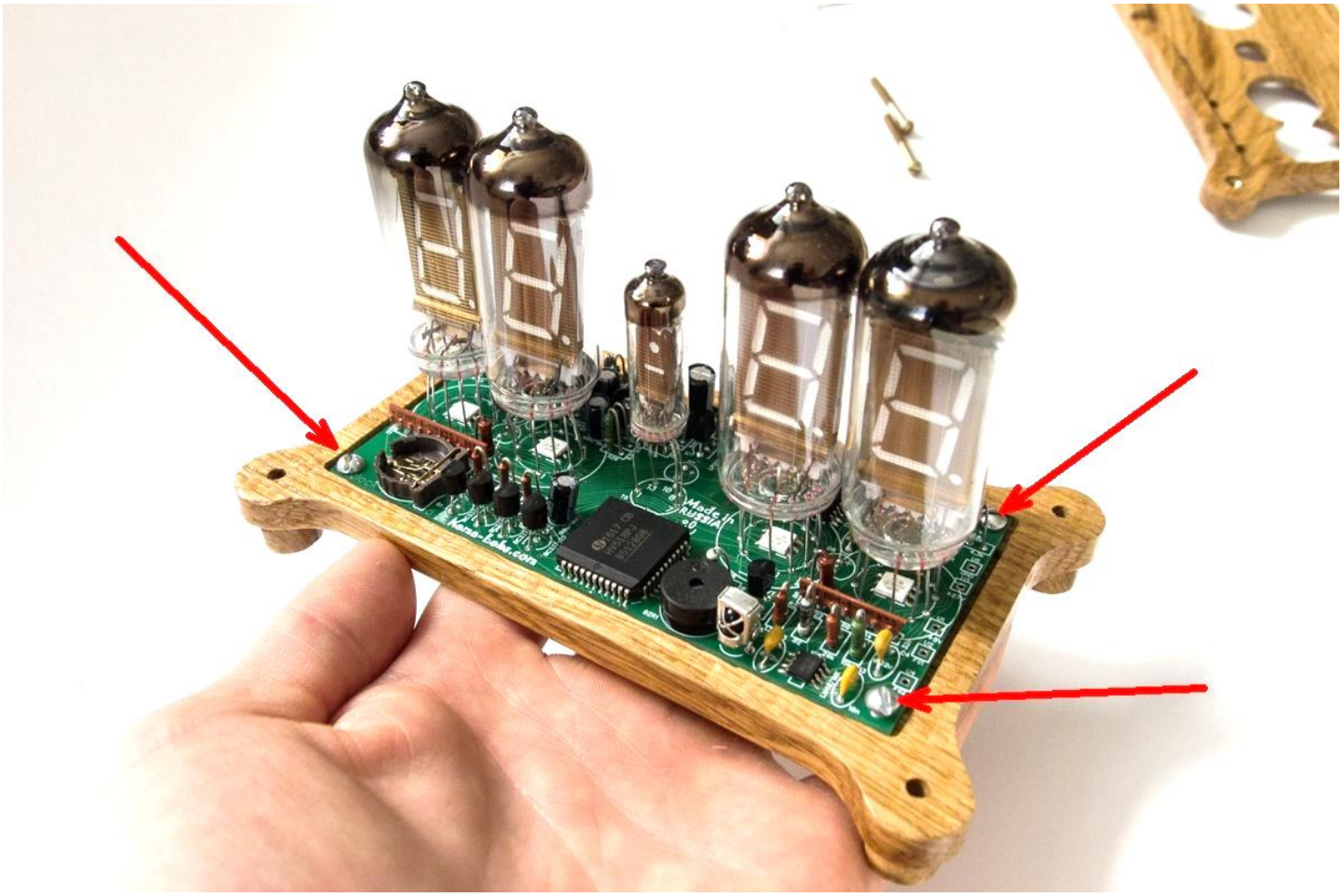


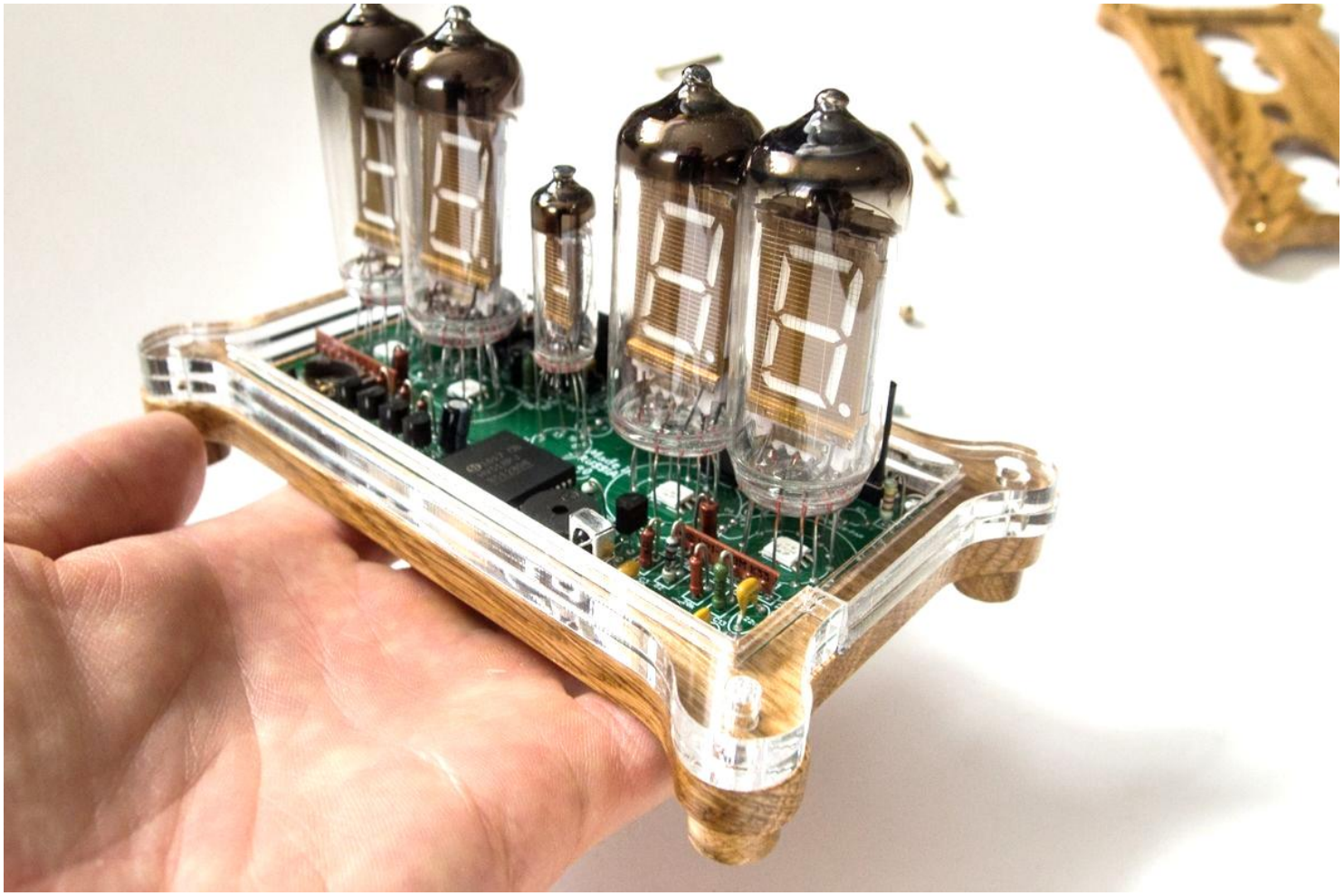
25) At last, insert top panel and tighten the nuts.

