

## 3D4 Light Cube RGB LED Cube DIY Kit

### NTOE:

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!!!

### 1.Introduction:

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 showing a three-dimensional effect. It's better to watch in the night.

### 2.Parameter:

- 1>.Model:3D4 Light Cube
- 2>.Work Voltage:DC 4.5V-5.5V
- 3>.Work Current:100mA
- 4>.Power Type:MINI USB
- 5>.Control Type:Infrared Remote Control + Button Control
- 6>.Music Type:Pure Music
- 7>.Music: 11kinds(Can not be modified)
- 8>.Work Temperature:-40℃~85℃
- 9>.Work Humidity:0%~95%RH
- 10>.Size(Installed):84\*67\*100mm

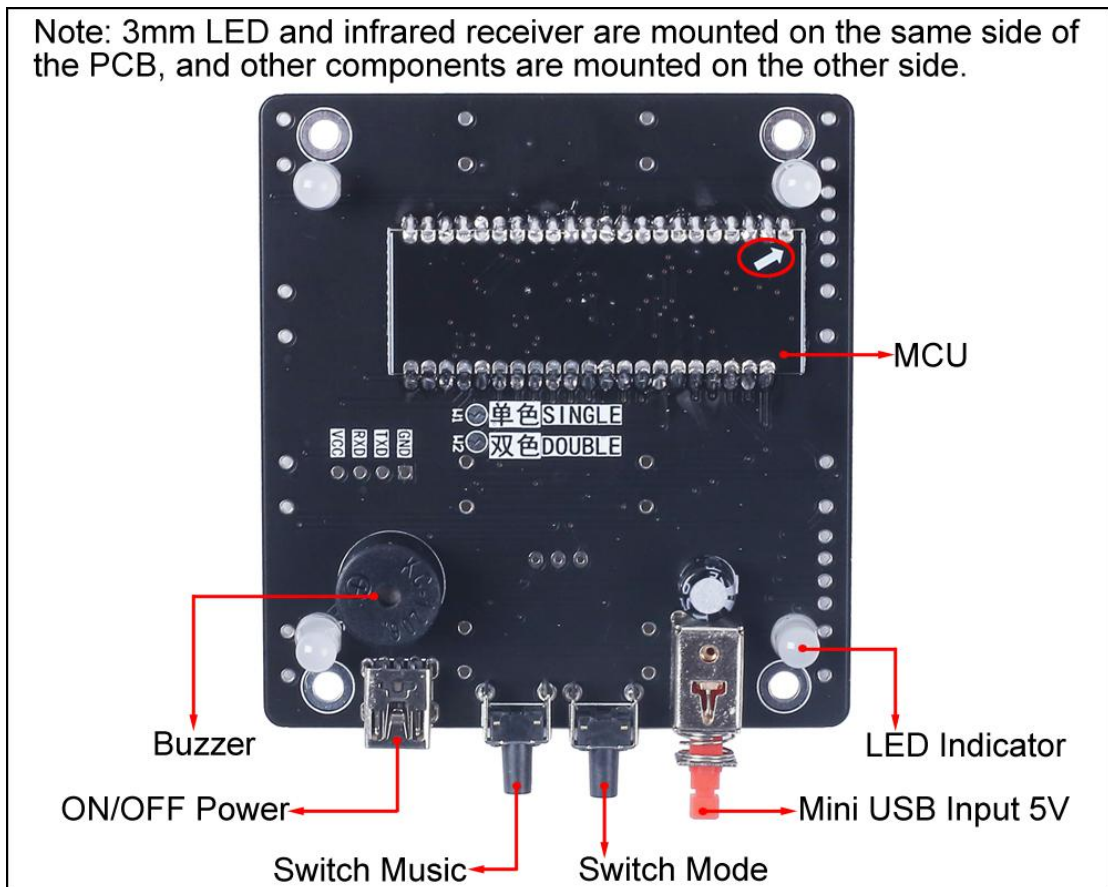
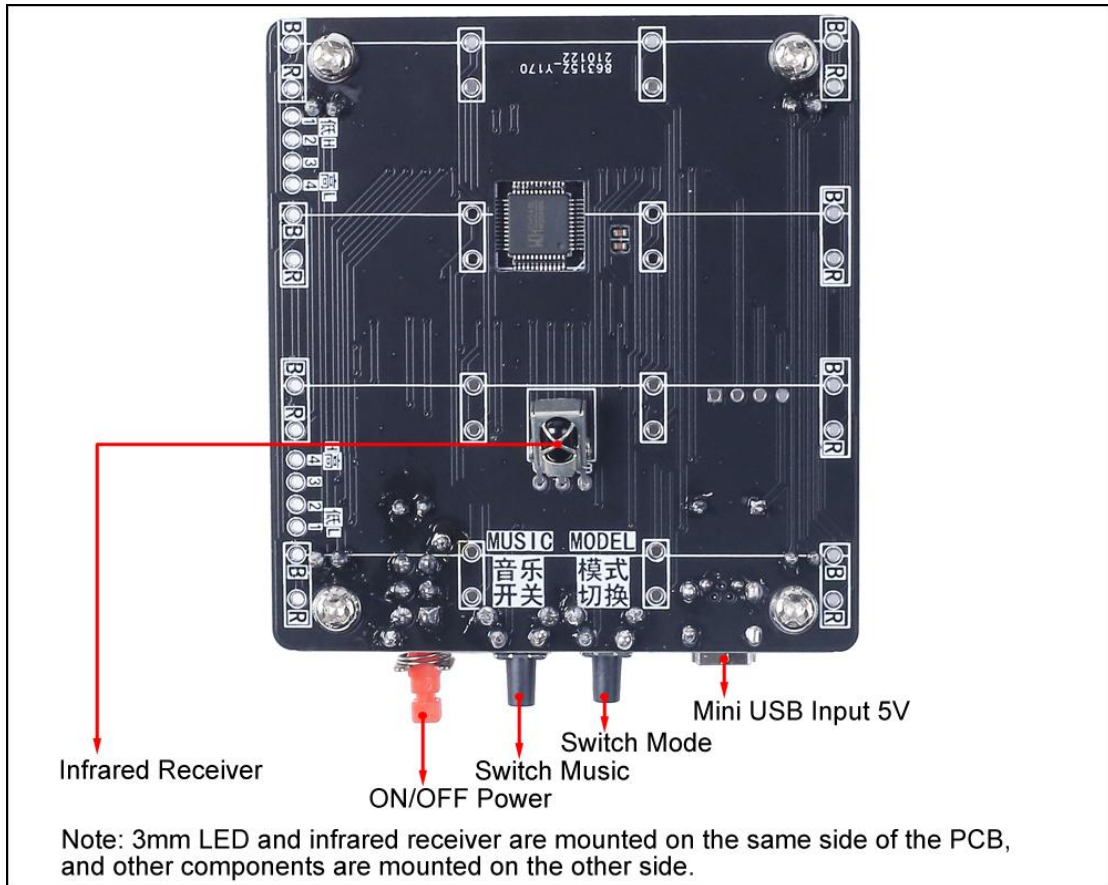
### 3.Function:

- 1>.RGB LED light color changes automatically
- 2>.Automatic music playback
- 3>.11kinds pure music
- 4>.Switch memory function
- 5>.Music switch control
- 6>.Infrared remote control
- 7>.Adjustable flashing speed

