3D 4×4×4 LED Cube DIY Soldering Kit

NOTE:

This DIY installation is more difficult to be installed, please be patient until the installation is complete!!!

It is strongly recommended to browse the installation manual before starting installation!!!

Brief Intro:

This is a light cube DIY kit that you need to weld and assemble by yourself. The bottom plate comprises a circuit board and component parts. The 64 LED lights make up a stereo space. A variety of cool model shows a three-dimensional effect. It's better to watch it in the night.

Parameter:

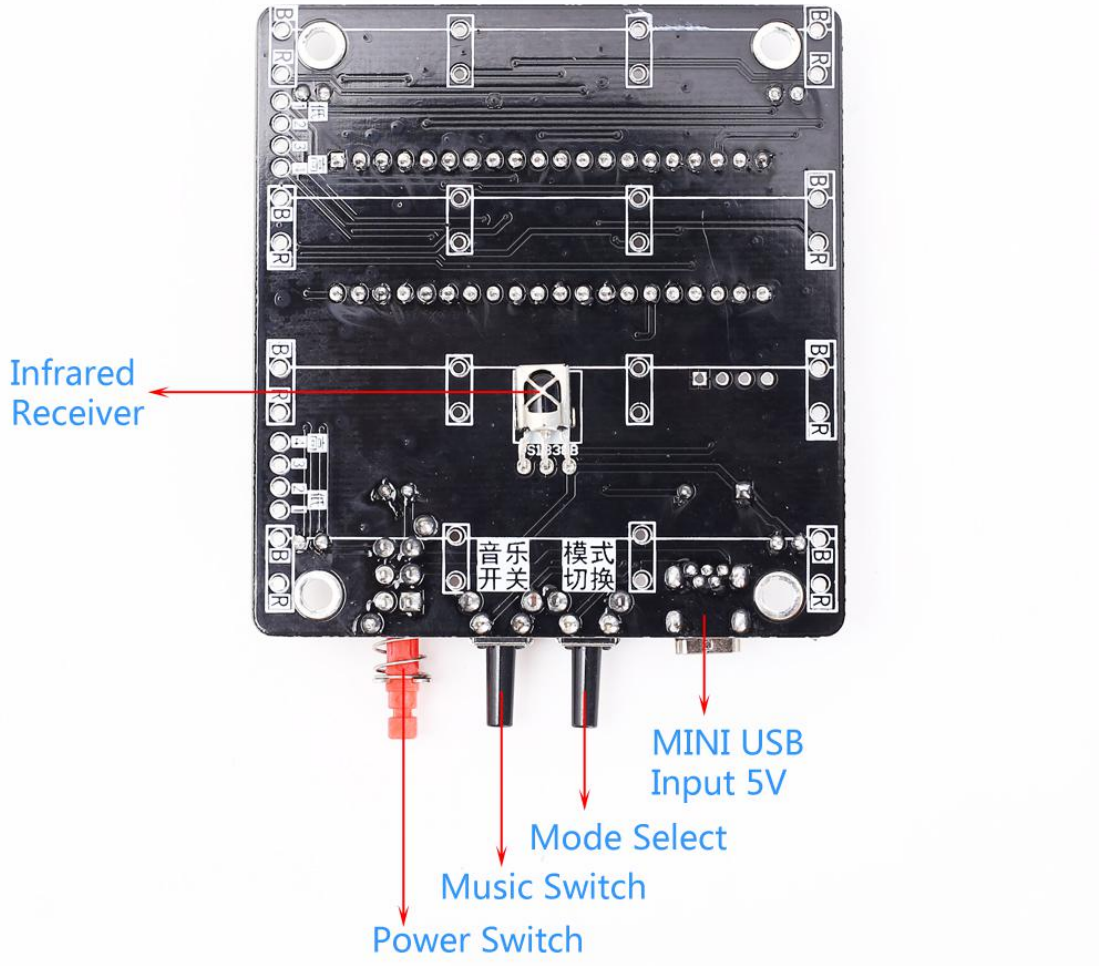
1	Model	3D Light Cube
2	Work Voltage	DC 4.5V-5.5V
3	Work Current	100mA
4	Power Type	MINI USB
5	Control Type	Remote Control+Button Control
6	Music Type	Pure Music
7	Music Kinds	11kinds(Can not be modified)
8	Work Temperature	-40℃~85℃
9	Work Humidity	0%~95%RH
10	Size(Installed)	84*67*100mm

Function:

- RGB LED light color changes automatically
- Automatic music playback
- 11kinds pure music
- Switch memory function
- Music switch control
- Infrared remote control
- Adjustable flashing speed

Basic instruction:

The 3mm LED and infrared receiver are mounted on the same side of the PCB, and the other components are mounted on the other side.



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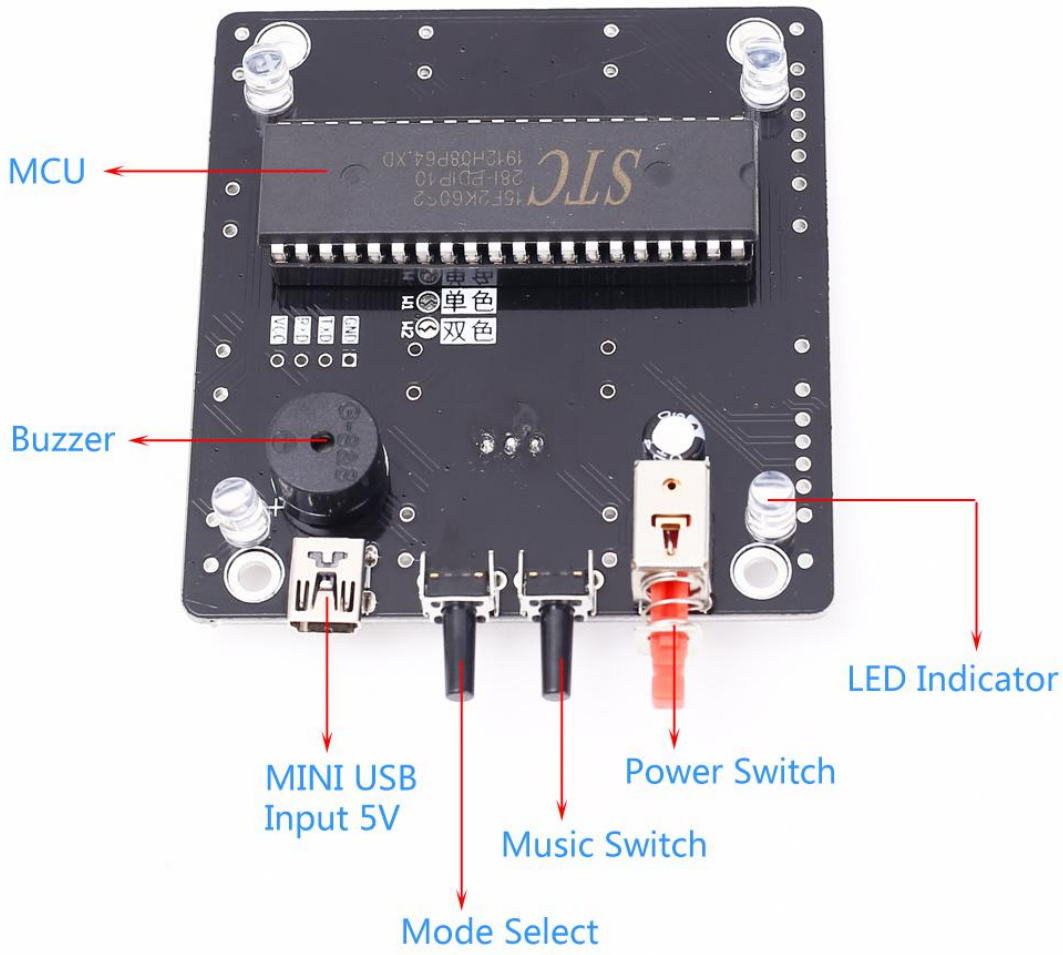
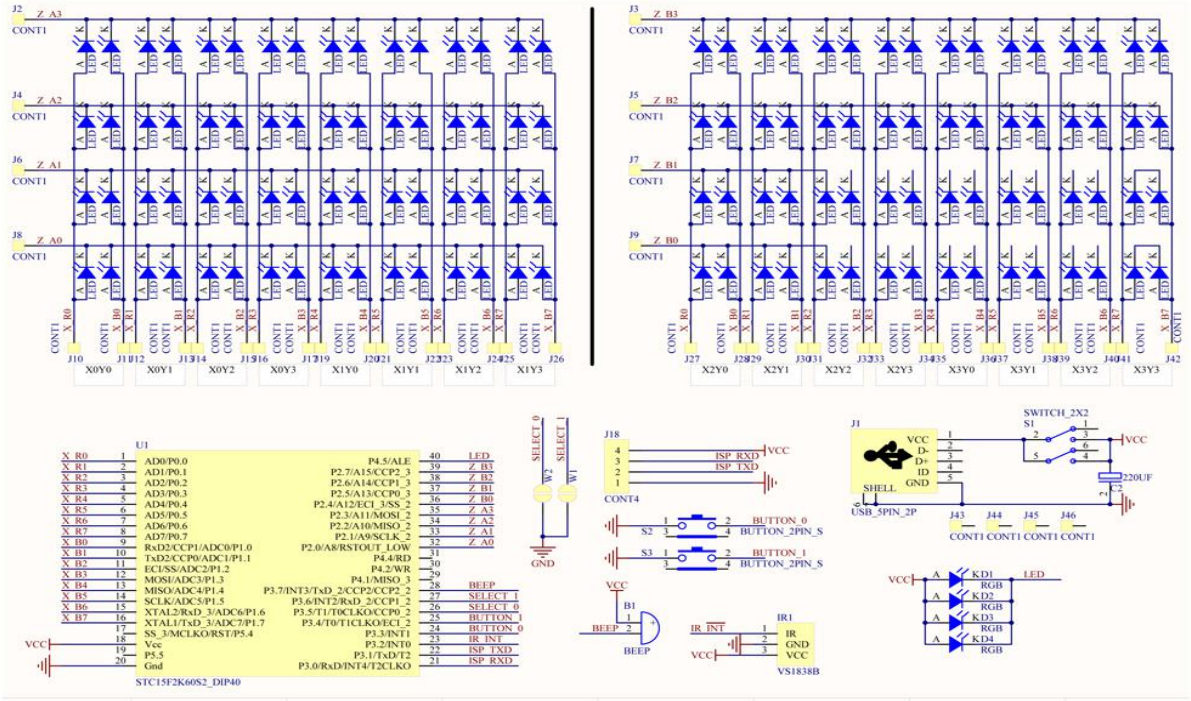
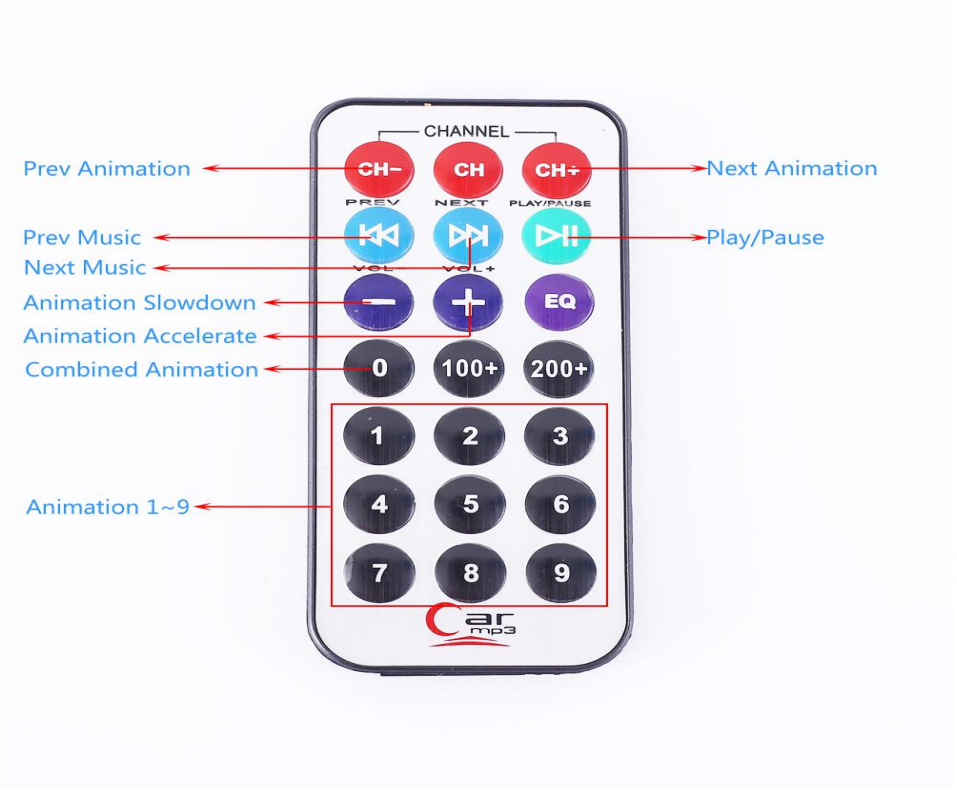


Schematic Diagram



Remote control button description:



Installation Notes (Please be patient install! !)

① User needs to prepare the welding tool at first.

② The package is DIY kit. It need finishing installation by user.

③ The soldering iron can't touch the components for a long time (1.0 second), otherwise it will damage the components.

④ Pay attention to the positive and negative of the components.

⑤ Users can complete installation by PCB silk screen and component listing.

⑥ User must install the LED according to the specified rules. Otherwise some LED will not light.

⑦ Install complex components preferentially.

⑧ Make sure all components are in right direction and right place.

Installation Steps (Please be patient install! !)

Step 1: Installing the PCB control board. Install 1pcs MINI USB. ***Note: the pin pitch is small, do not short circuit! And pay attention to the component mounting surface on PCB and do not install components in reverse on PCB side.**

Step 2: Install 4pcs 5mm RGB LED at four corners. Note: Distinguish

between the positive and negative of the LED. Long pin is positive.

Step 3: Install 1pcs DIP-40 IC socket. Pay attention to its installation direction.

Step 4: Install 2pcs Tact Switch black button.

Step 5: Install 1pcs Self-Locking Switch red button.

Step 6: Install 1pcs 220uf Electrolytic Capacitor. Note: Distinguish between the positive and negative. Long pin is positive.

Step 7: Install 1pcs buzzer. Note: Distinguish between the positive and negative. There is a mark ‘ ’ on PCB and buzzer.