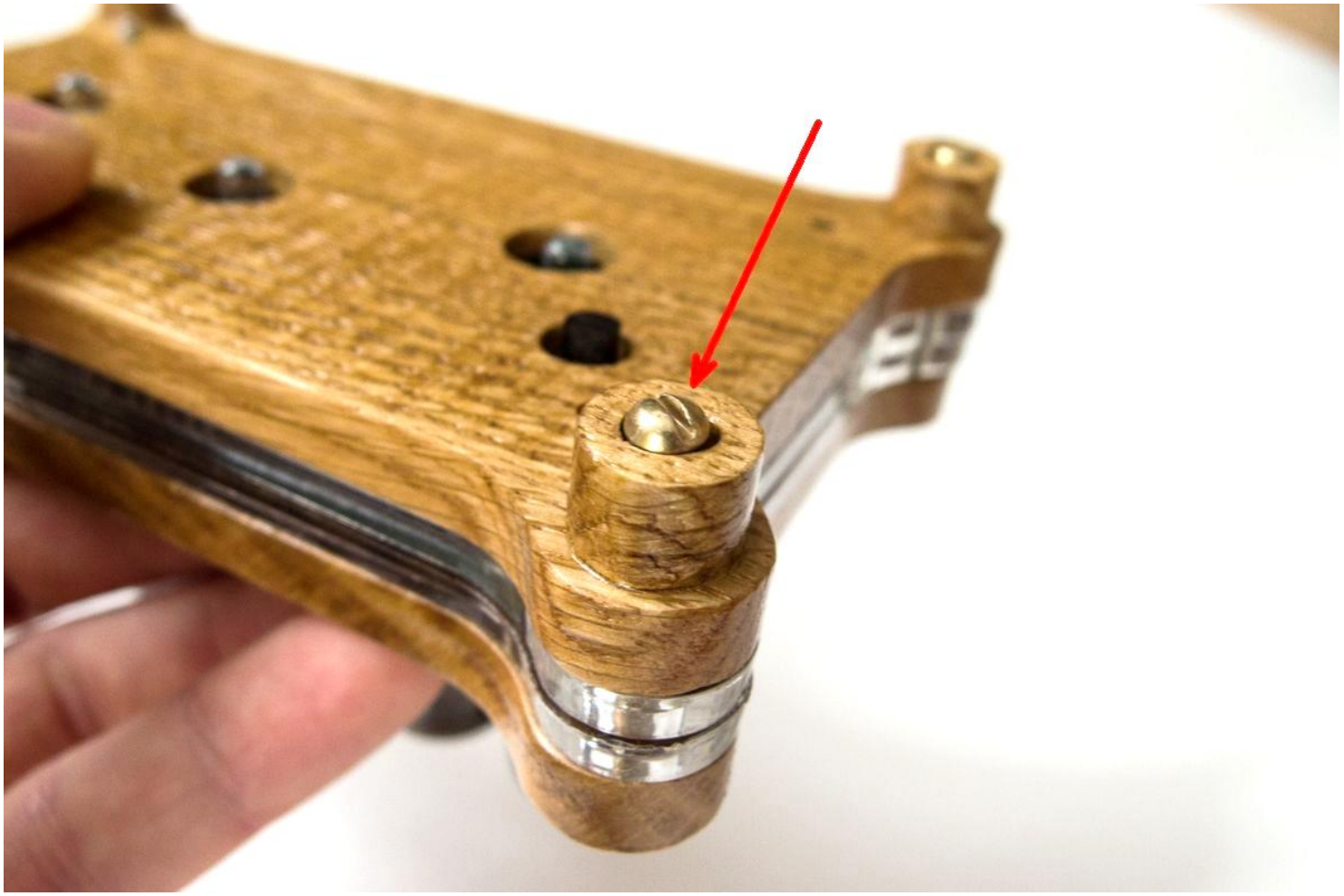


26) Assembling wooden case:









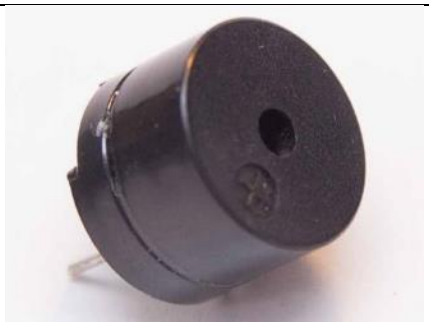
CONGRATULATIONS!

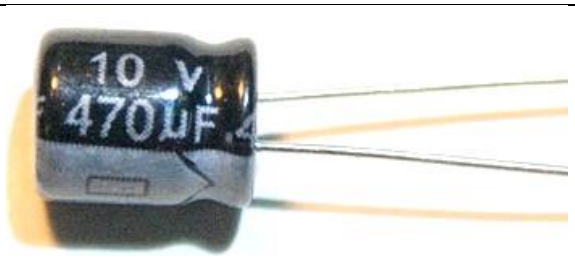
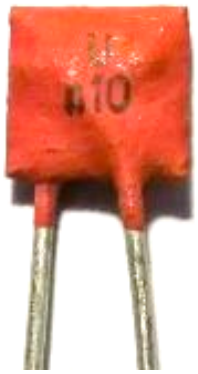
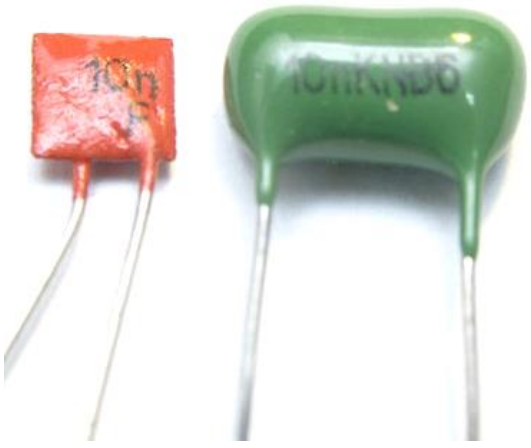
(^_^)