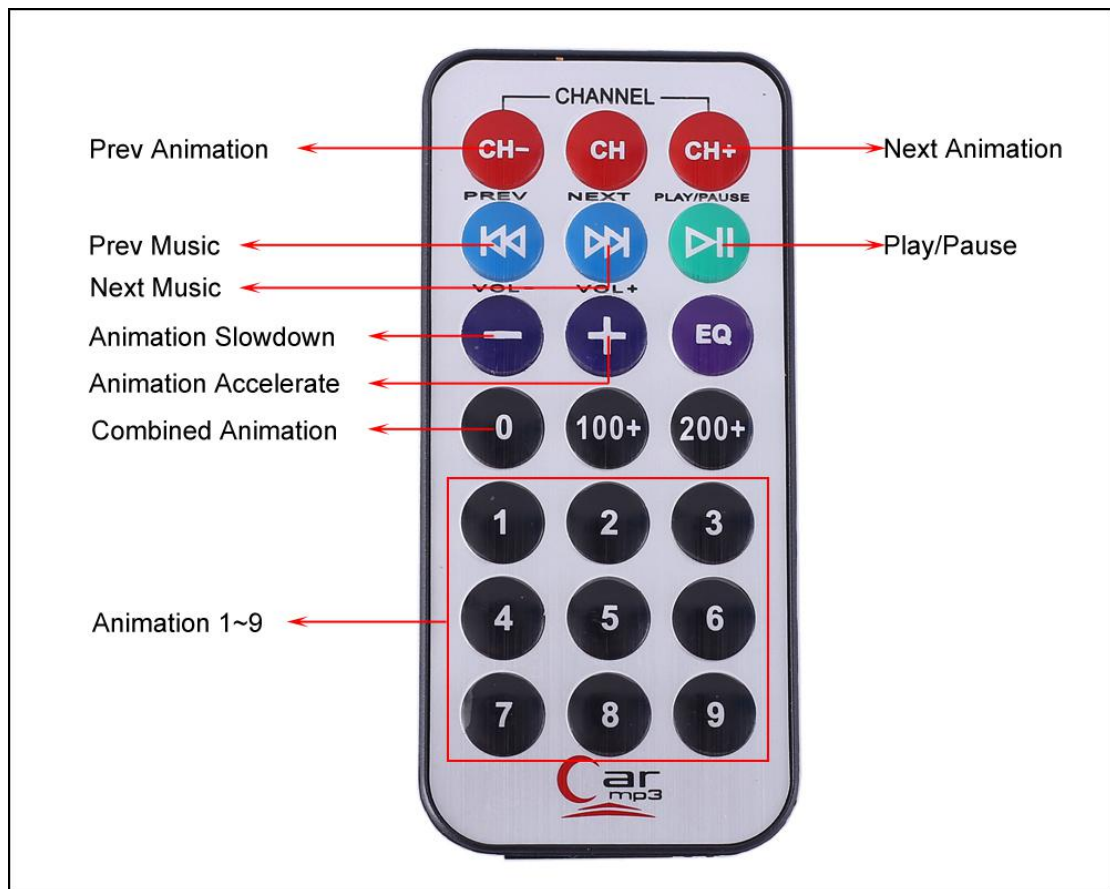
### 4.Component listing:

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

### 5.Basic instruction:



## 6. Remote control button description:



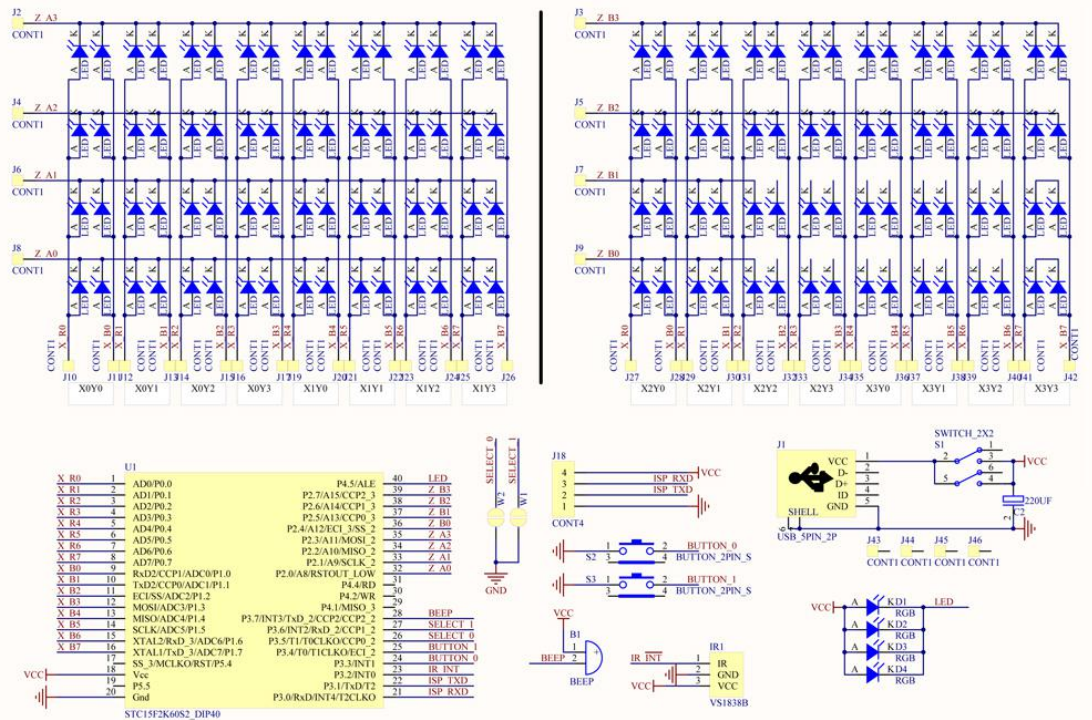
## 7. Frequently Asked Questions:

- 1>. Why some of the LED in the same layer or in the same column can not be bright?  
Q:The pin is not soldered firmly or missing.Please check out the soldered pins and fix them again.
- 2>. Why a column or a layer is not bright?  
Q>Please refer to the schematic, find the corresponding chip, re-soldering the pin, the chip may be pin soldered or unsoldered.

## 8. Application:

- 1>.Training welding skills
- 2>.Student school
- 3>.DIY production
- 4>.Project Design
- 5>.Electronic competition
- 6>.Gift giving
- 7>.Crafts collection
- 8>.Home decoration
- 9>.Souvenir collection

## 9. Schematic:



### 10. Installation Notes(Please be patient install! !)

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!!!

- 1>.User needs to prepare the welding tool at first.
- 2>.This DIY installation is more difficult to be installed, please be patient until the installation is complete.
- 3>.The package is DIY kit.It need finish install by user.
- 4>.The soldering iron can't touch the components for a long time(1.0 second), otherwise it will damage the components.
- 5>.Pay attention to the positive and negative of the components.
- 6>.Users can complete installation by PCB silk screen and component listing.
- 7>.User must install the LED according to the specified rules.Otherwise some LED will not light.
- 8>.Install complex components preferentially.
- 9>.Make sure all components are in right direction and right place.
- 10>.It is strongly recommended to read the installation manual before starting installation.

### 11. Installation Steps(Please be patient install! !)

- Step 1: Install 1pcs SMD MCU PCB on main PCB. Pay attention to the installation direction indicated by the arrow.
- Step 2: 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 3: Install 4pcs 5mm RGB LED at four corners.Note: Distinguish between the positive and negative of the LED. Long pin is positive.
- Step 4: Install 1pcs 220uf Electrolytic Capacitor.Note: Distinguish between the positive and negative. Long pin is positive.
- Step 5: Install 1pcs Self-Locking Switch red button.
- Step 6: Install 2pcs Tact Switch black button.
- 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 Bracket by 4pcs M3\*6mm Screw and 4pcs M3\*12mm Copper Column.
- 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 press left black button.

10.3>.Right black button is normal if play music changes when press right black button.

10.4>.Remote control and Infrared Receiver are normal if play music changes when press NEXT button.

10.5>.Fault and solution:

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

10.5.2>.LED is normal but music can not play means Buzzer or IC socket installation error.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 error.

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 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 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 the 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.

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 90degree 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.

Step 27: 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 as same to Step 22.