Step 8: Install 1pcs VS1838B Infrared Receiver on another side of PCB. Please do not install it on the same side as other components.

Step 9: Install 1pcs STC12C5A60S2 on DIP-40 IC socket. Pay attention to its install direction.

Step 10: Test. Connect work voltage by USB cable and MINI USB socket.Then turn ON red power supply switch.

10.1>.Power ON is normal and the MCU STC12C5A60S2 is normal if 4pcs LED flashing at four corners.

10.2>.Buzzer and left black button is normal if buzzer playing music when pressing left black button.

10.3>.Right black button is normal if playing music changes when pressing right black button.

10.4>.Remote control and Infrared Receiver are normal if playing

music changes when pressing NEXT button.

10.5>.Fault and solution:

10.5.1>.Music is normal but LED can not turn ON means that LED installation is wrong.

10.5.2>.LED is normal but music can not play means Buzzer or IC socket installation is wrong. Or user needs to press the left black button multiple times.

10.5.3>.LED can not turn ON or weak light and music can not play means MCU installation is wrong.

Step 11: Learn about LED installation acrylic templates. The biggest hole is used to install 5mm LED and the smaller hole is used to install 3mm LED. This kit uses 3mm LED.

Step 12: Install Bracket for acrylic templates by 4pcs M3*6mm Screw and 4pcs M3*12mm Copper Column.

Step 13: Processing LED pin. 90°bent short pin and the 90°bend long pin. But they bend in different directions and positions.

Step 14: Place LED on acrylic templates. The short pins of the LED are connected to each other and the long pins are connected to each other.

Step 15: Place 4*4 LED on acrylic templates. Make sure that the positive and negative of LED must not be wrong.

Step 16: Fixed all pins. All LEDs are aligned, pay attention to the

beauty.

Step 17: Test LED by multimeter to make sure every LED can turn ON. If there is an LED that is not lit, please update the replacement LED.

Step 18: Install and test other 3pcs 4*4 LED dot matrix in the same method.

Step 19: Install Bracket by 4pcs M3*6mm Screw and 4pcs M3*12mm Copper Column which form acrylic templates.

Step 20: Bend the negative pole of a 1pcs 4*4 LED dot matrix and bend it 90° inward. Note: Do not short circuit to other pins. And do not damage the soldering joint when bending.

Step 21: Mount the long pins (positive) of the 4*4 LED on the PCB where marked 'B'. LED head facing to the button. Please note to keep the height of the LED consistent and do not tilt.

Step 22: Install 1pcs 4*4 LED dot matrix next to the previous ones. But this 4*4 LED dot matrix no need to bend the negative pins. Pay attention to keep the height of the LED consistent and do not tilt.

Step 23: Connect and fixed negative pins from 2pcs 4*4 LED dot matrix. Cut off the extra pins.

Step 24: Connect each layer by white cable on mark 1~4. The bottom is the first layer. First fixed connection point on ring. Then confirm the length of the wire, then cut the wire. Finally fixed on the

PCB.

Step 25:Fixed connection wire for each layer.

Step 26: Bend the negative pole of a 1pcs 4*4 LED dot matrix and bend it 90° inward.Note: Do not short circuit to other pins. And do not damage the soldering joint when bending as same to Step 20. Install it next to the previous ones. Pay attention to keep the height of the LED consistent and do not tilt.

Step 27: Install 1pcs 4*4 LED dot matrix next to the previous ones. But this 4*4 LED dot matrix no need tp bend the negative pins. Pay attention to keep the height of the LED consistent and do not tilt as same to Step 22.

Step 28: Connect and fixed negative pins from 2pcs 4*4 LED dot matrix. Cut off the extra pins as same to Step 23 and cut off the extra pins.

Step 29: Connect each layer by white cable on mark 1~4. The bottom is the first layer. First fixed connection point on ring.Then confirm the length of the wire, then cut the wire. Finally fixed on the PCB as same to Step 24.

Step 30: Test and finish installation and enjoy.

Installation shown steps:

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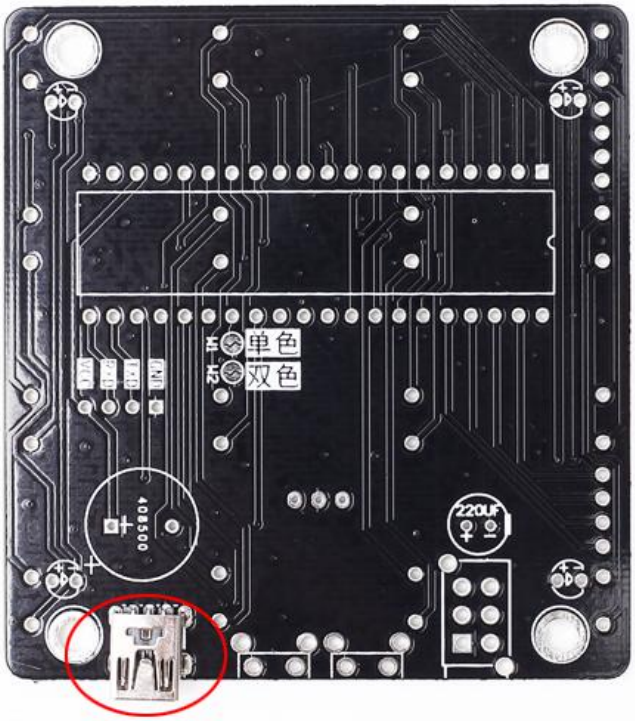
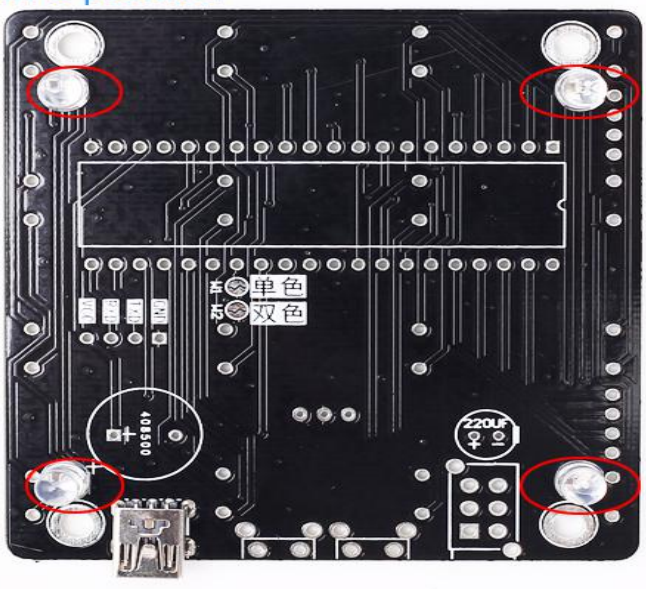
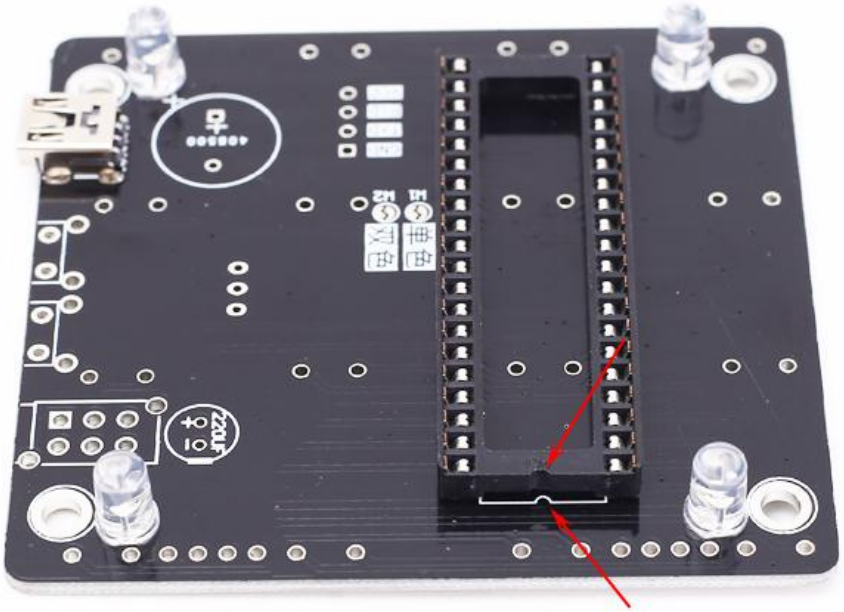


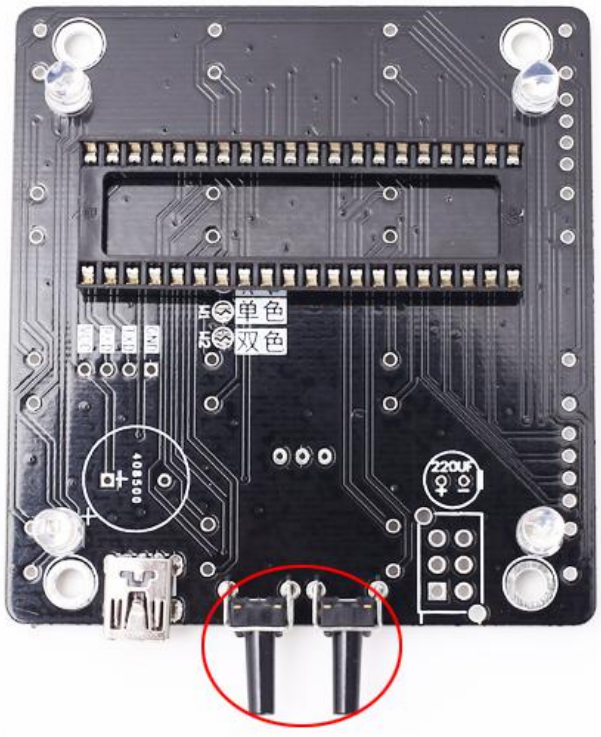
Step 2: Install 4pcs 5mm RGB LED at four corners.
Note: Distinguish between the positive and negative of the LED. Long pin is positive.



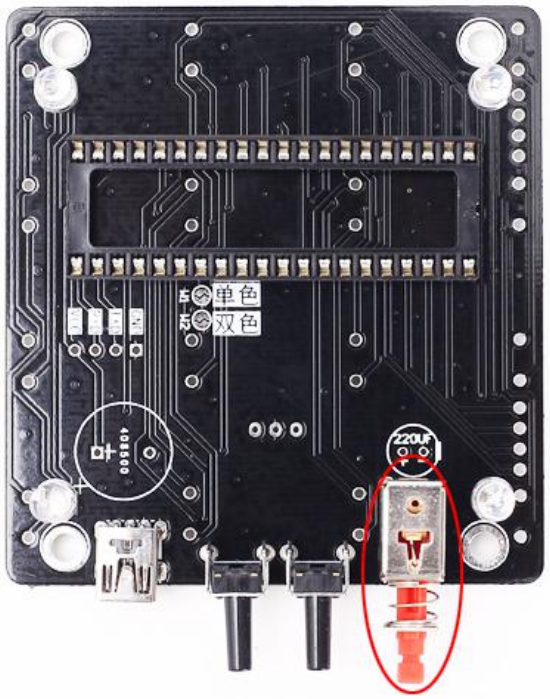
Step 3: Install 1pcs DIP-40 IC socket.Pay attention to its install direction.



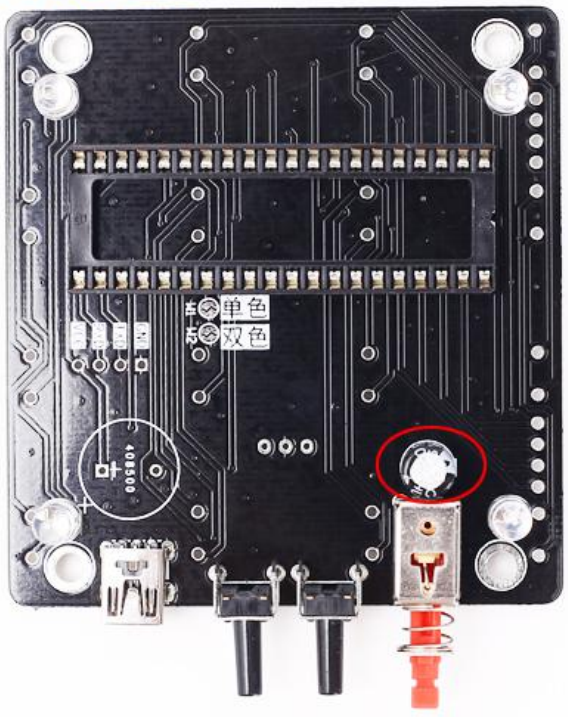
Step 4: Install 2pcs Tact Switch black button.



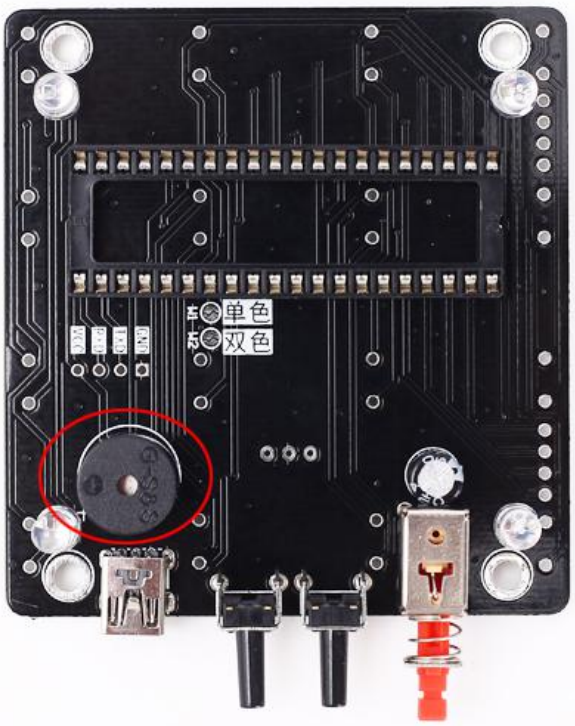
Step 5: Install 1pcs Self-Locking Switch red button.