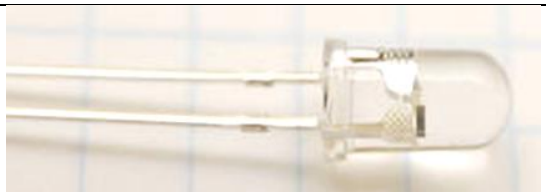
PARTS LIST

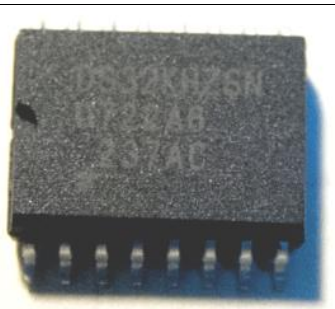
Please note, that elements in kit can be a little different. If you doubt value of element, check it with multimeter.

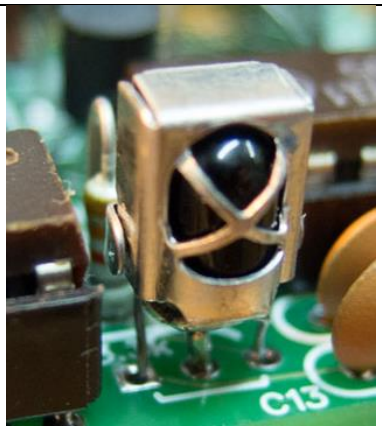
IF VALUE OF ELEMENT IN SPECIFICATION AND ON PCB IS DEFFERENT, PLEASE USE VALUES FROM SPECIFICATION or SCHEMATIC.

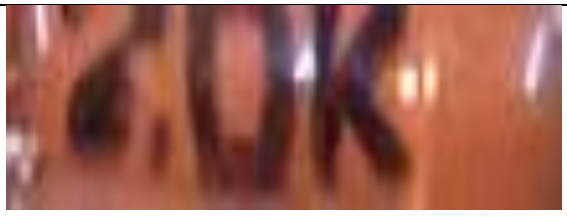
Label	Value	Qty	Photo
B1	Bat. CR1220	**1**	
BZR1	Buzzer	**1**	
C1, C8, C11, C13	100u/10v	**4**	

C2, C4, C6, C9, C12	0.22u	**5**	
C3	470u/10v	**1**	
C5	220u/35v	**1**	
C7	100p	**1**	
C10	10n	**1**	

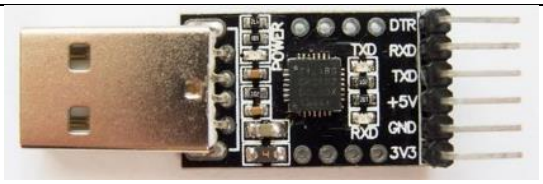
D1, D2, D4, D5	RGB LED 3528 Common Anode	**4**	
D3	P6KE6.8	**1**	
D6	1N5819	**1**	
D7, D8, D9	LED Auto	**3**	
IC1	DS18B20-PAR	**1**	