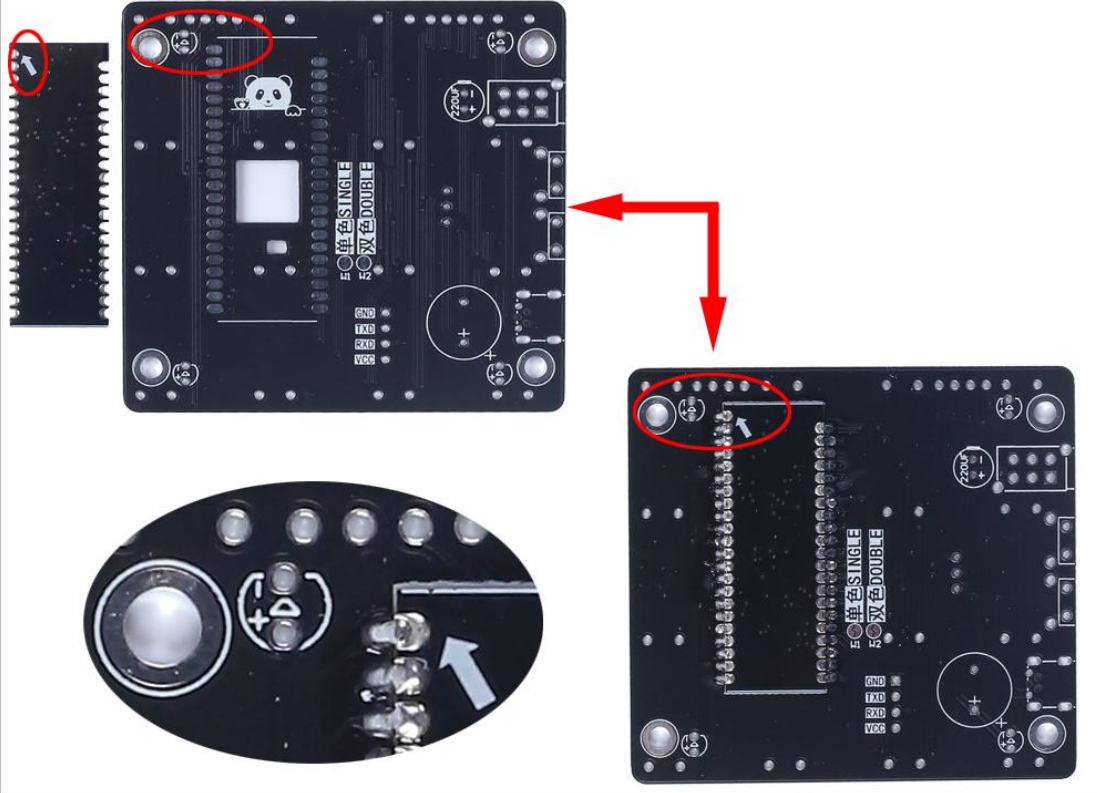
Step 28: Connect and fixed negative pins from 2pcs 4\*4 LED dot matrix.Cut off the extra pins as same to Step 23 and cut off the extra pins.

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.

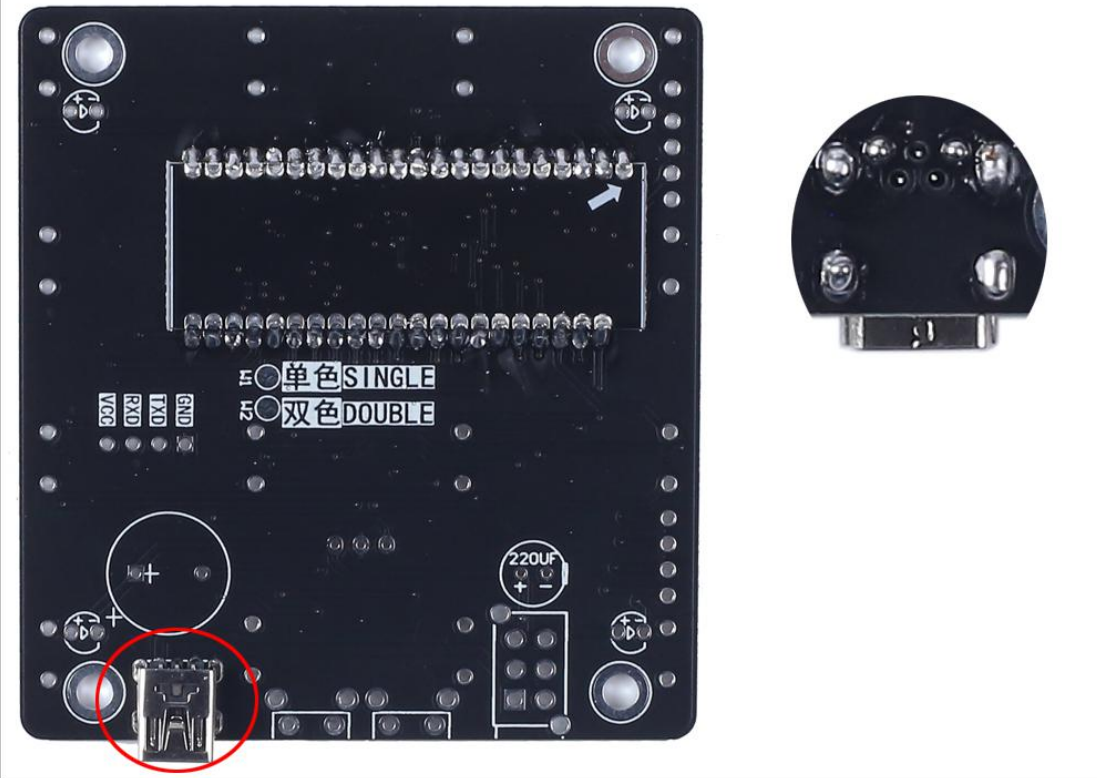
Step 30: Test and finish installation and enjoy.

## 12.Install shown steps:

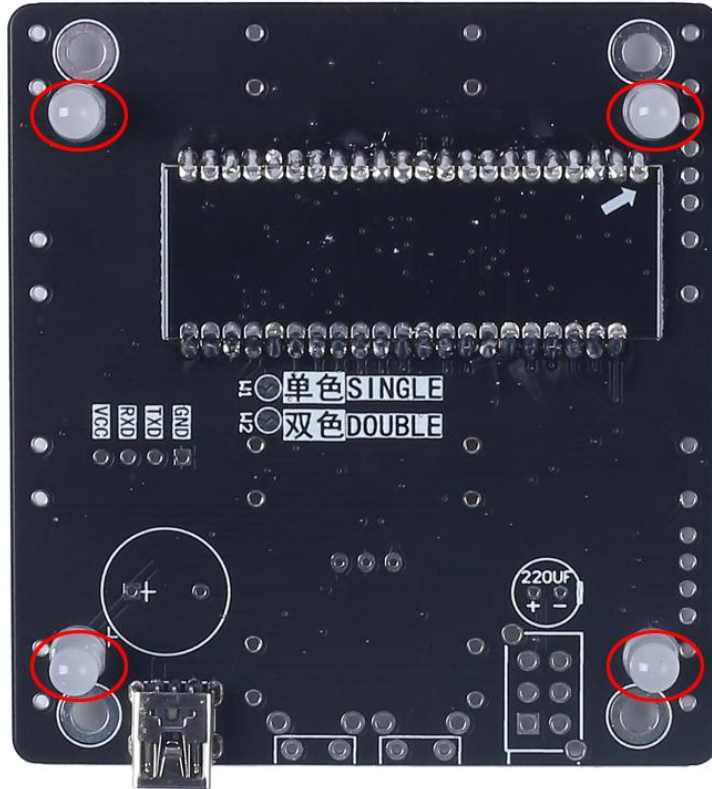
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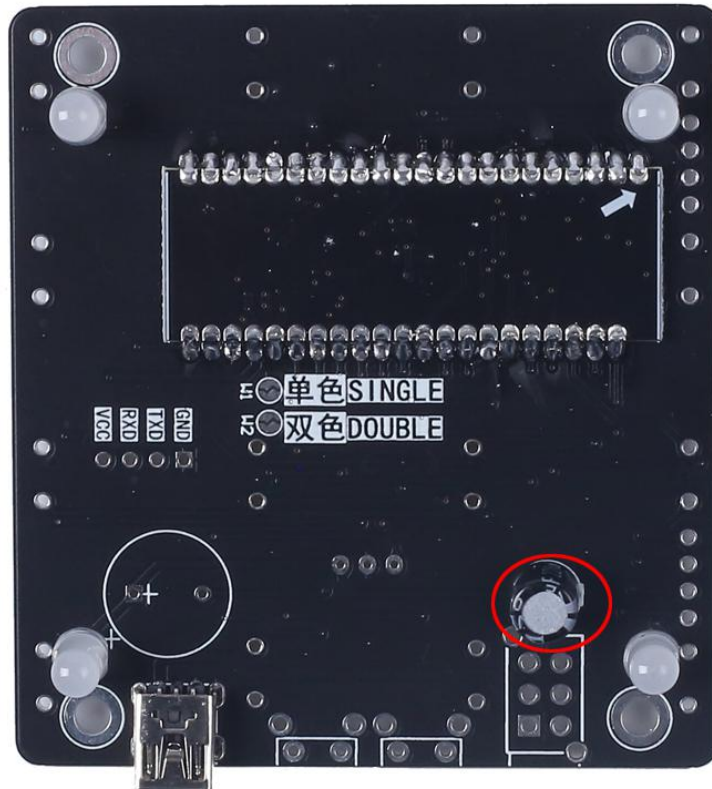
Step 2: Install 1pcs MINI USB. Note: the pin pitch is small, do not short circuit! And pay attention to the component mounting surface on PCB and do not install components in reverse on PCB side.