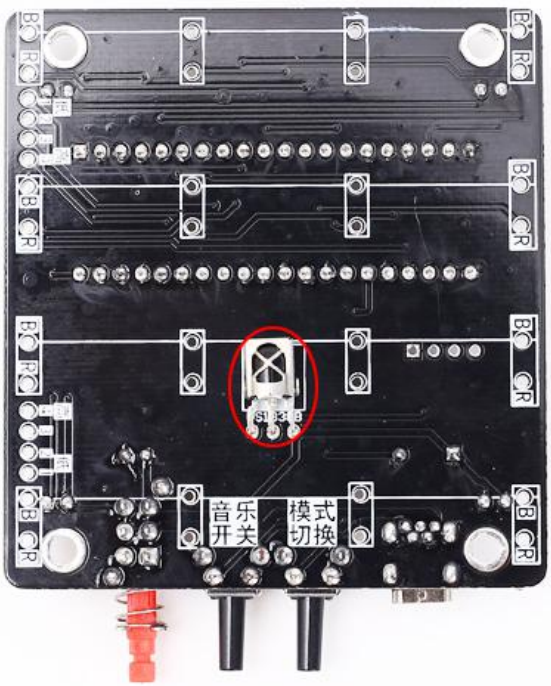
Step 6: Install 1pcs 220uf Electrolytic Capacitor.
Note: Distinguish between the positive and negative.
Long pin is positive.



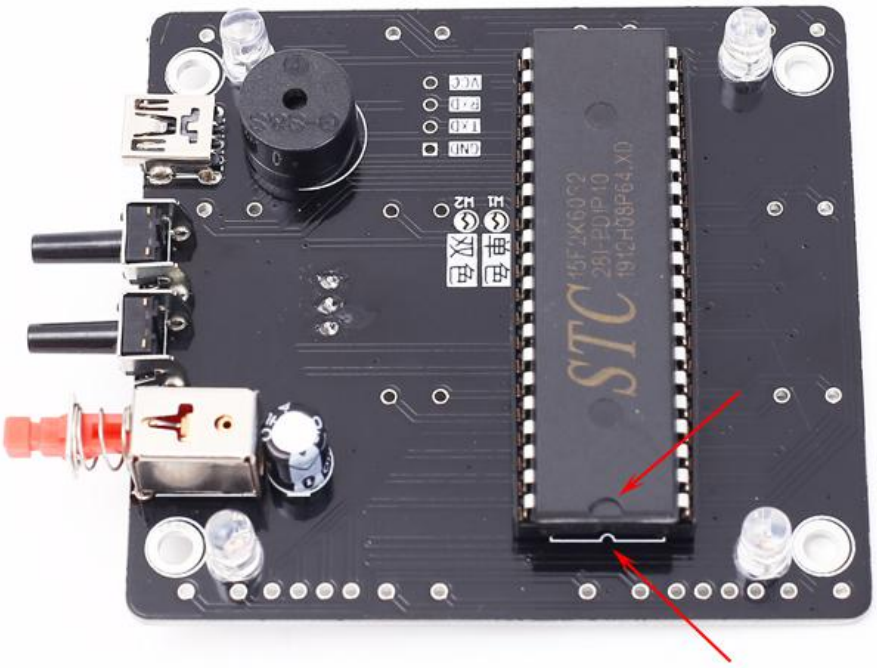
Step 7: Install 1pcs buzzer.Note: Distinguish between the positive and negative. There is a mark '+' on PCB and buzzer.



Step 8: Install 1pcs VS1838B Infrared Receiver on another side of PCB.Please do not install it on the same side as other components.



Step 9: Install 1pcs STC12C5A60S2 on DIP-40 IC socket. Pay attention to its install direction.



Step 10: Test.Connect work voltage by USB cable and MINI USB socket.Then turn ON red power supply switch.

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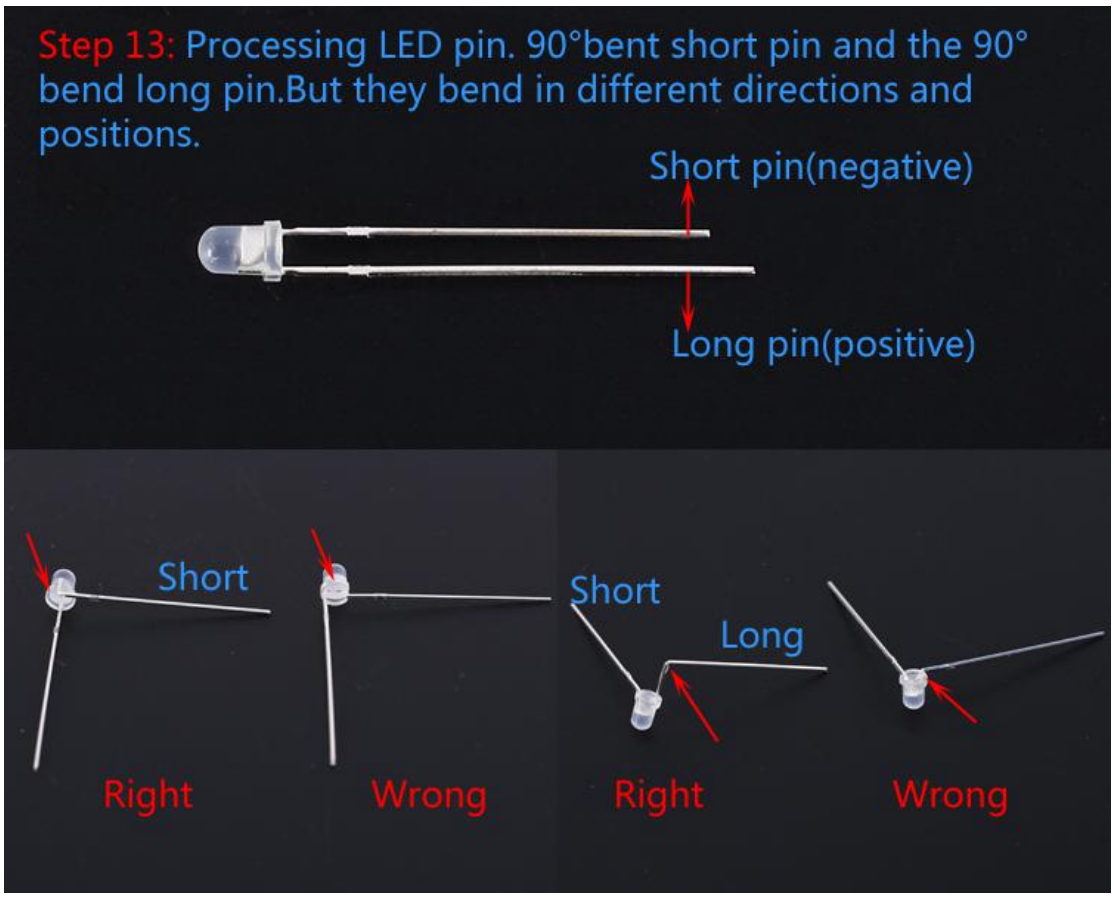
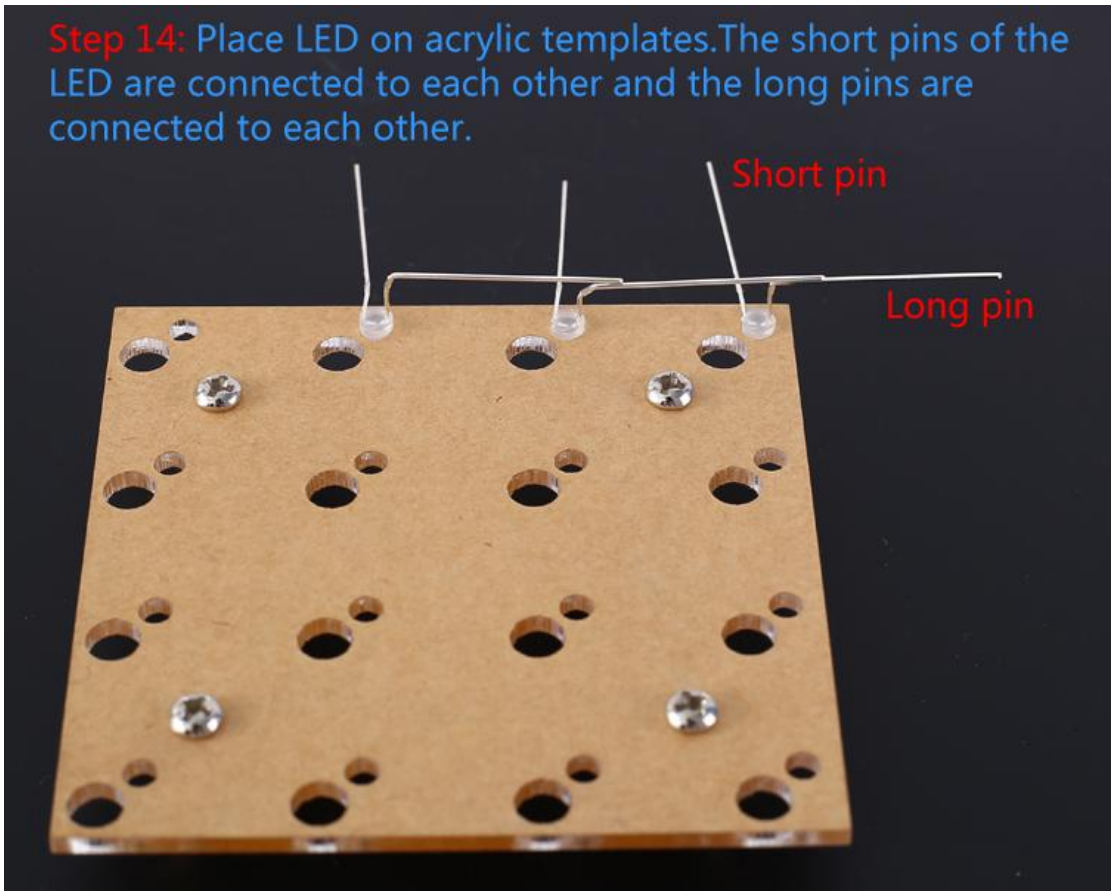
3mm
5mm
Mounting holes

Step 12: Install Bracket for acrylic templates by 4pcs M3*6mm Screw and 4pcs M3*12mm Copper Column.