IC2	LP2950ACZ3.3	**1**	
IC3	DS32kHz	**1**	
IC4	STM32F100C6T	**1**	
IC5	MC34063AP1	**1**	
IC6	LM4871MX	**1**	

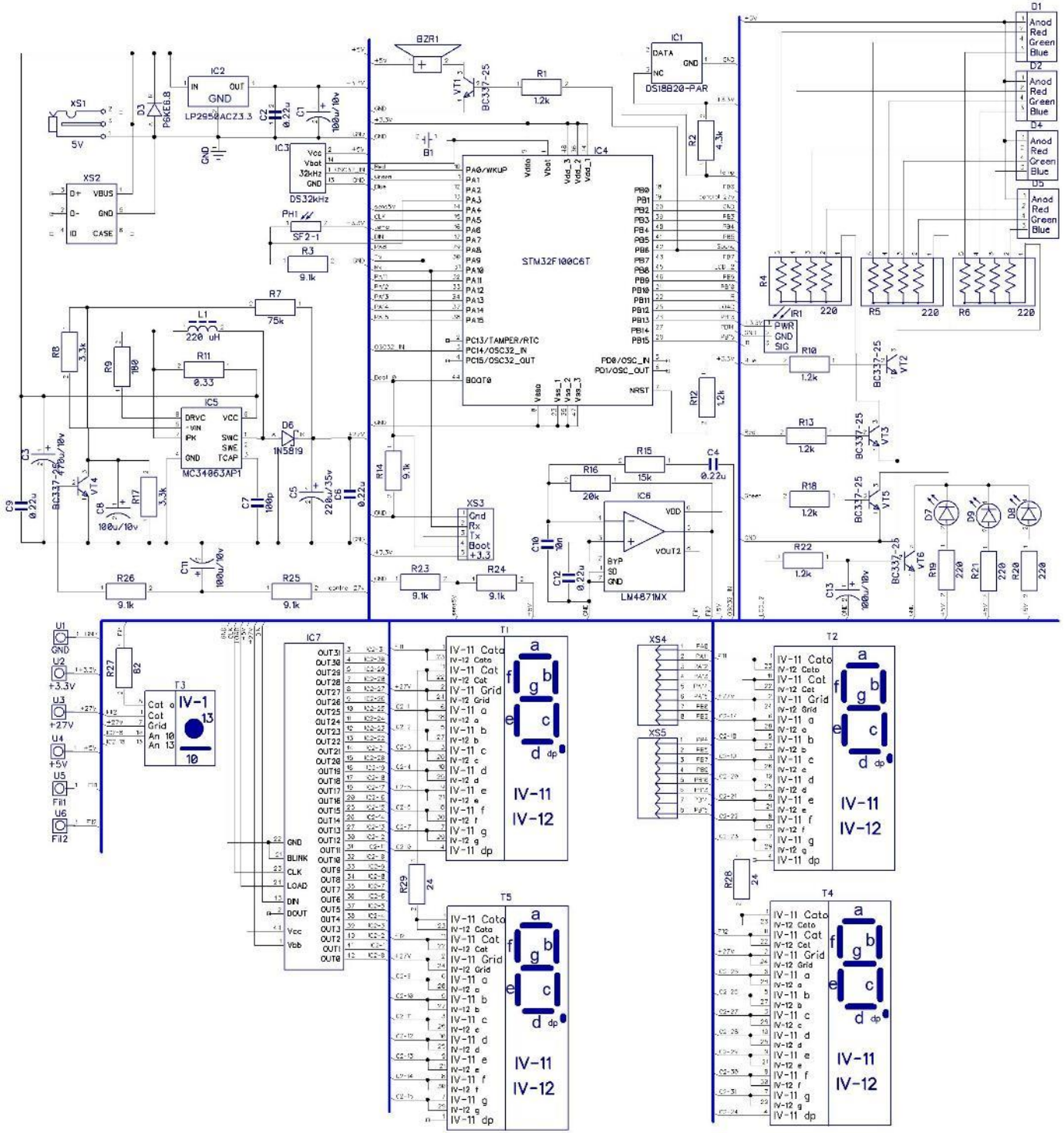
IC7	HV518	**1**	
IR1	IR-sensor	**1**	
L1	220 uH	**1**	
PH1	SF2-1	**1**	
R1, R10, R12, R13, R18, R22	1.2k	**6**	
R2	4.3k	**1**	
R3, R14, R23, R24, R25, R26	9.1k	**6**	

R4, R5, R6	220 resistor array	**3**	
R7	75k	**1**	
R8, R17	3.3k	**2**	
R9	180	**1**	
R11	0.33	**1**	
R15	15k	**1**	
R16	20k	**1**	

R19, R20, R21	220	**3**	
R27	82	**1**	
R28, R29	24	**2**	
T1, T2, T4, T5	IV-11/IV-12	**4**	
T3	IV-1	**1**	

VT1, VT2, VT3, VT4, VT5, VT6	BC337	**6**	
XS1	Power socket	**1**	
Battery holder	CR1220	**1**	
5V power supply		**1**	
USB-UART converter		**1**	

Remote control		1	


STM32F100C6T
DS18B20-PAR
DS32kHz
LP2950ACZ3.3
MC34063AP1
LM4871MX
BC337-25
1N5819
P6KE6.8
SF2-1
IV-11
IV-12
5V
+3.3V
+27V
+5V
Anod
Red
Green
Blue