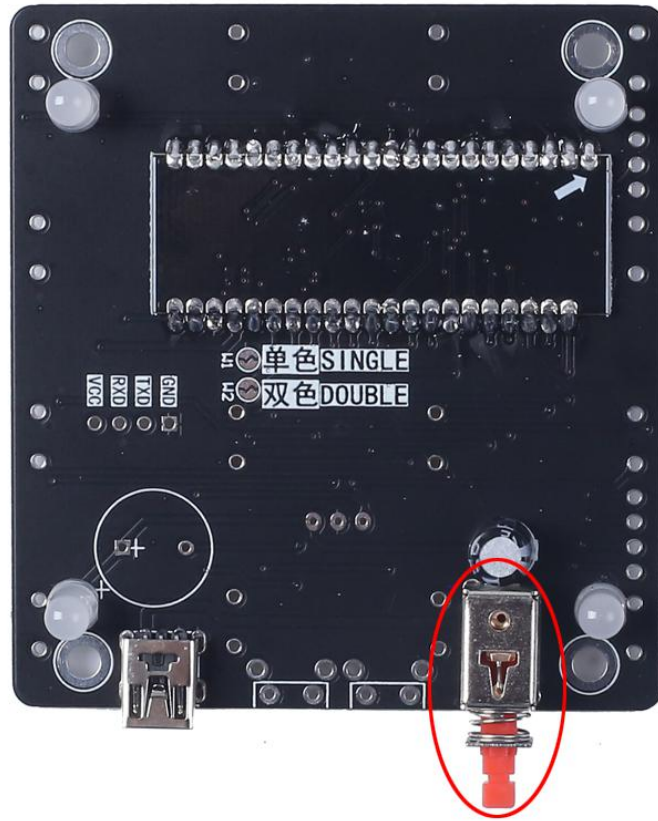
Step 3: Install 4pcs 5mm RGB LED at four corners. Note: Distinguish between the positive and negative of the LED. Long pin is positive.



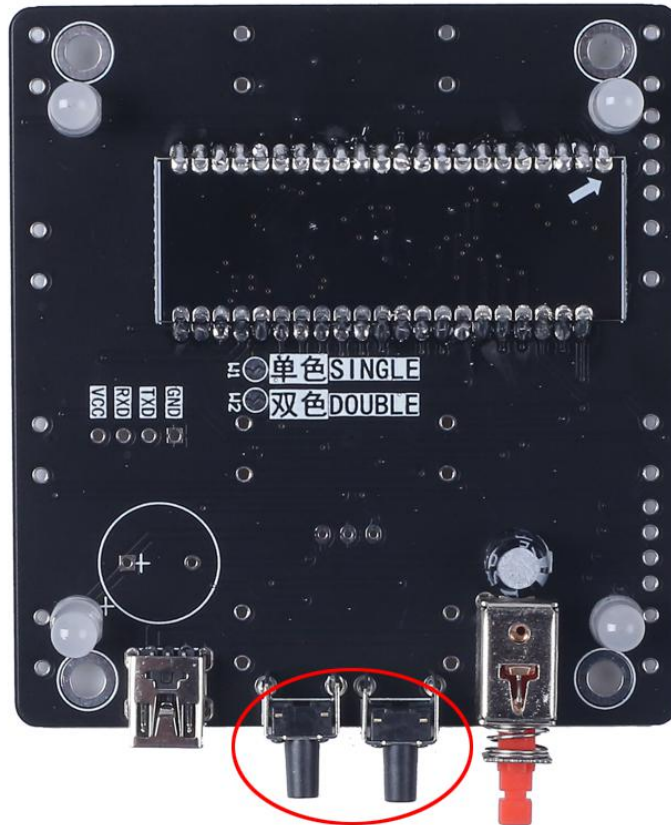
Step 4: Install 1pcs 220uf Electrolytic Capacitor. Note: Distinguish between the positive and negative. Long pin is positive.



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

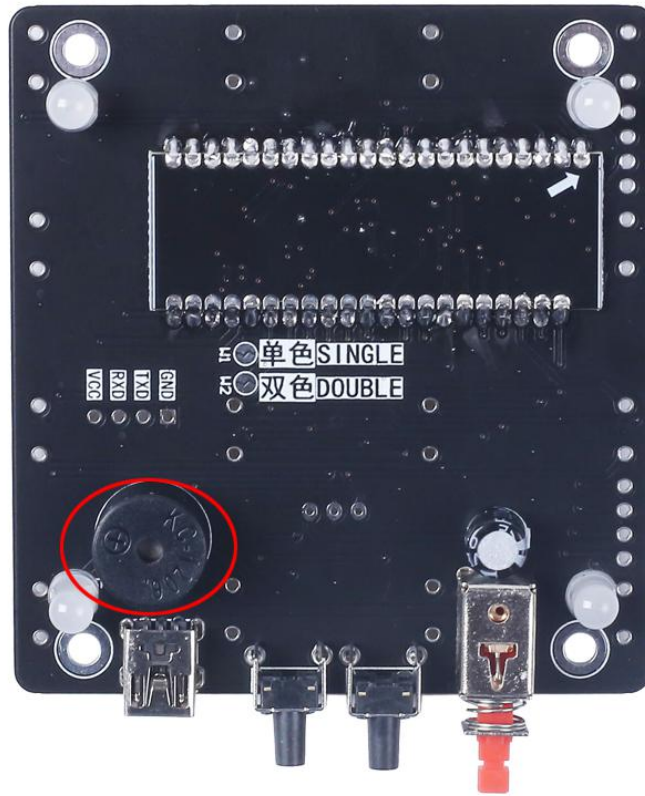


Step 6: Install 2pcs Tact Switch black button.