Step 13: Processing LED pin. 90°bent short pin and the 90° bend long pin.But they bend in different directions and positions.
Short pin(negative)
Long pin(positive)
Short
Right
Wrong
Short
Long
Right
Wrong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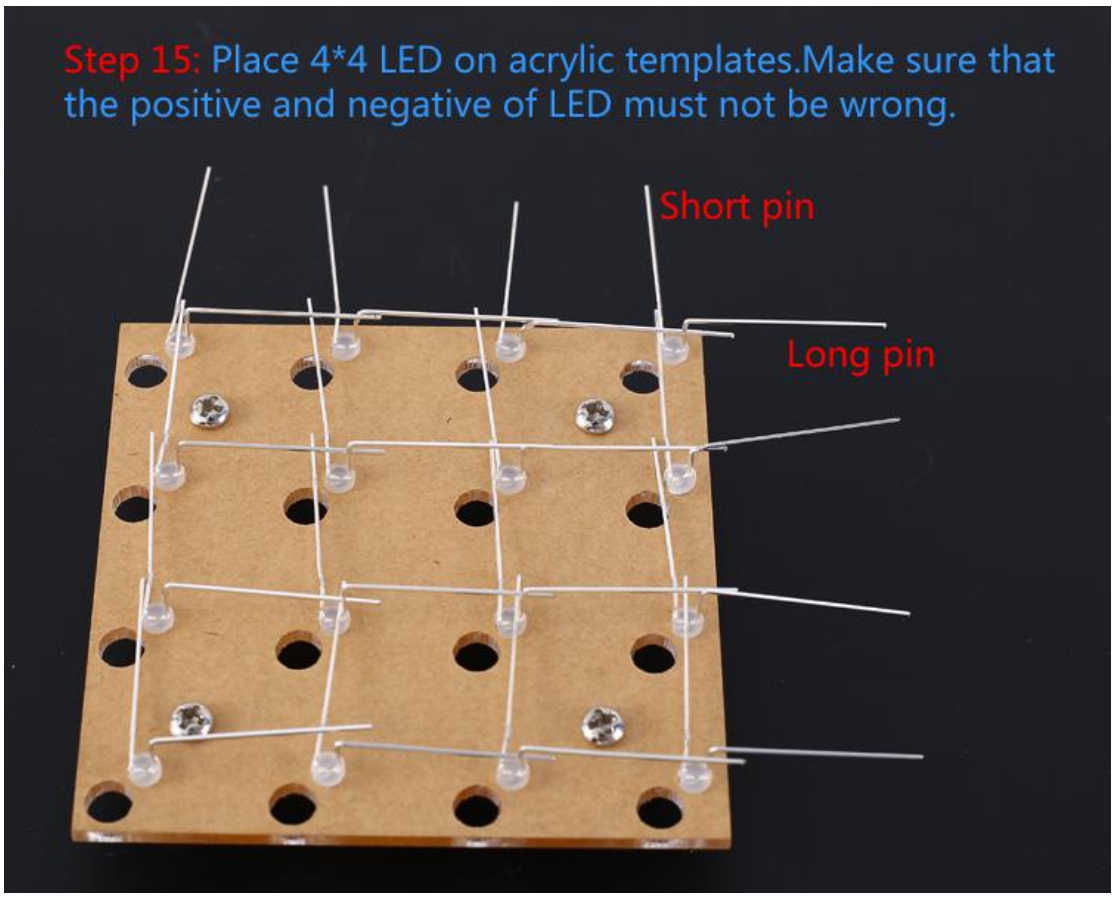
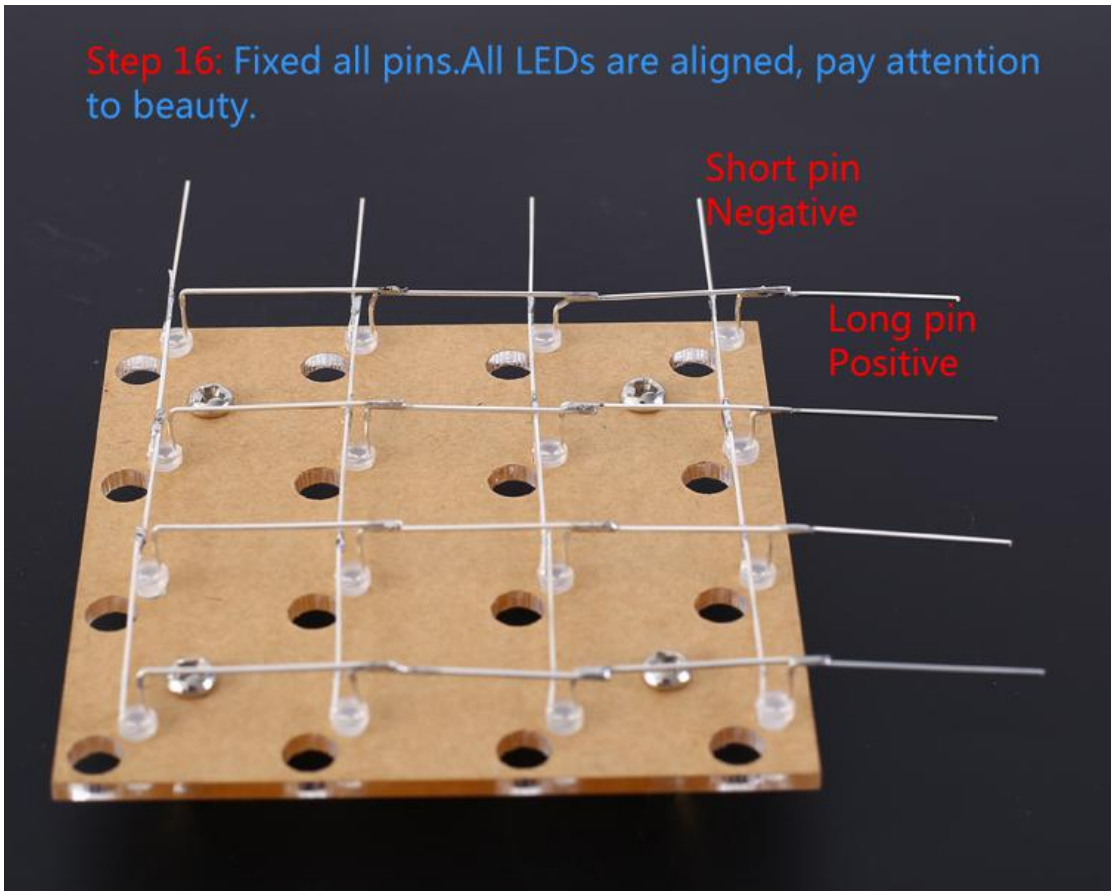
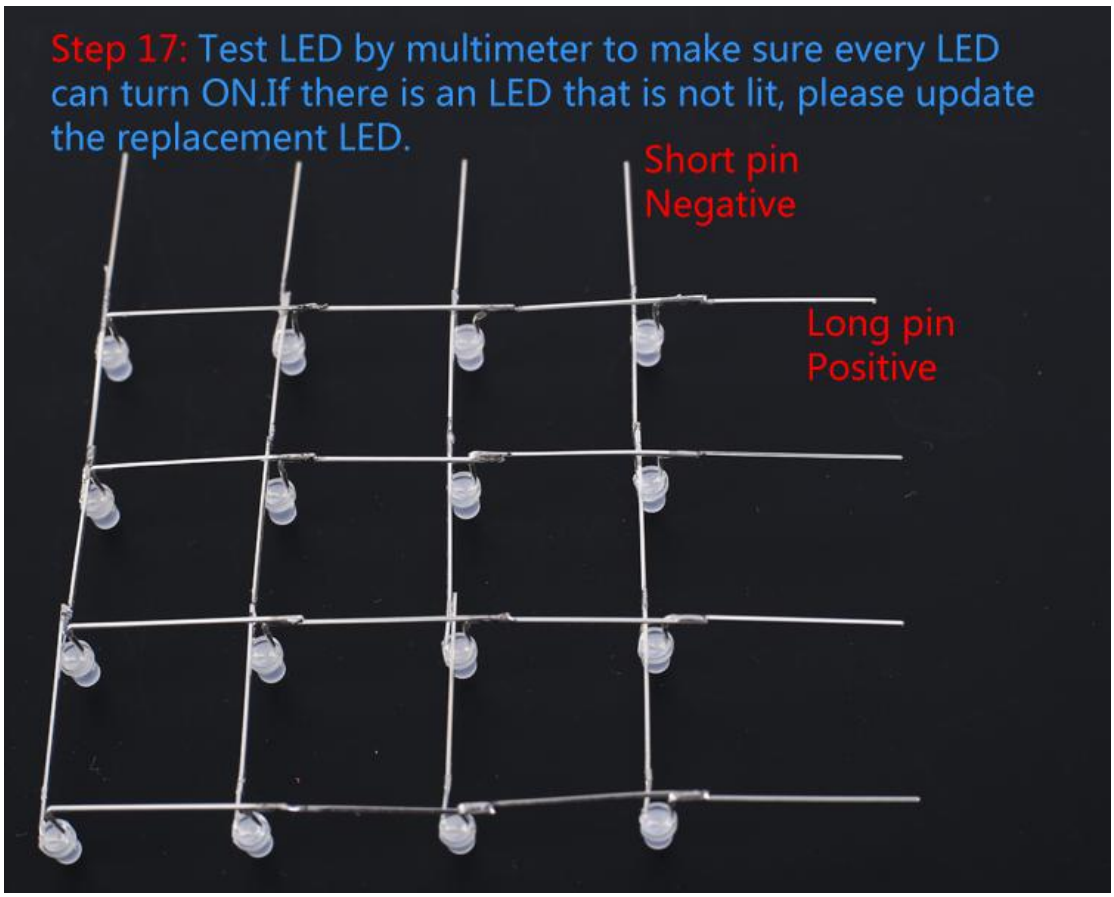
Short pin
Long pin


Step 15: Place 4*4 LED on acrylic templates.Make sure that the positive and negative of LED must not be wrong.
Short pin
Long pin


Step 16: Fixed all pins.All LEDs are aligned, pay attention to beauty.
Short pin
Negative
Long pin
Positive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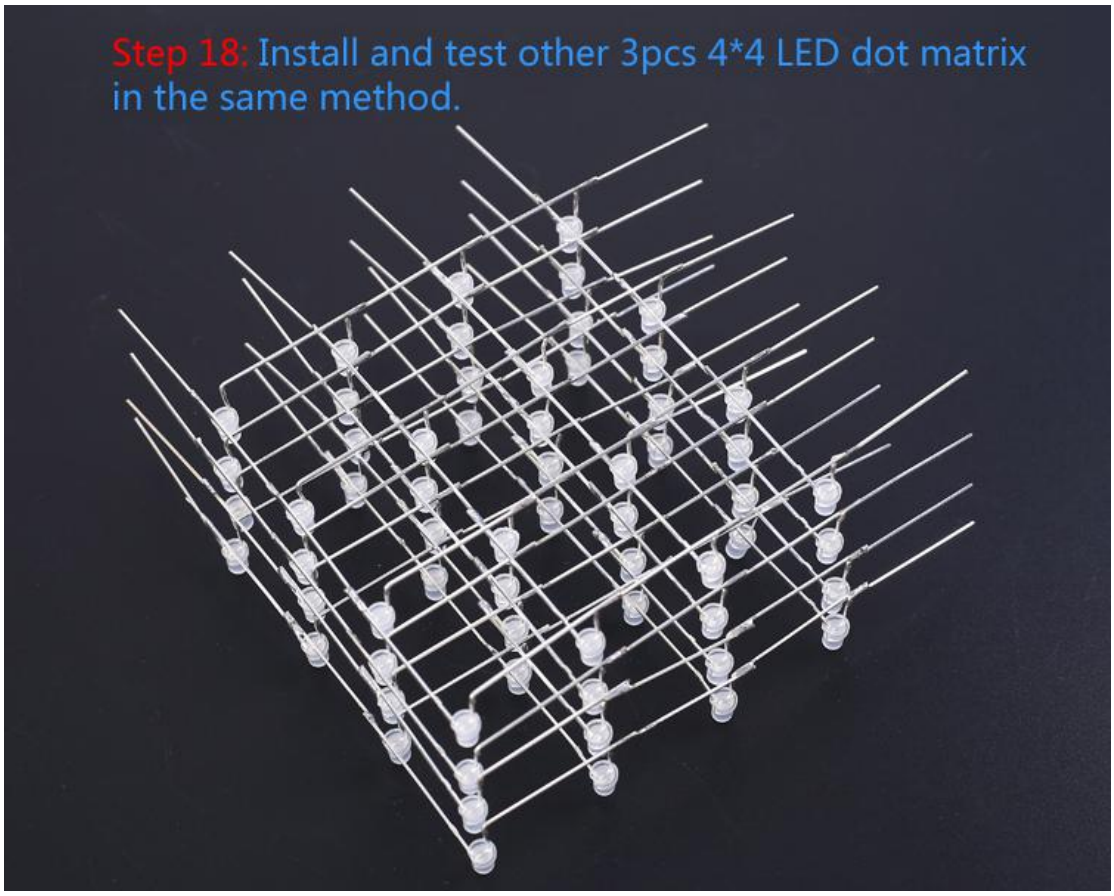
Negative
Long pin
Positive


Step 18: Install and test other 3pcs 4*4 LED dot matrix in the same method.

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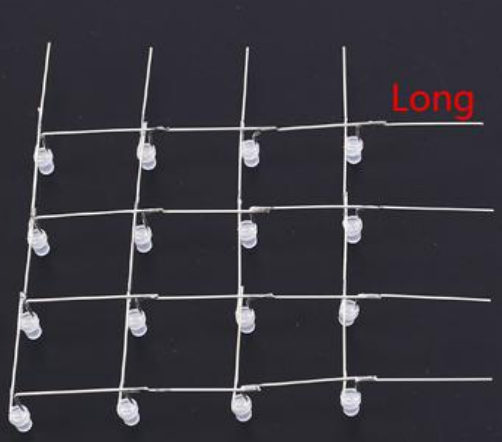
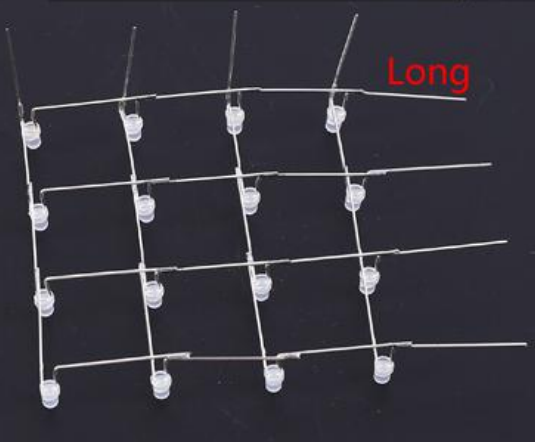
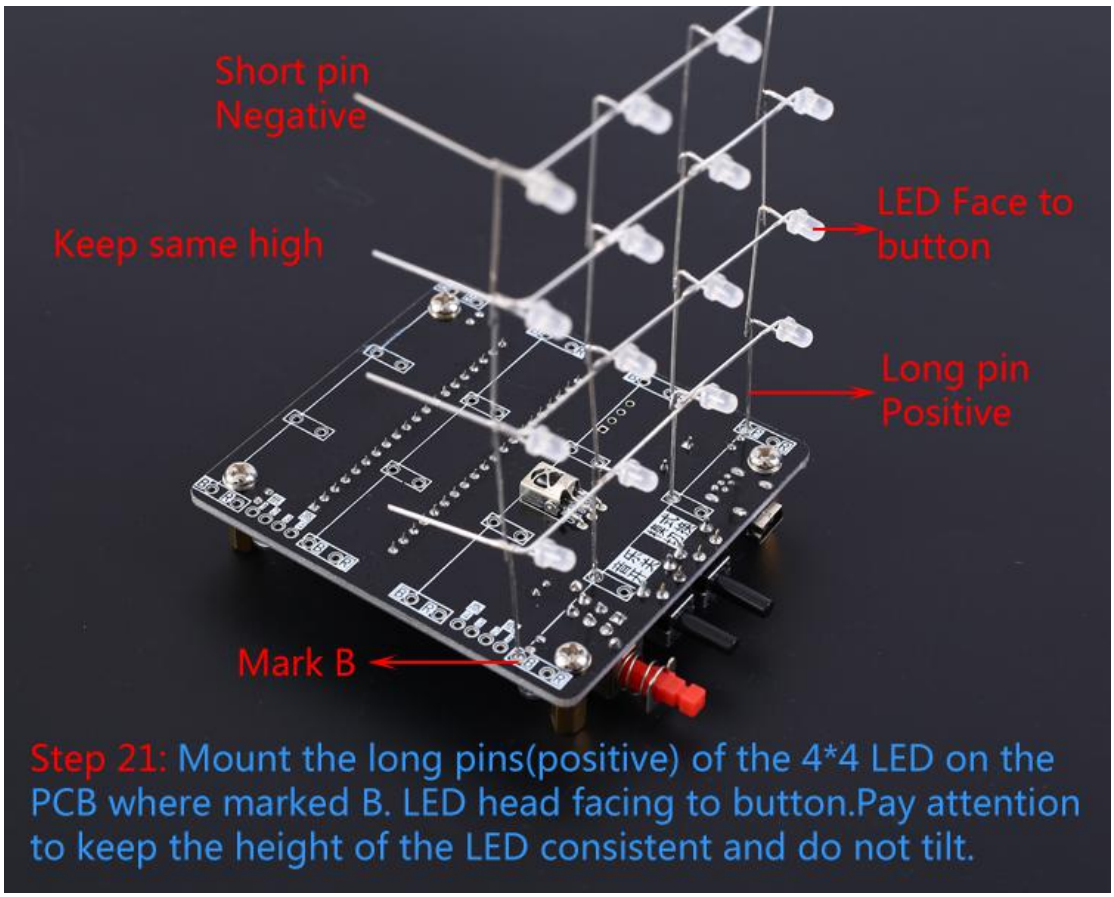
Step 20: Bend the negative pole of a 1pcs 4*4 LED dot matrix and bend it 90° inward.
Note: Do not short circuit to other pins.And do not damage the solder joint when bending.