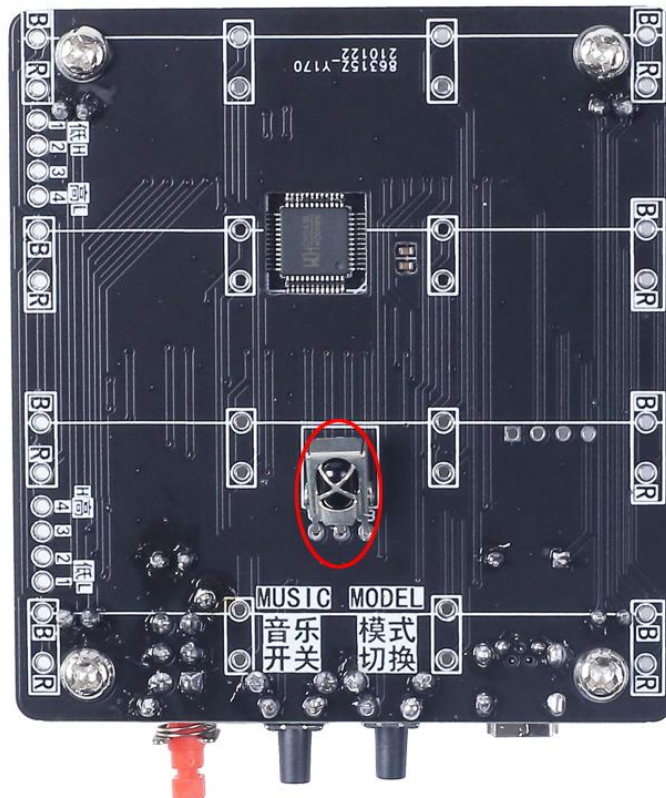




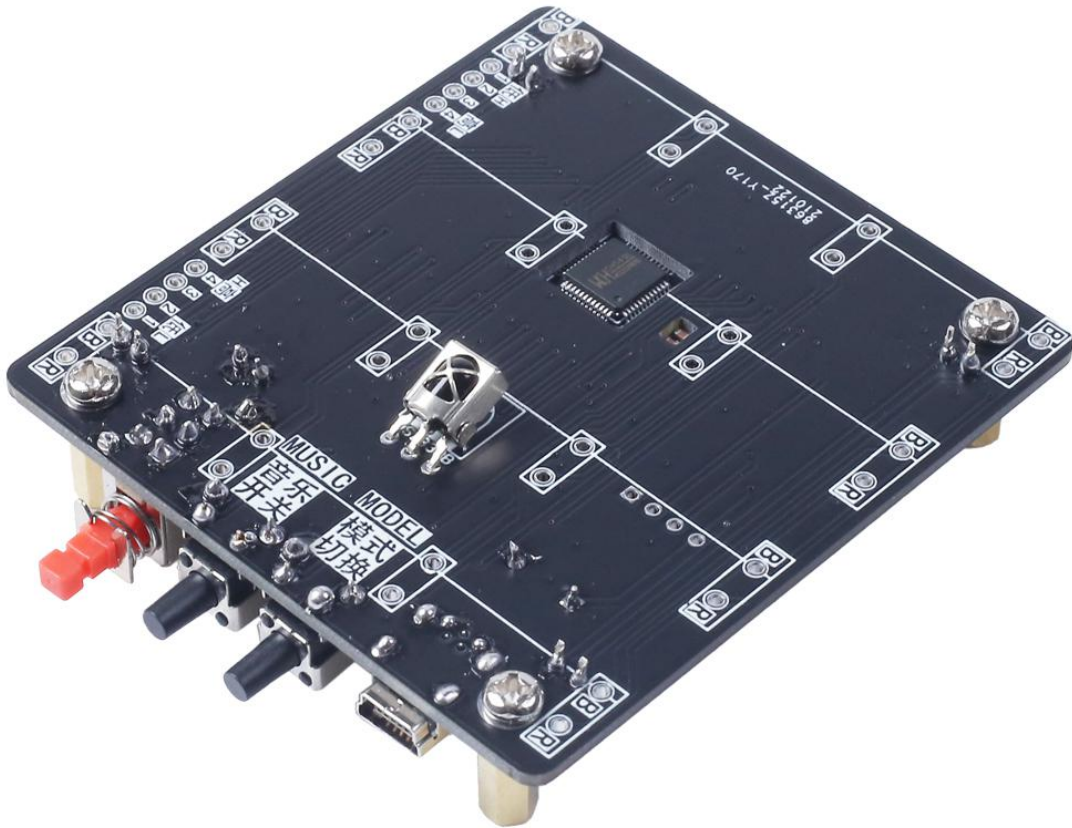
Step 7: Install 1pcs buzzer. Note: Distinguish between the positive and negative. There is a mark '+' on PCB and buzzer.



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 Bracket by 4pcs M3\*6mm Screw and 4pcs M3\*12mm Copper Column.



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

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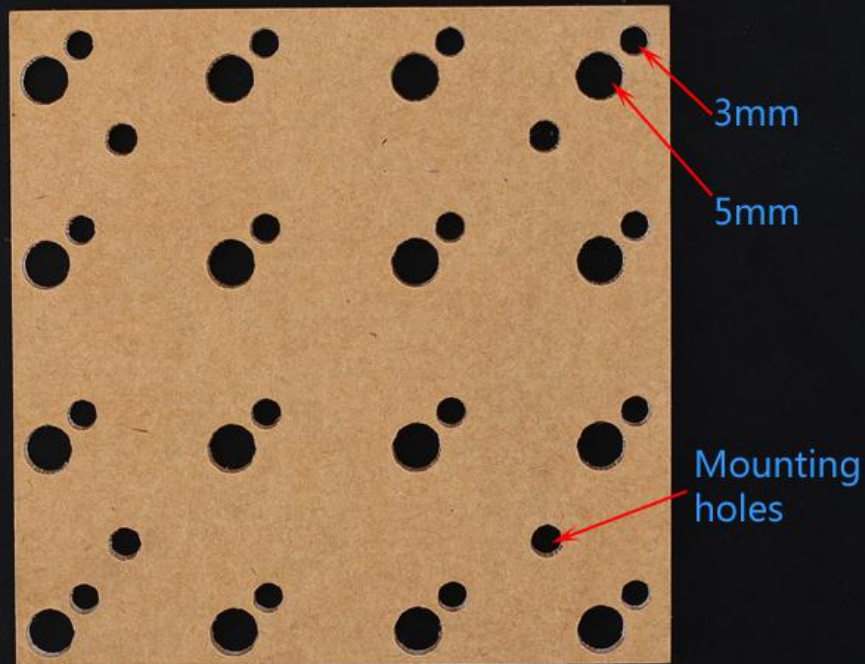
10.5>. Fault and solution:

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

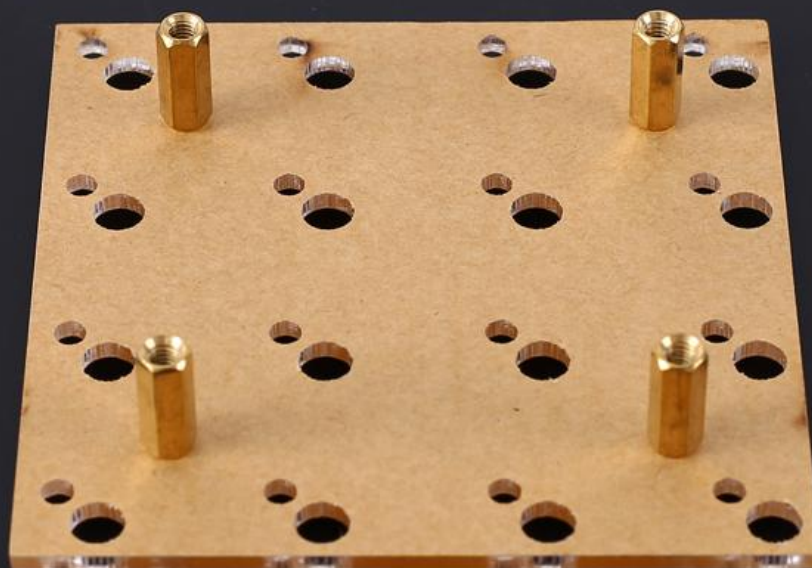
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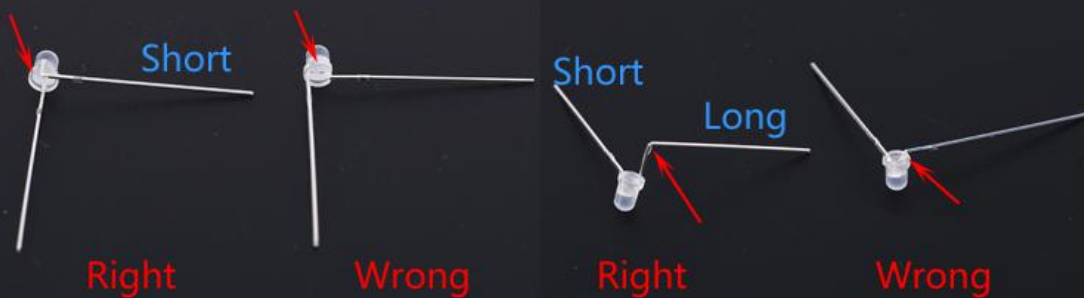
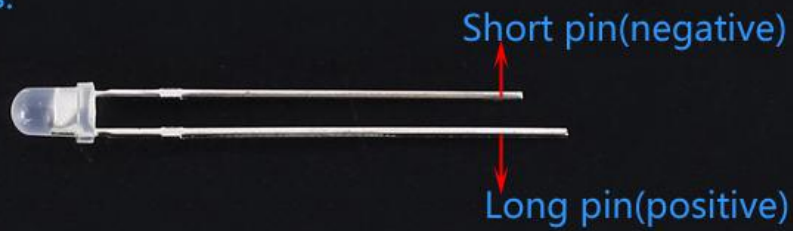
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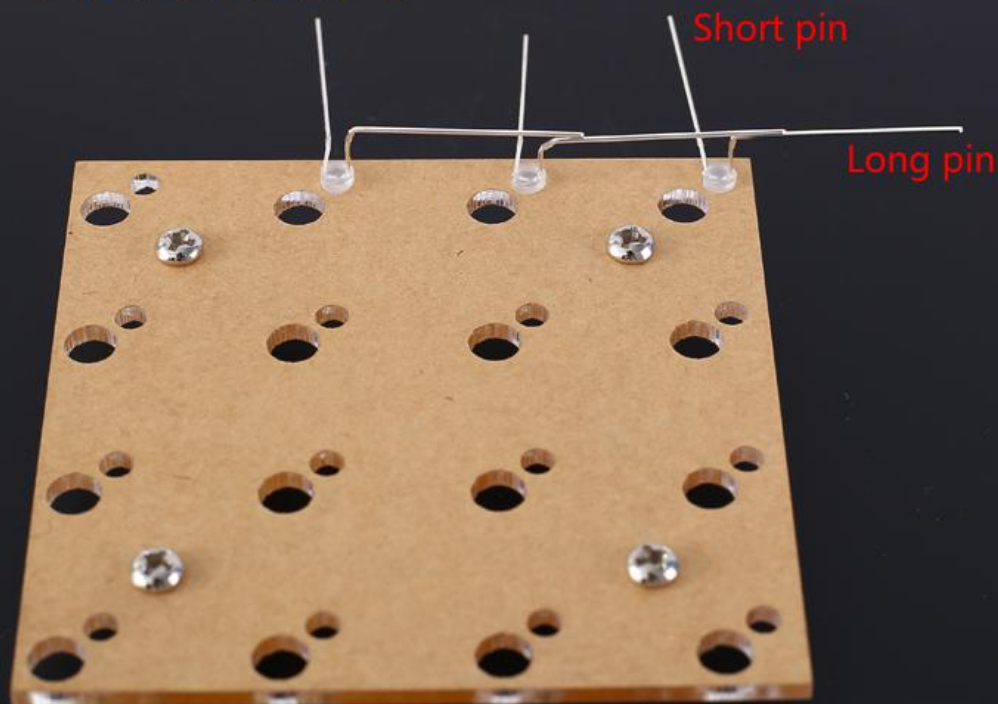
**Step 12:** Install Bracket for acrylic templates by 4pcs M3\*6mm Screw and 4pcs M3\*12mm Copper Column.



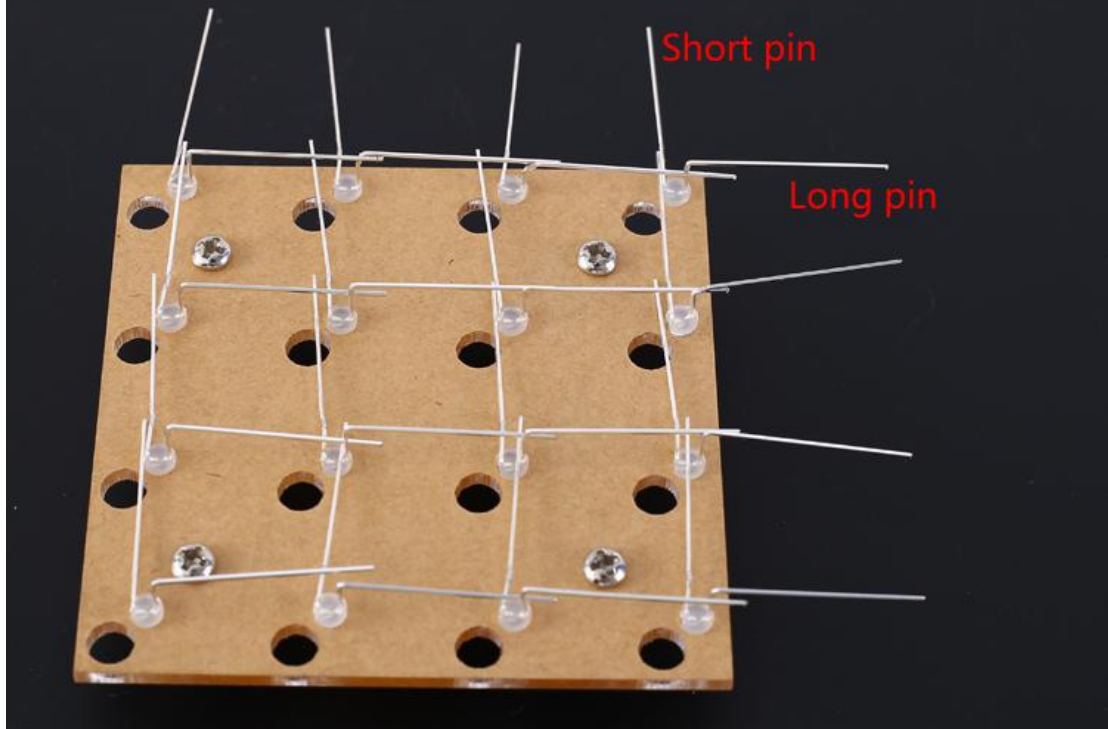
**Step 13:** Processing LED pin. 90° bent short pin and the 90° bend long pin. But they bend in different directions and positions.



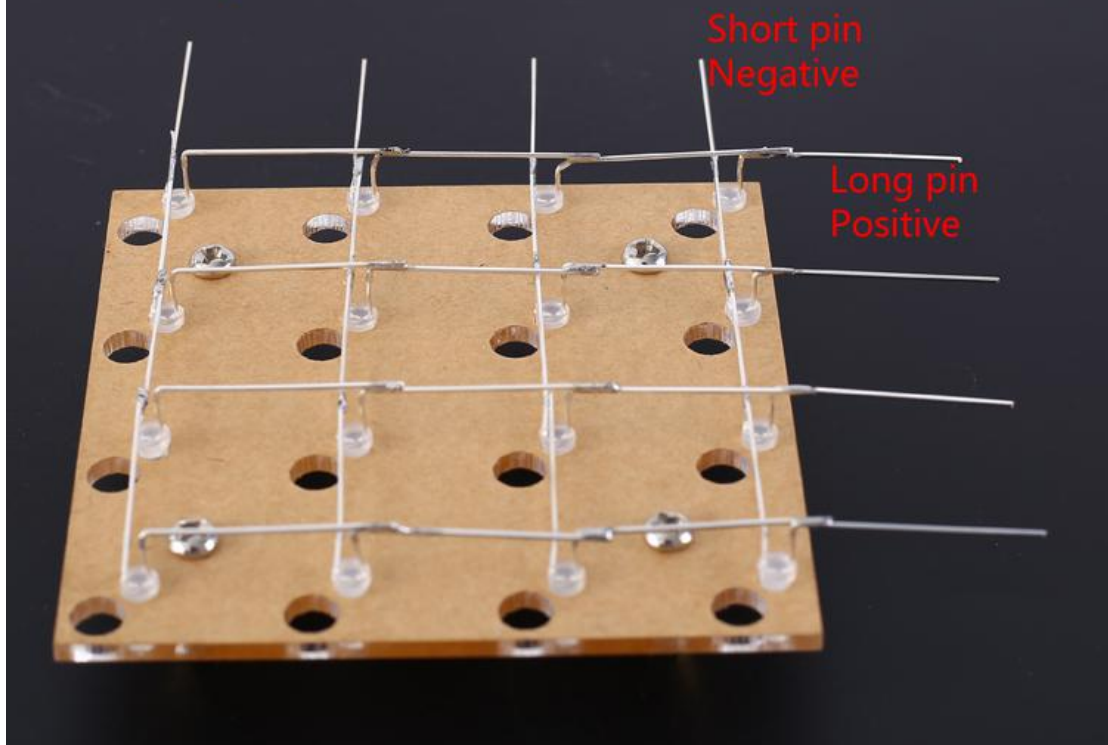
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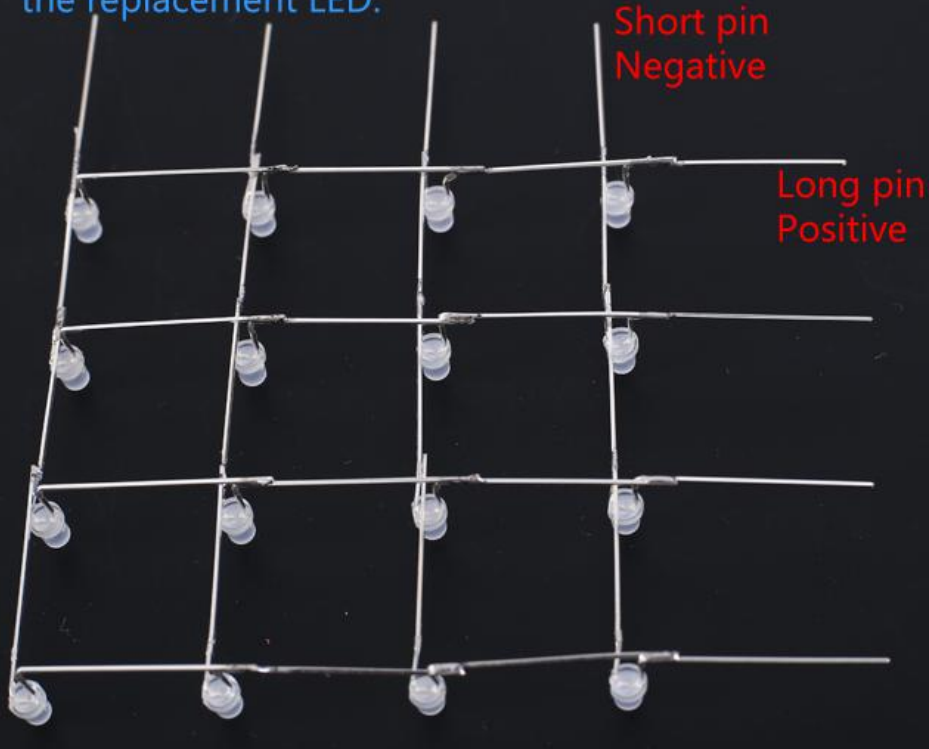
**Step 15:** Place 4\*4 LED on acrylic templates. Make sure that the positive and negative of LED must not be wrong.