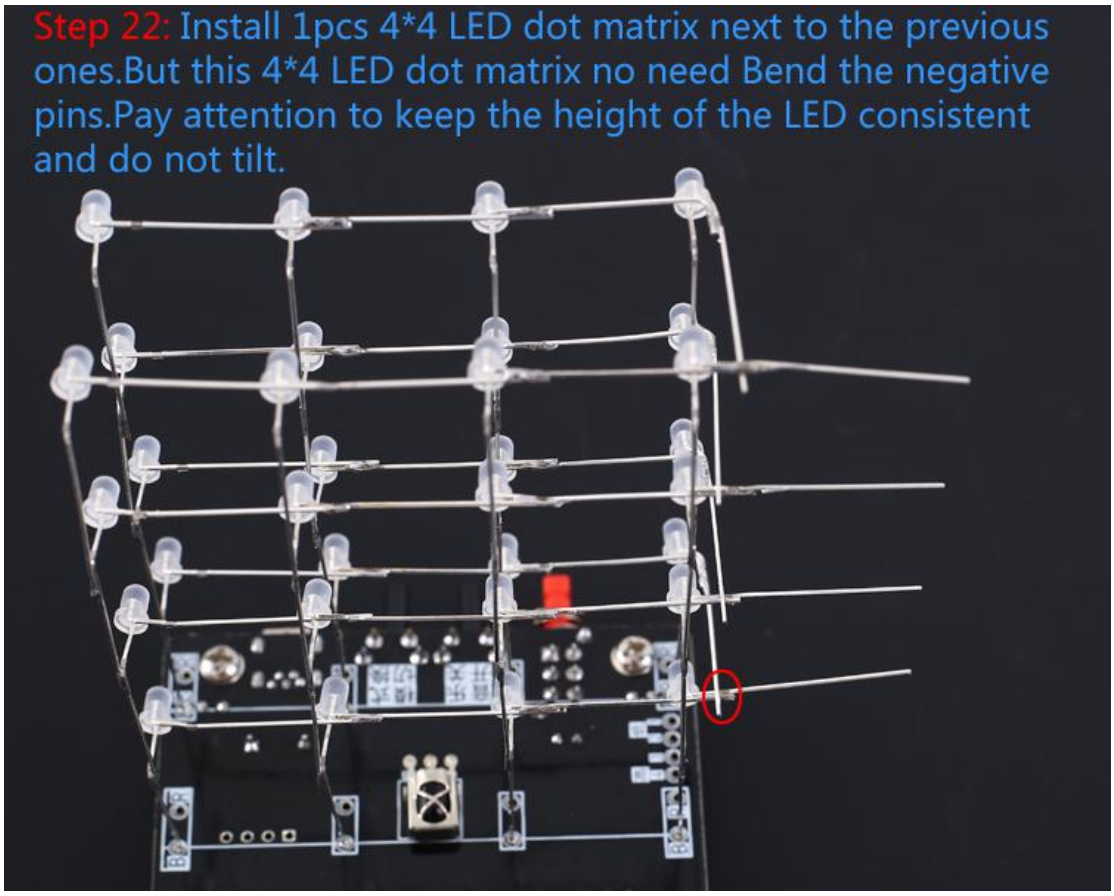


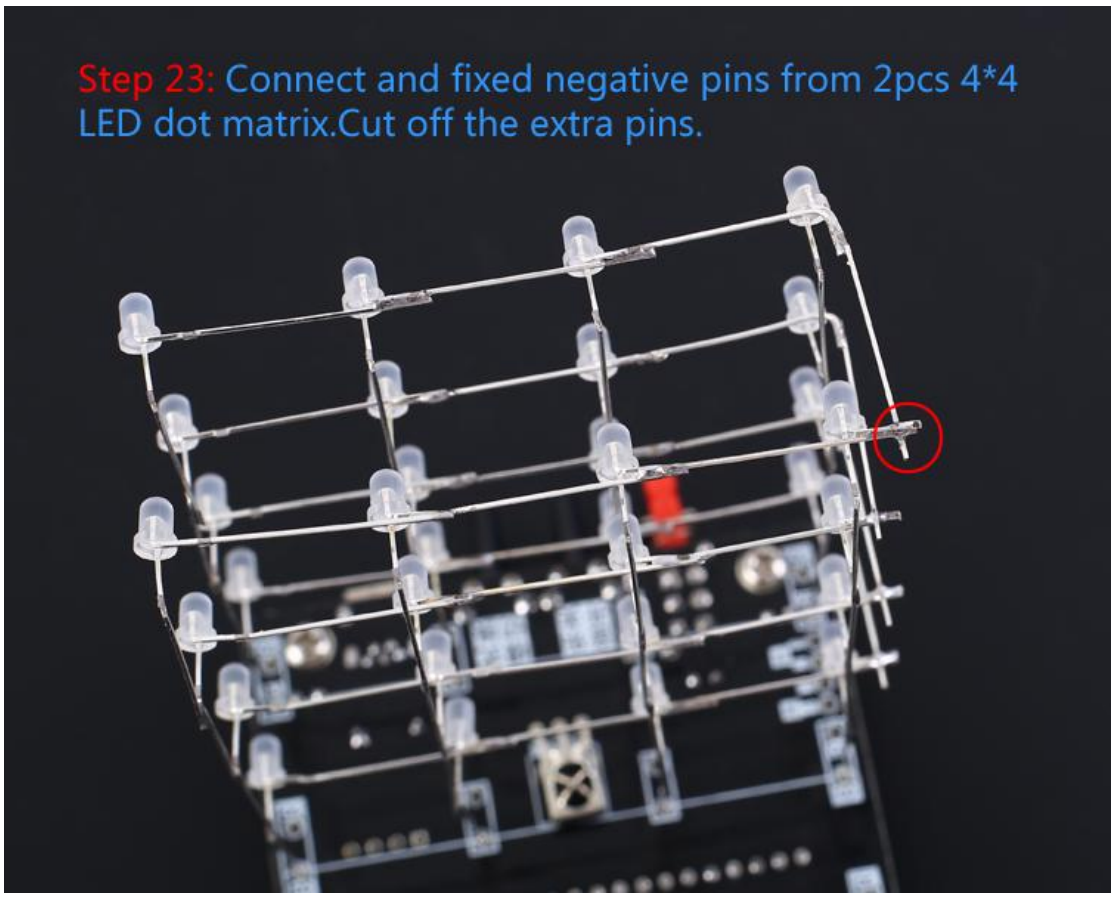


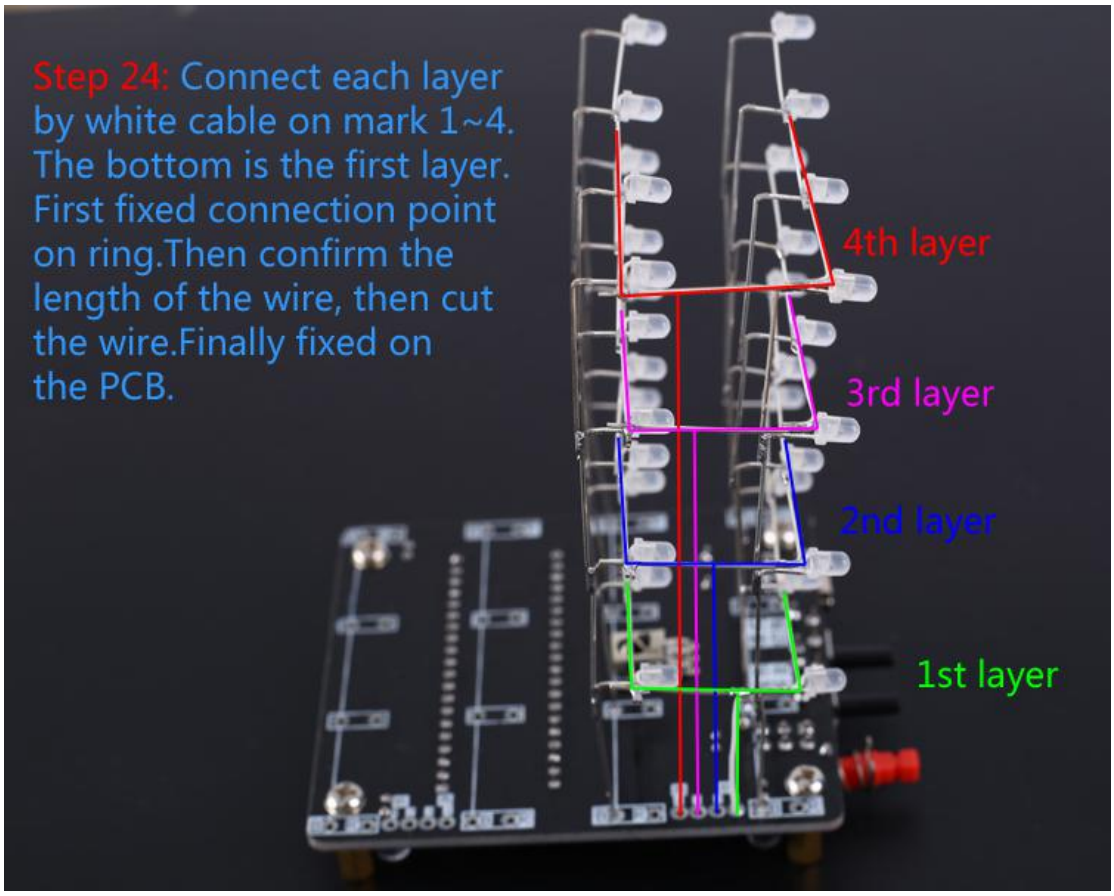


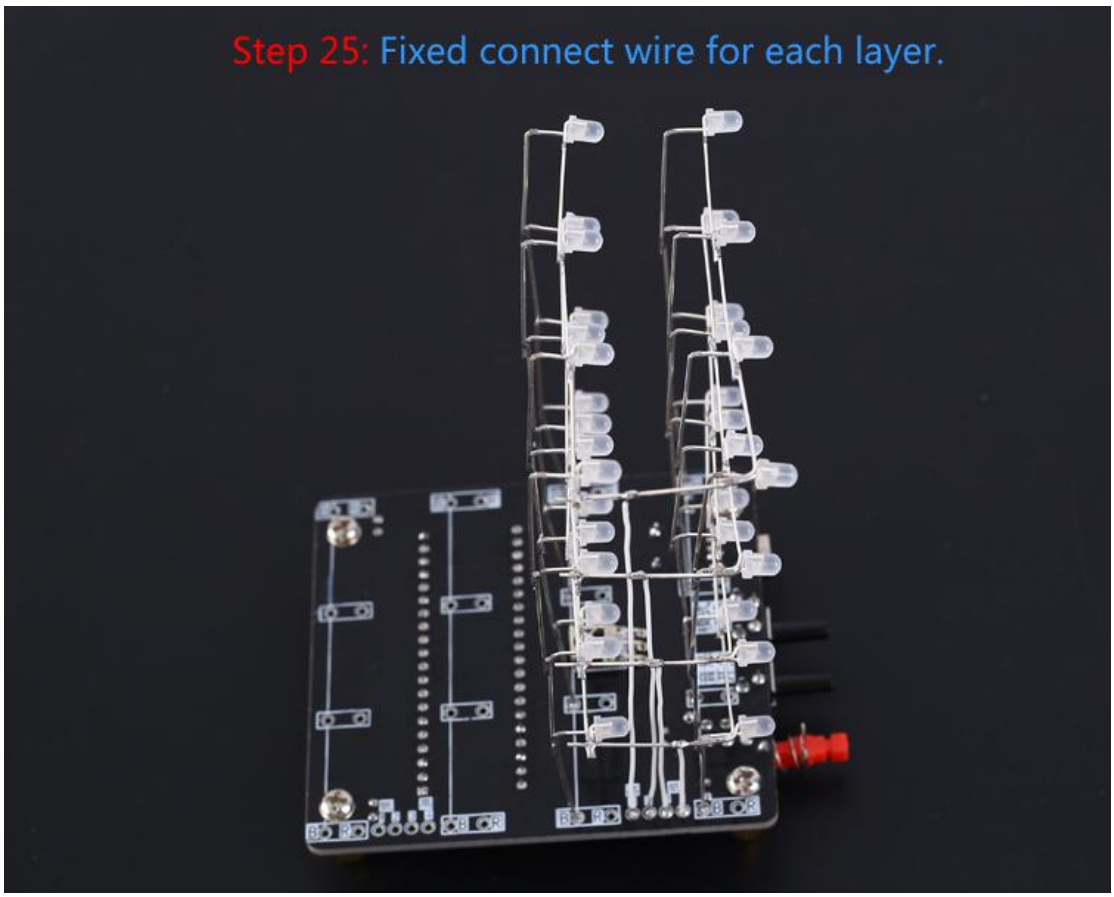
Step 21: Mount the long pins(positive) of the 4*4 LED on the PCB where marked B. LED head facing to button.Pay attention to keep the height of the LED consistent and do not tilt.

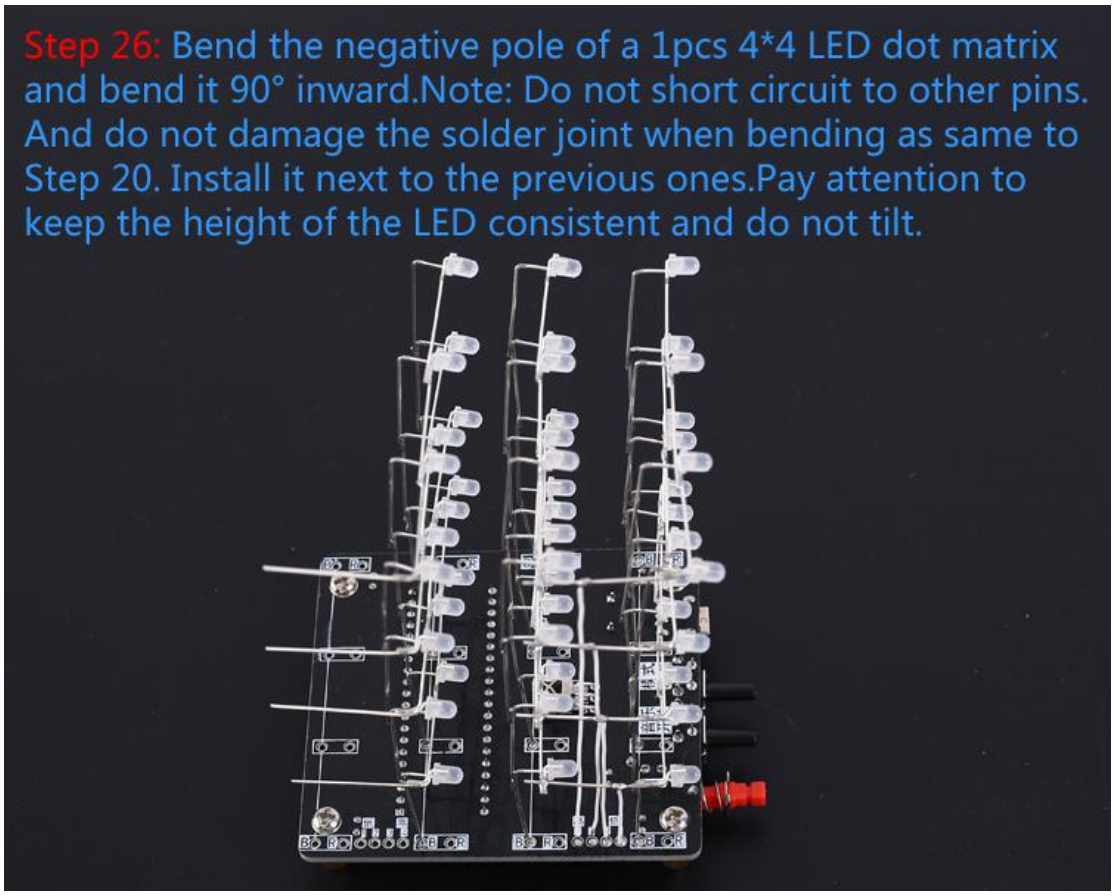
Step 22: Install 1pcs 4*4 LED dot matrix next to the previous ones.But this 4*4 LED dot matrix no need Bend the negative pins.Pay attention to keep the height of the LED consistent and do not tilt.