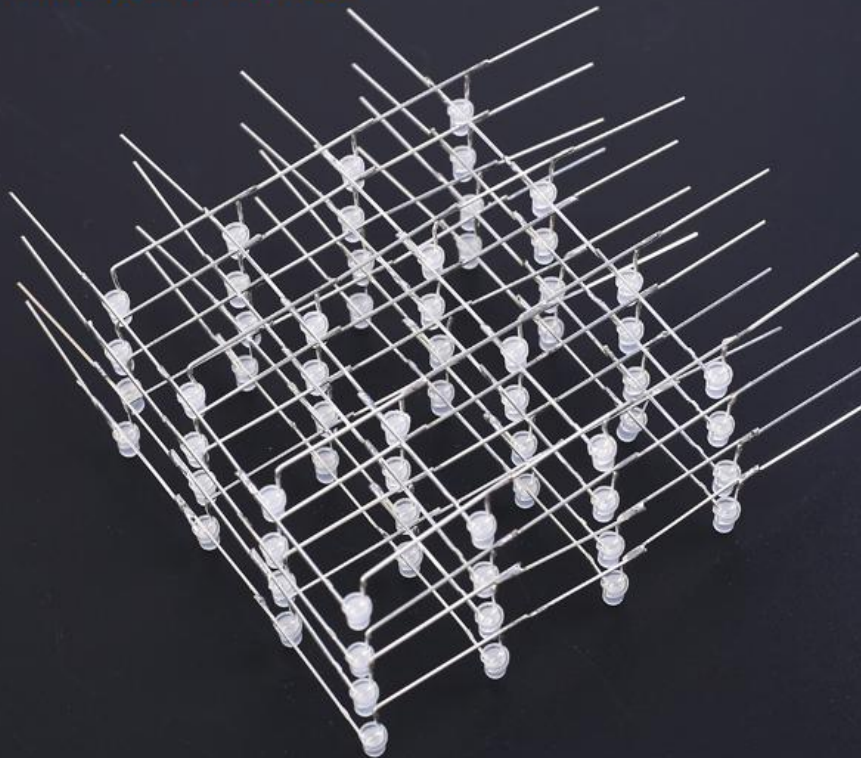
**Step 16:** Fixed all pins. All LEDs are aligned, pay attention to beauty.



**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.



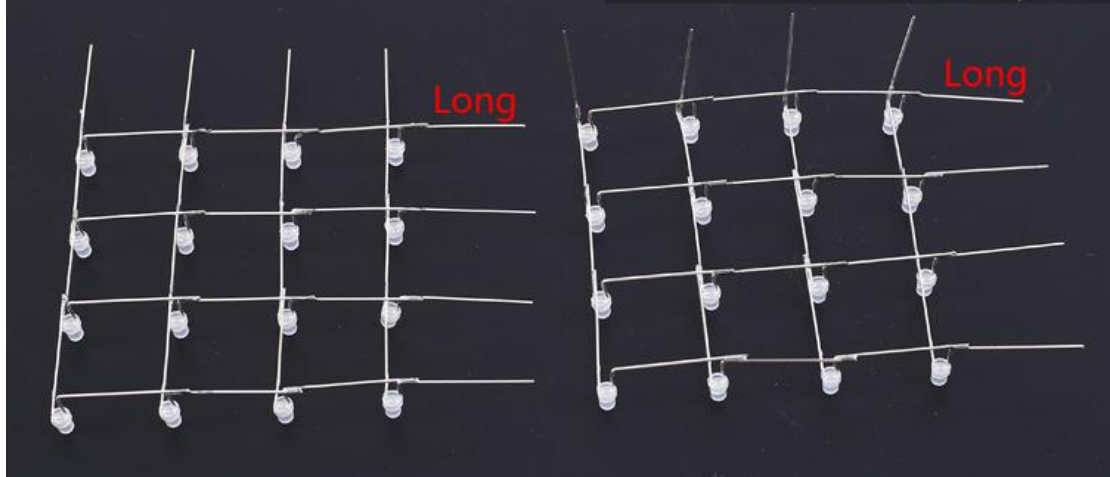
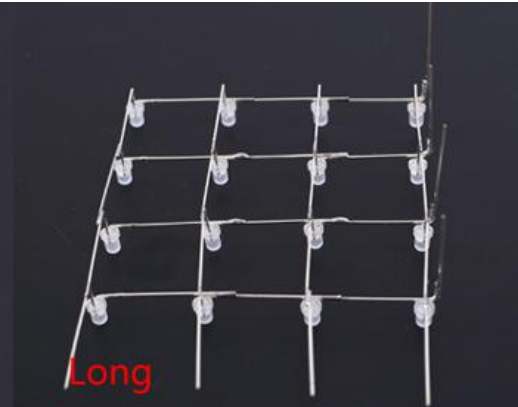
**Step 18:** Install and test other 3pcs 4\*4 LED dot matrix in the same method.