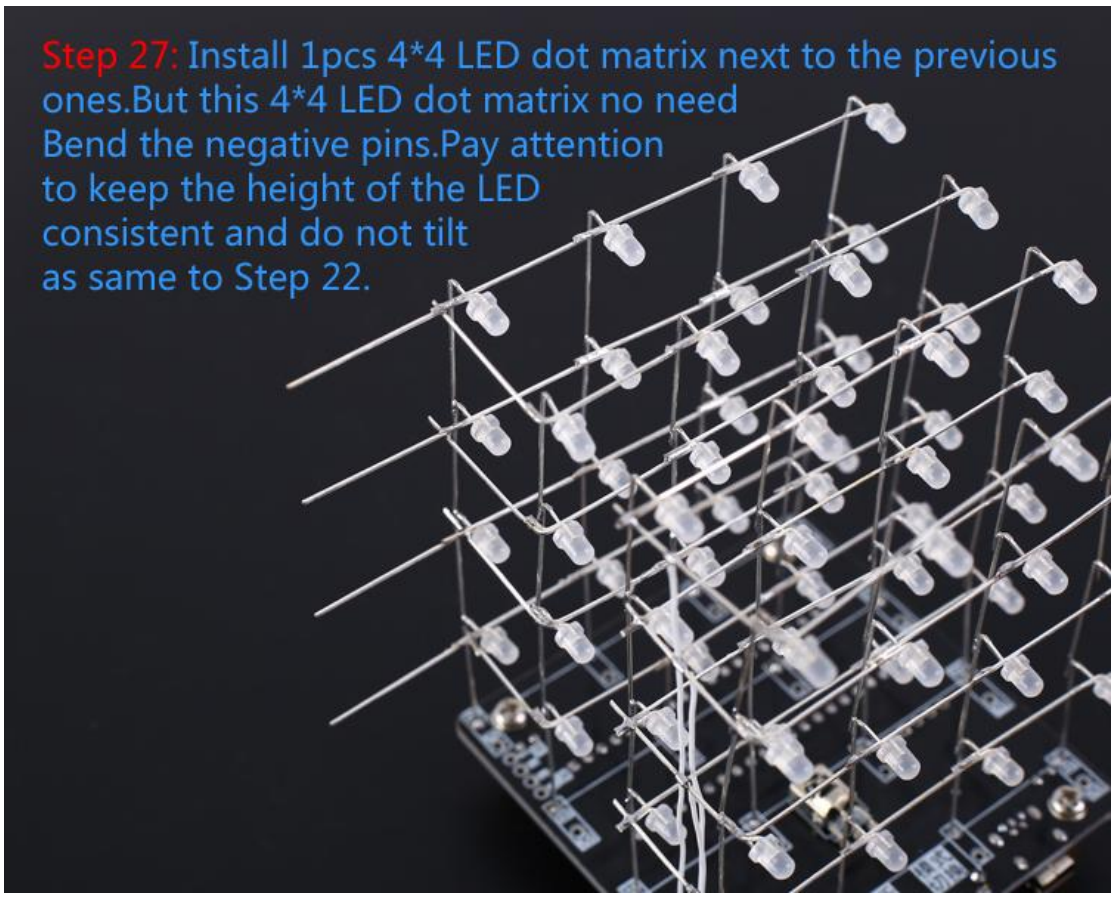



Step 23: Connect and fixed negative pins from 2pcs 4*4 LED dot matrix.Cut off the extra pins.


Step 24: Connect each layer by white cable on mark 1~4. The bottom is the first layer. First fixed connection point on ring.Then confirm the length of the wire, then cut the wire.Finally fixed on the PCB.
4th layer
3rd layer
2nd layer
1st layer


Step 25: Fixed connect wire for each layer.


Step 26: Bend the negative pole of a 1pcs 4*4 LED dot matrix and bend it 90° inward.Note: Do not short circuit to other pins. And do not damage the solder joint when bending as same to Step 20. Install it next to the previous ones.Pay attention to keep the height of the LED consistent and do not tilt.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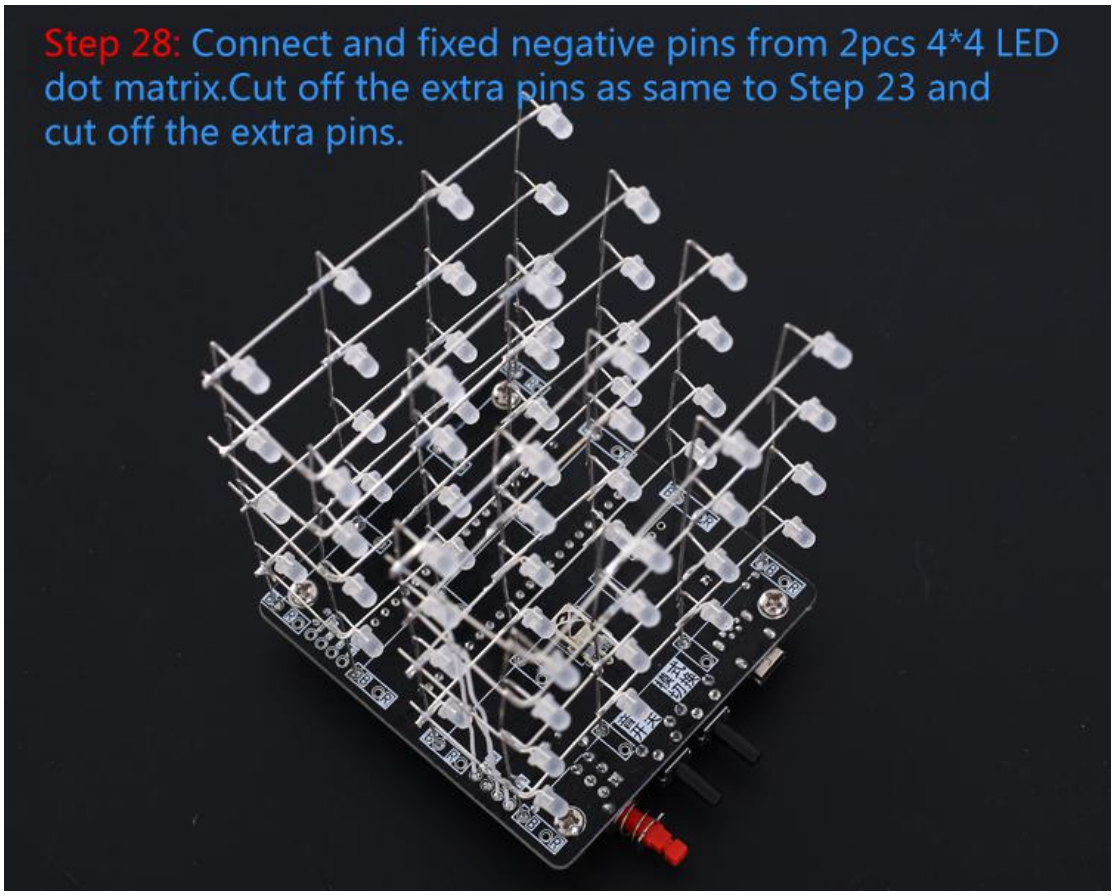
Step 28: Connect and fixed negative pins from 2pcs 4*4 LED dot matrix.Cut off the extra pins as same to Step 23 and cut off the extra pins.

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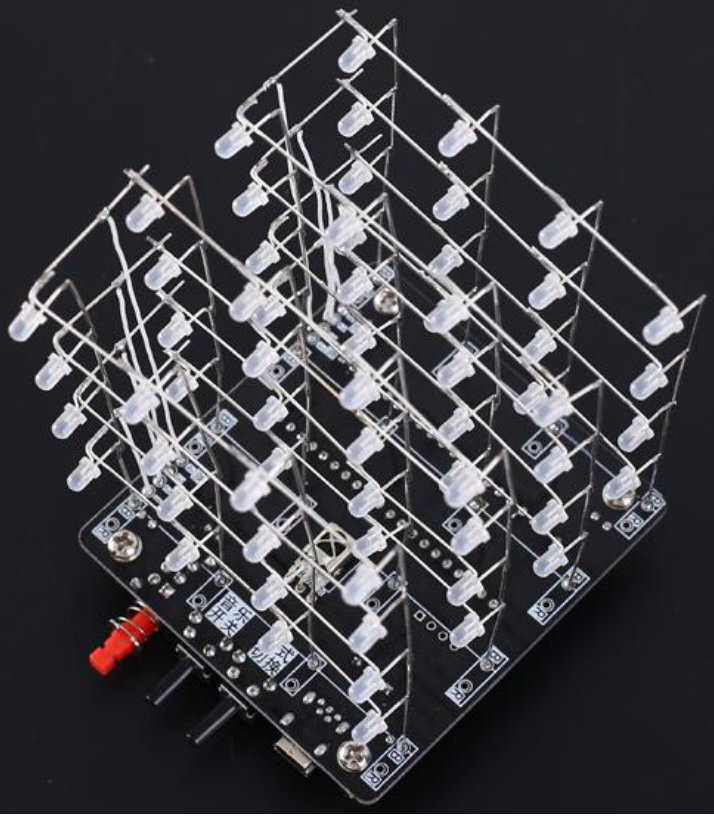
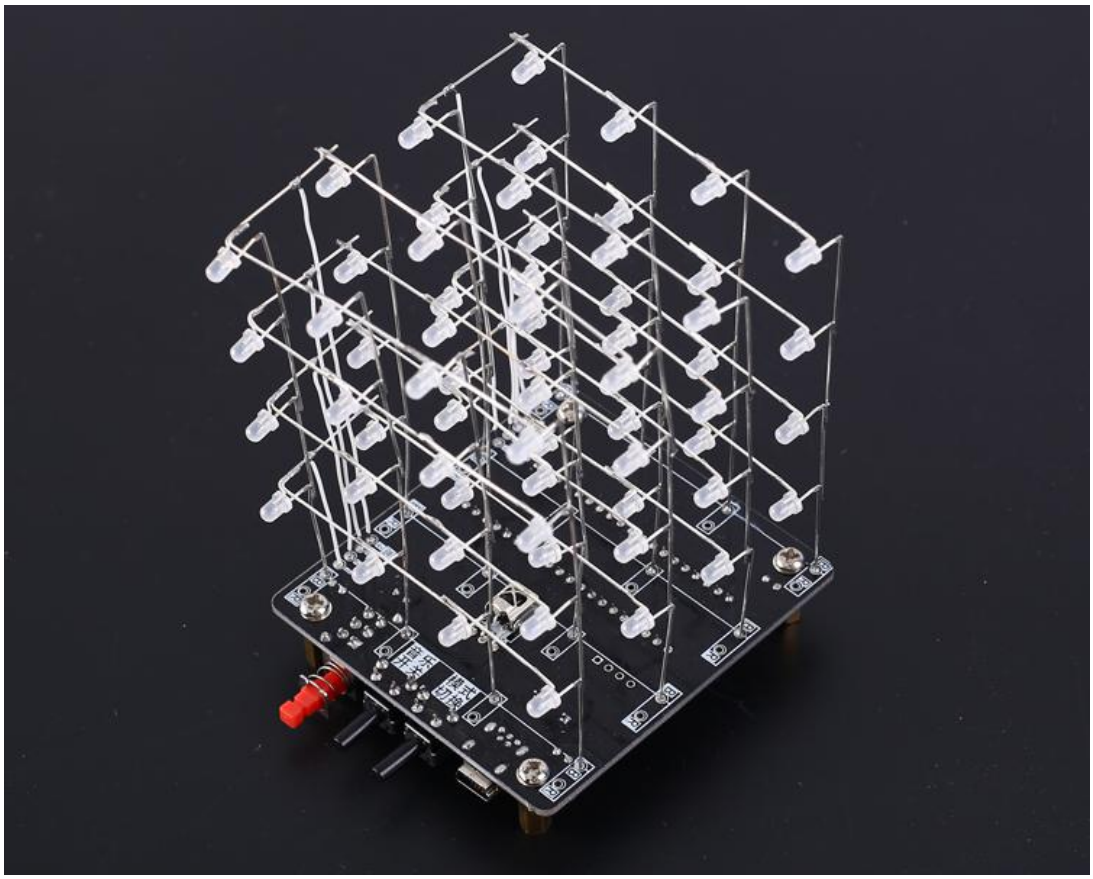
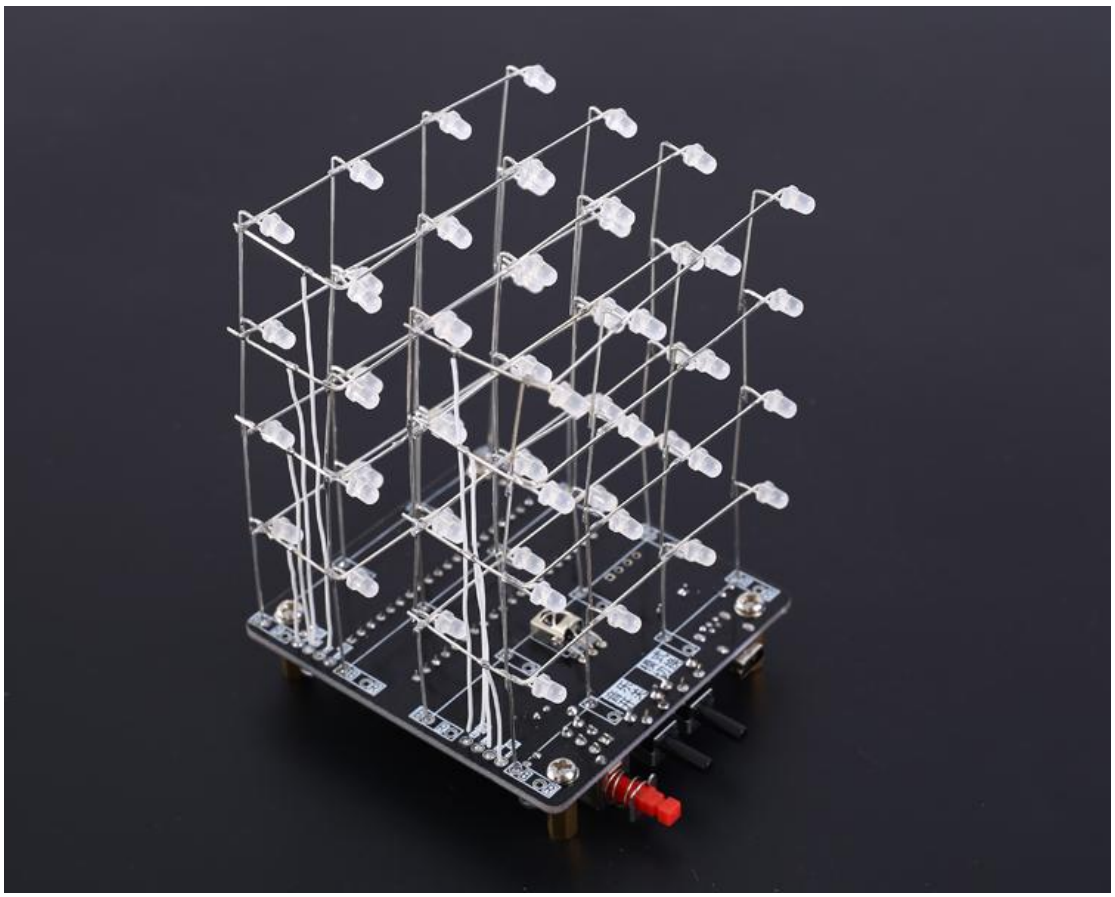
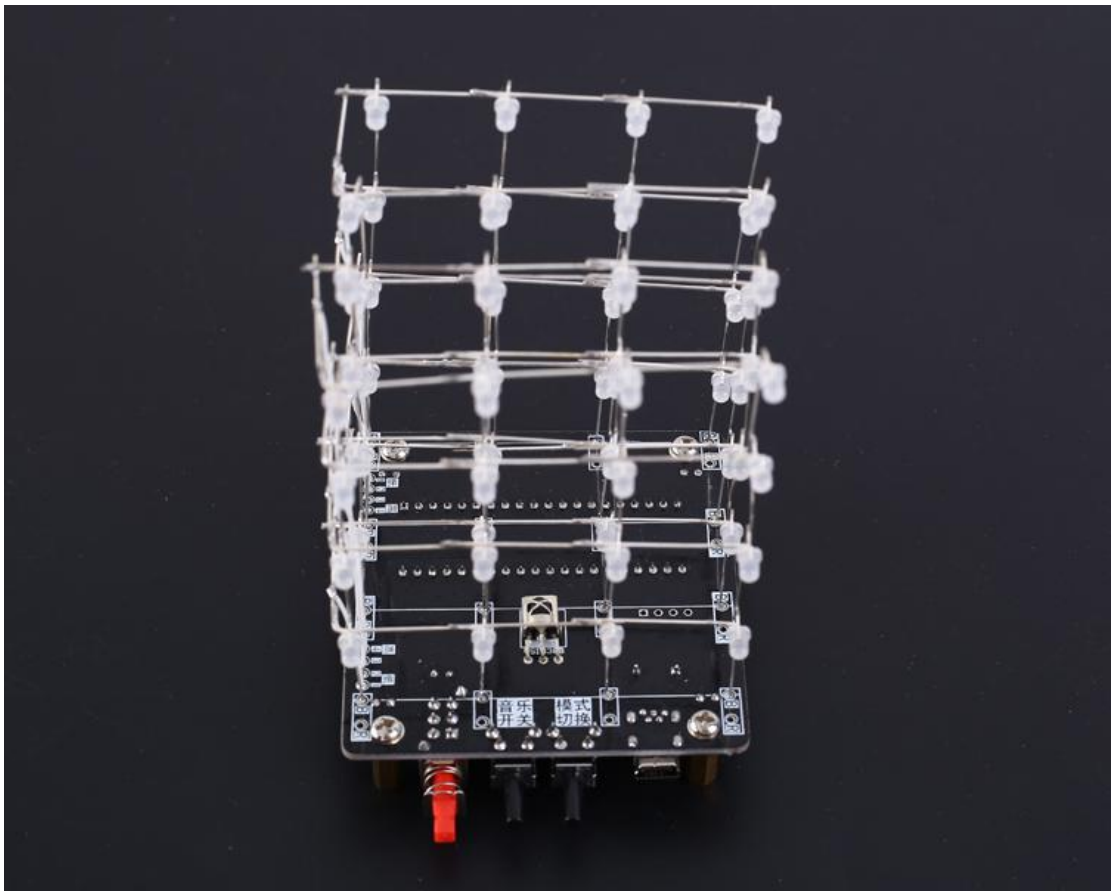
Step 30: Test and finish installation and enjoy.

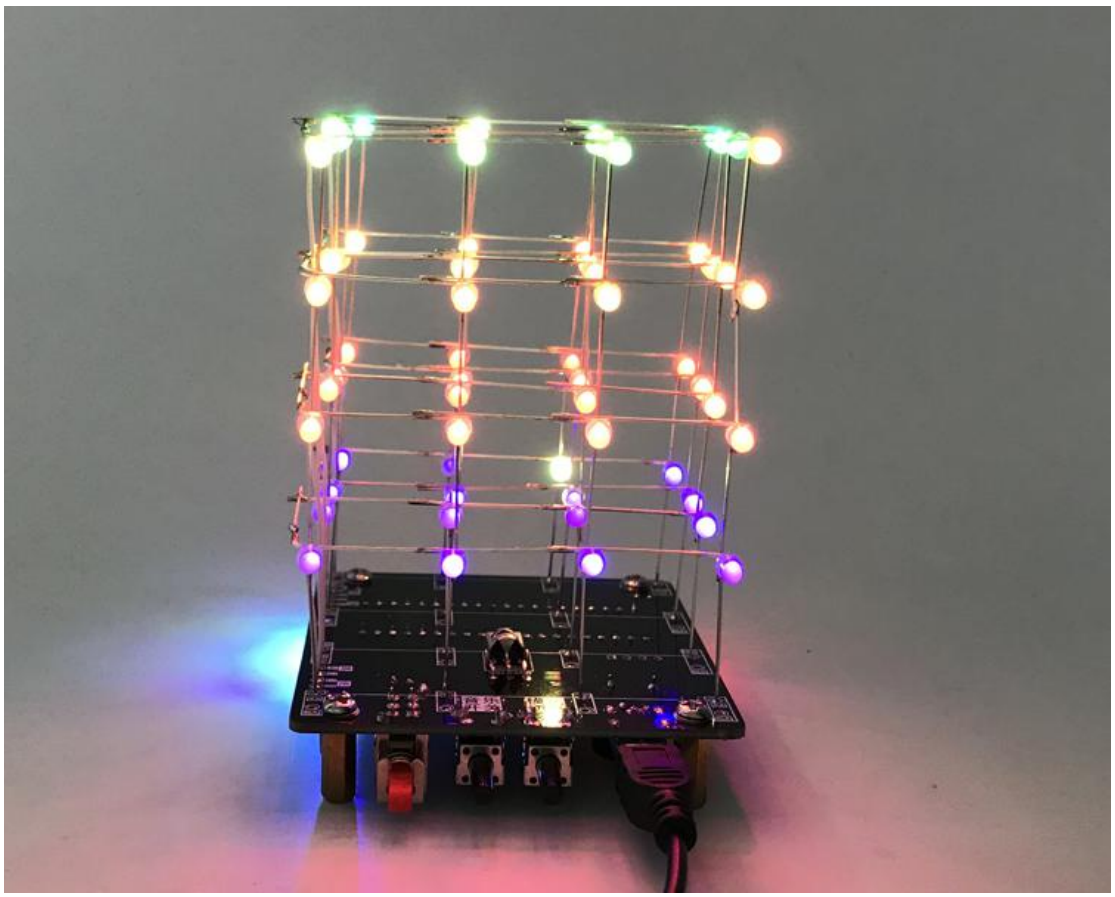


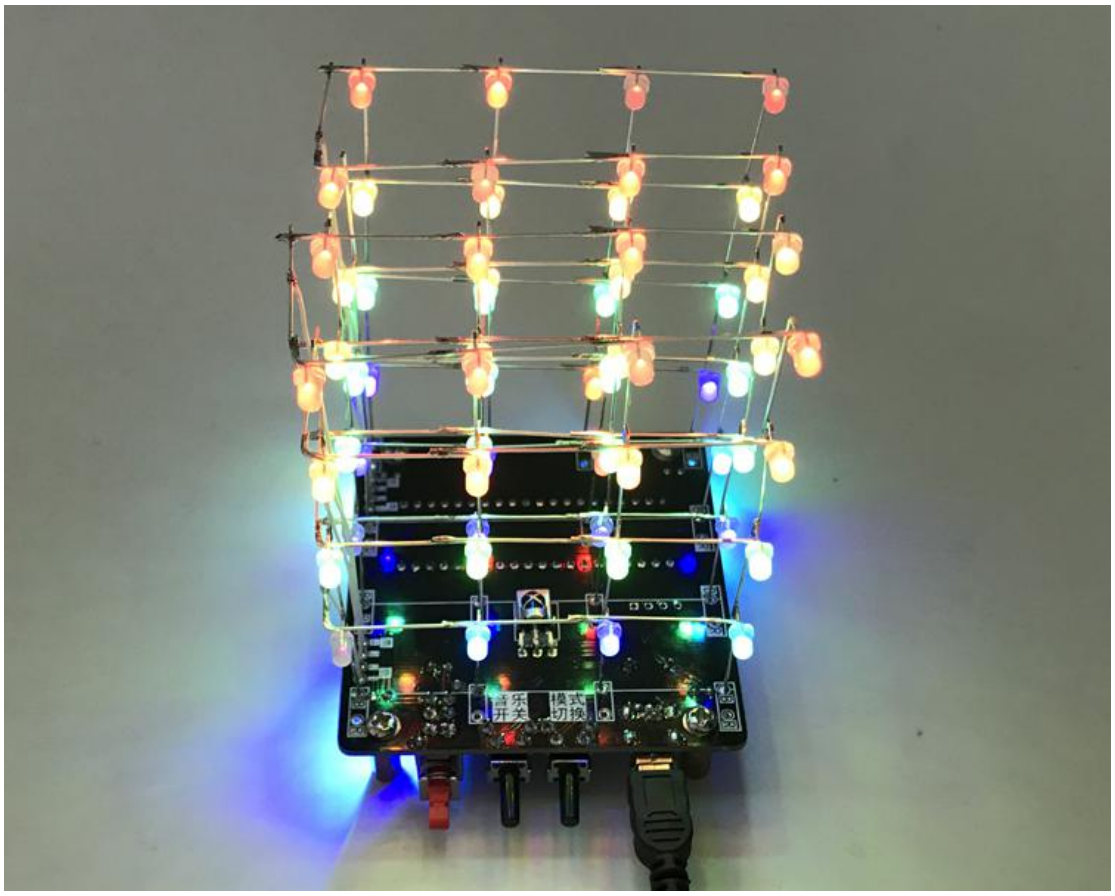
13.Effect demonstration(Only for appreciation)

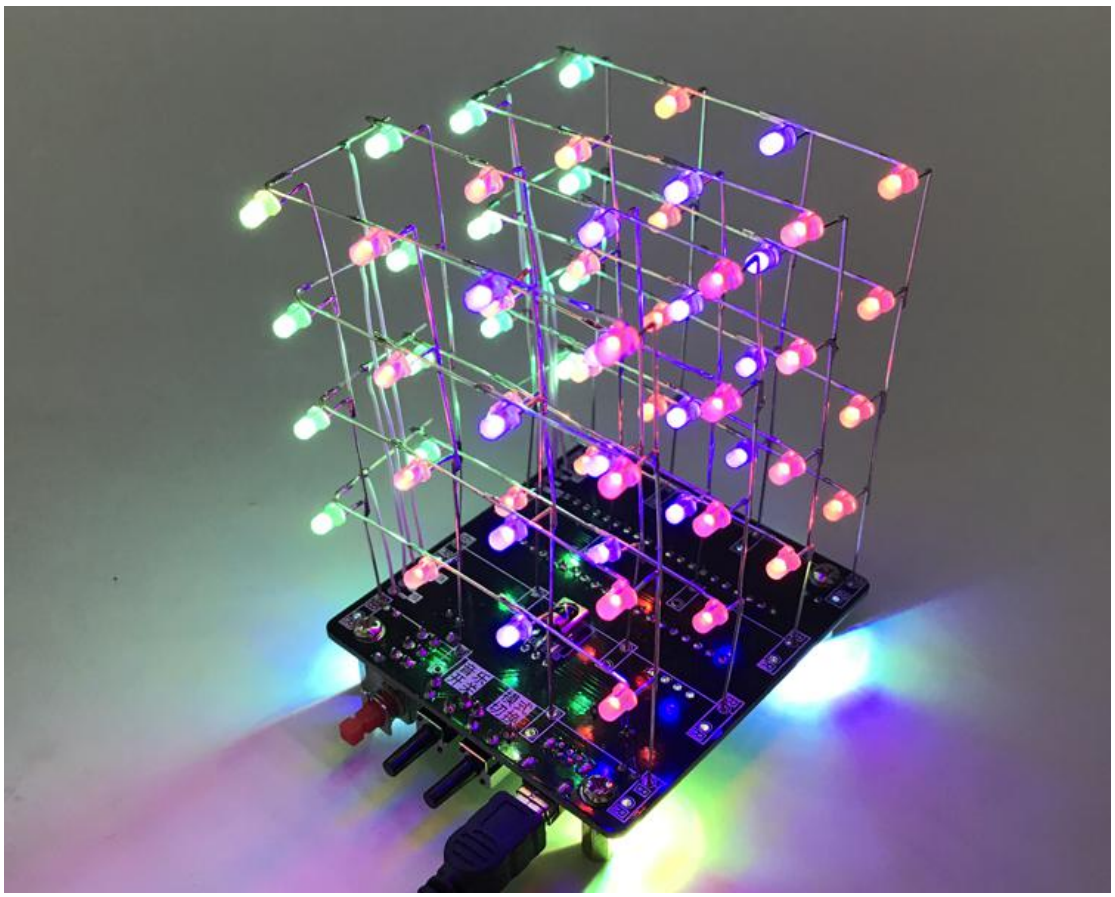


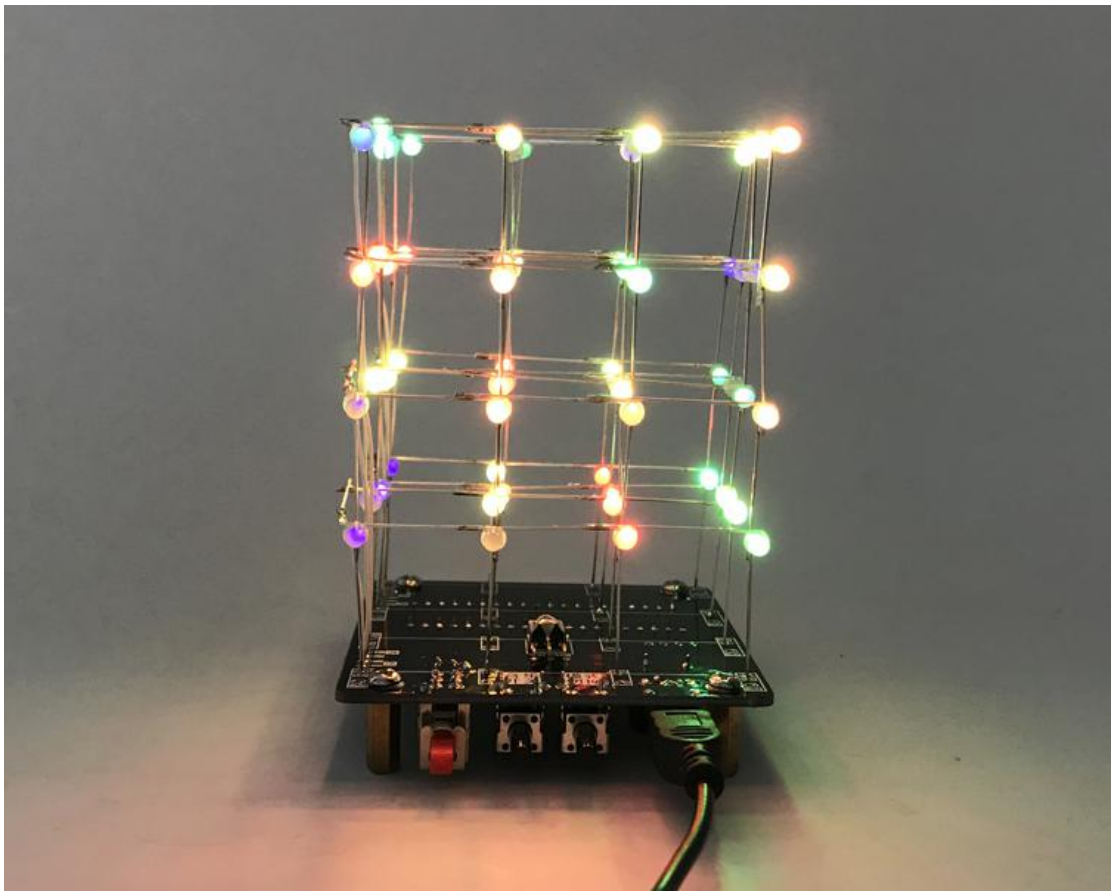


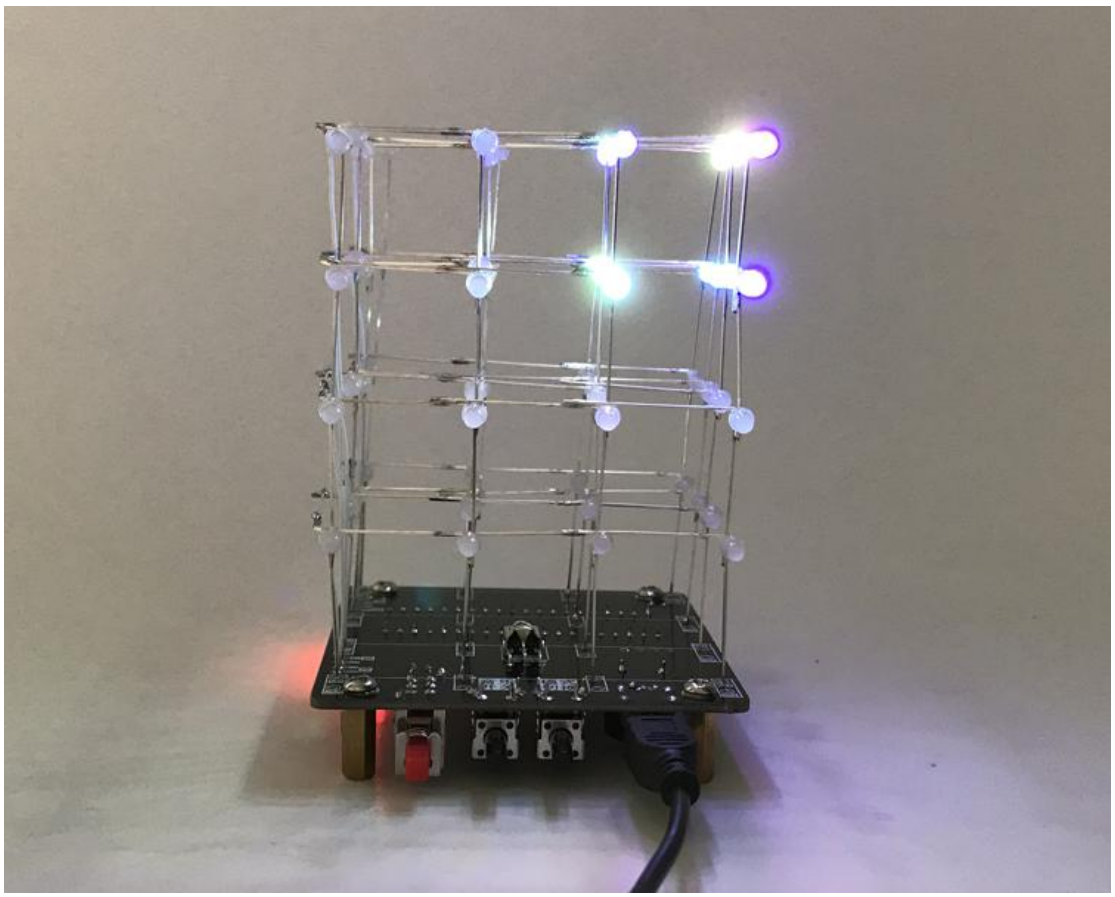

音乐
开关
模式
切换

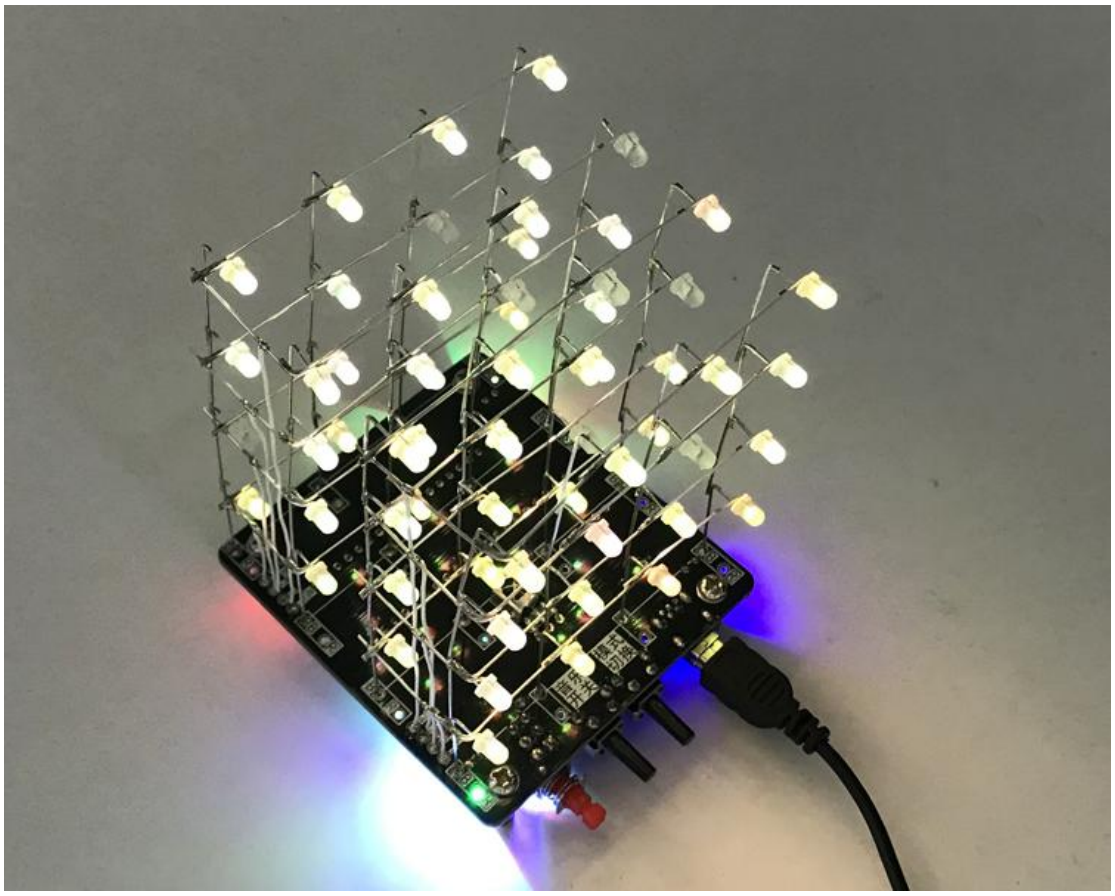


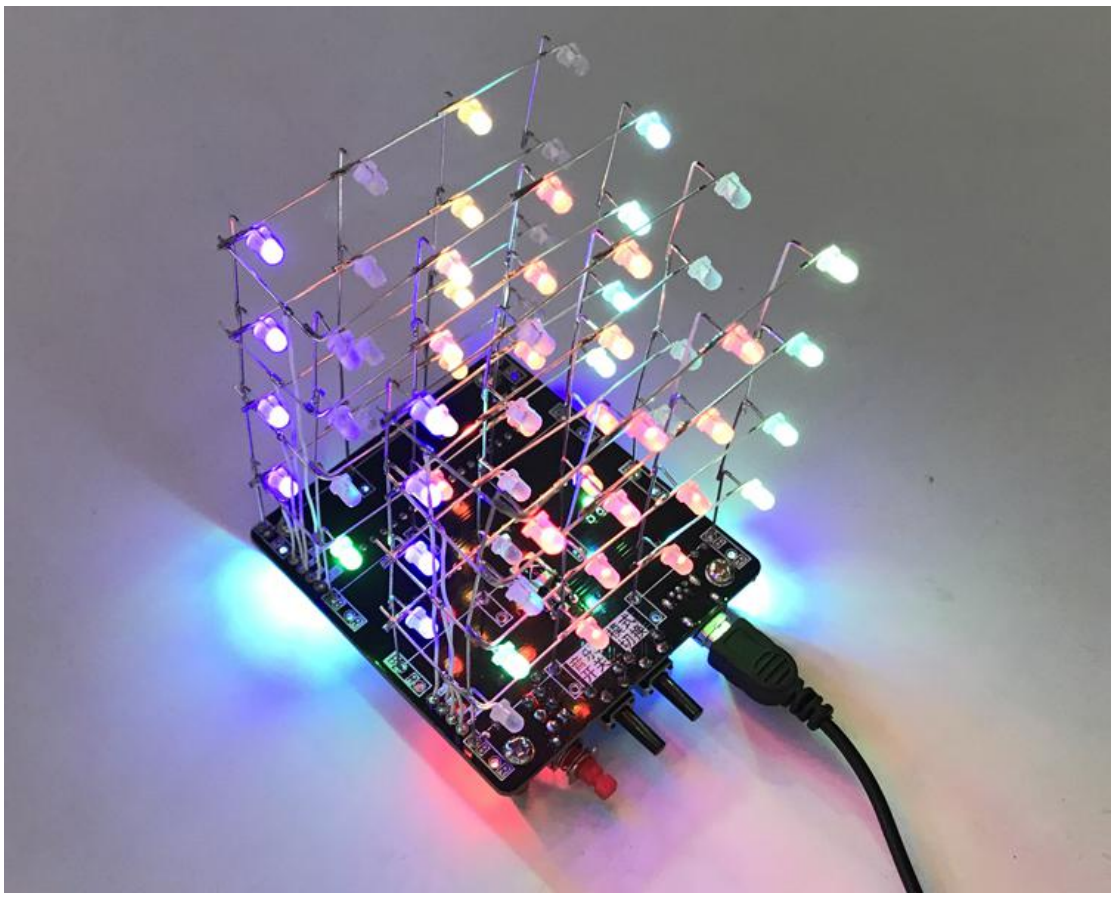

音乐开关
模式切换











Frequently Asked Questions:

Q1: Why some of the LED in the same layer or in the same column can not be bright?
A1:The pin is not soldered firmly or missing.Please check out the soldered pins and fix them again.

Q2: Why a column or a layer is not bright?
A2: Please refer to the schematic, find the corresponding chip, re-soldering the pin, the chip may be pin soldered or unsoldered.

Component listing:

NO.	Component Name	PCB Marker	Parameter	QTY
1	STC12C5A60S2	U1	DIP-40	1
2	IC Socket	U1	DIP-40	1
3	Electrolytic Capacitor	C2	220uF	1
4	RGB LED	LED1-LED4	5mm	4
5	Buzzer	B1	12mm	1
6	Infrared Receiver	IR1	VS1838B	1
7	MINI USB Female Socket	J1		1
8	Self-Locking Switch	S1	Red	1
9	Tact Switch	S2,S3	Black	2
10	RGB LED		3mm	64
11	USB Cable		30cm	1
12	White Wire		1meter	1
13	Remote Controller			1
14	LED Template		Acrylic	1
15	Screw		M3*6mm	4
16	Copper Column		M3*12mm	4
17	PCB		72*67*1.6mm	1

After-Sales:

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*Looking forward to get progress and growth with all of you.
*For more product questions and inquiries, please send your advice to orders@icstation.com
*Thank you for your purchase!