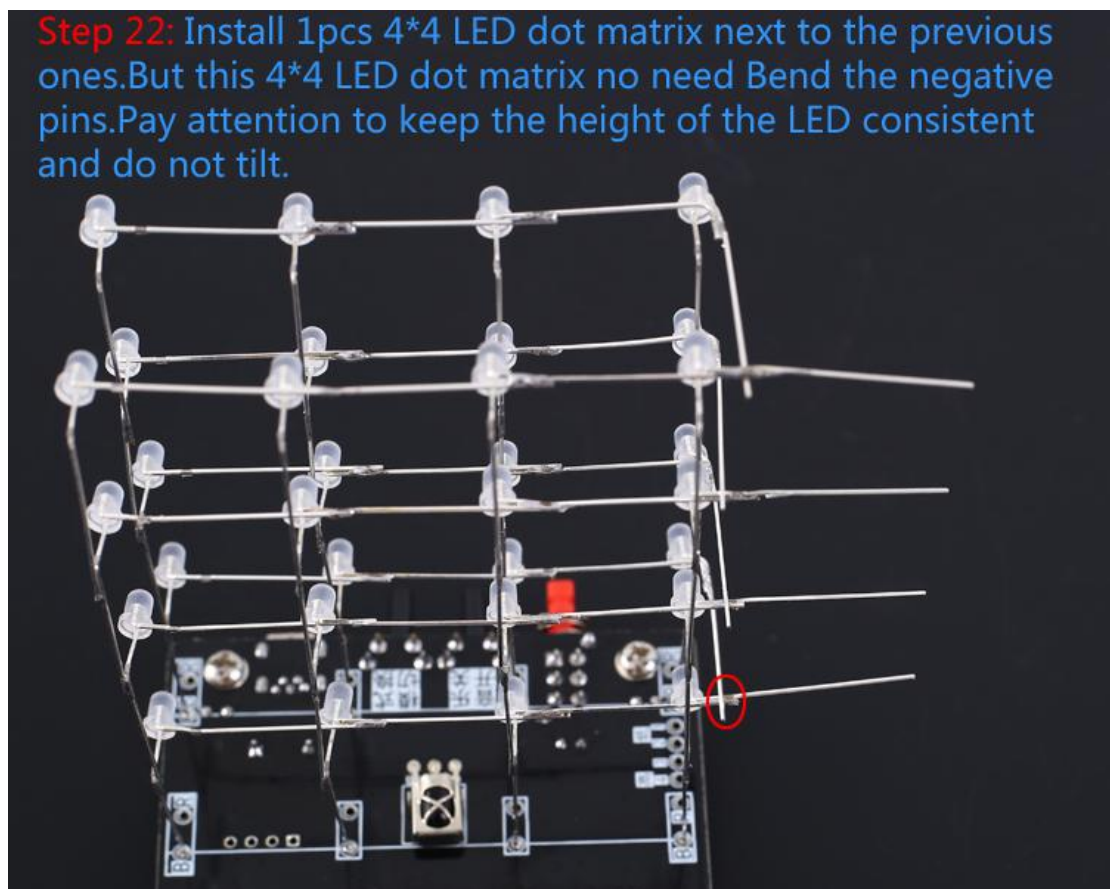
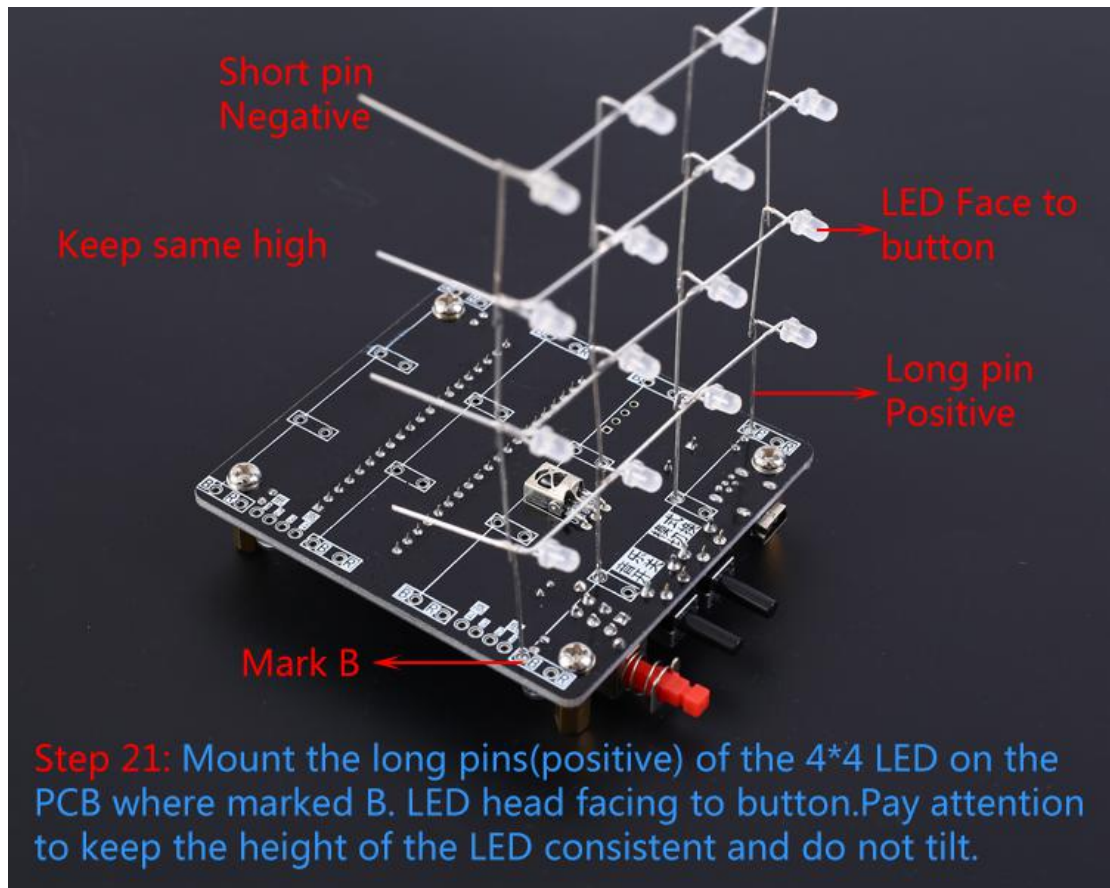


**Step 19:** Install Bracket by 4pcs M3\*6mm Screw and 4pcs M3\*12mm Copper Column which form acrylic templates.



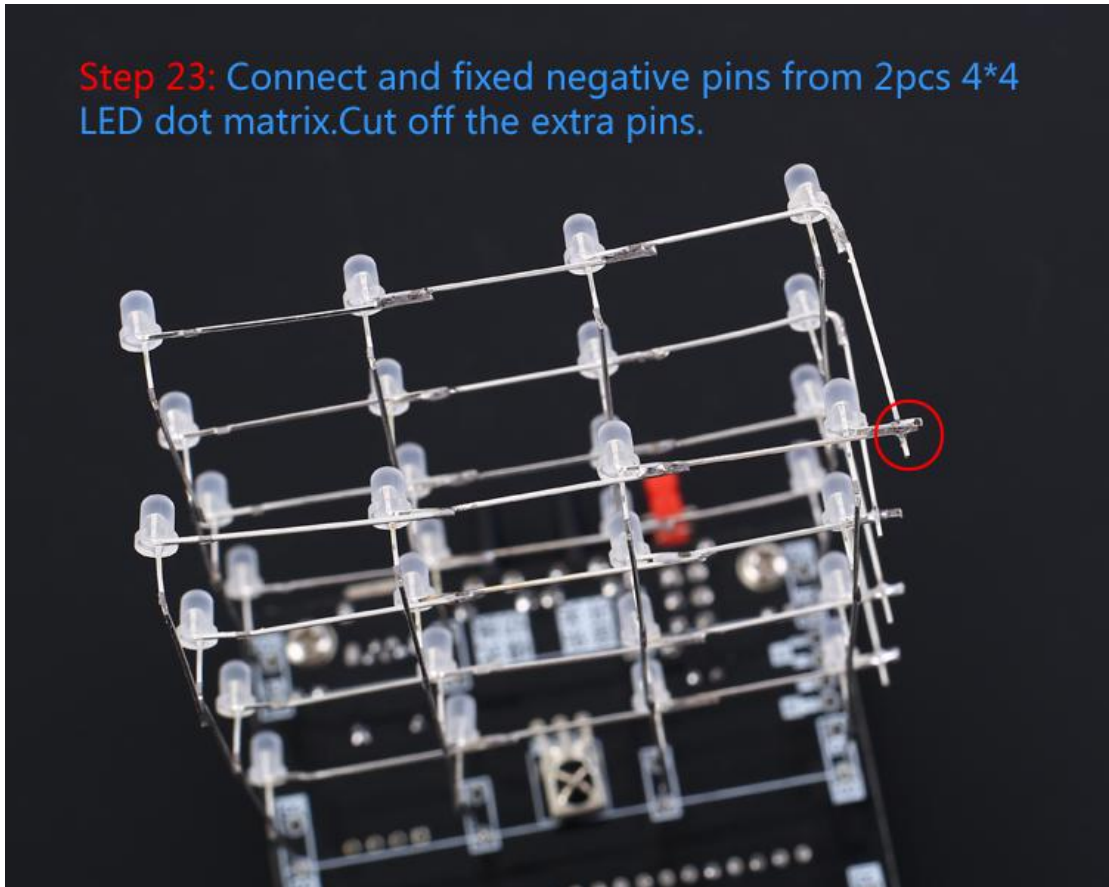
**Step 20:** Bend the negative pole of a 1pcs 4\*4 LED dot matrix and bend it 90° inward.  
Note: Do not short circuit to other pins. And do not damage the solder joint when bending.



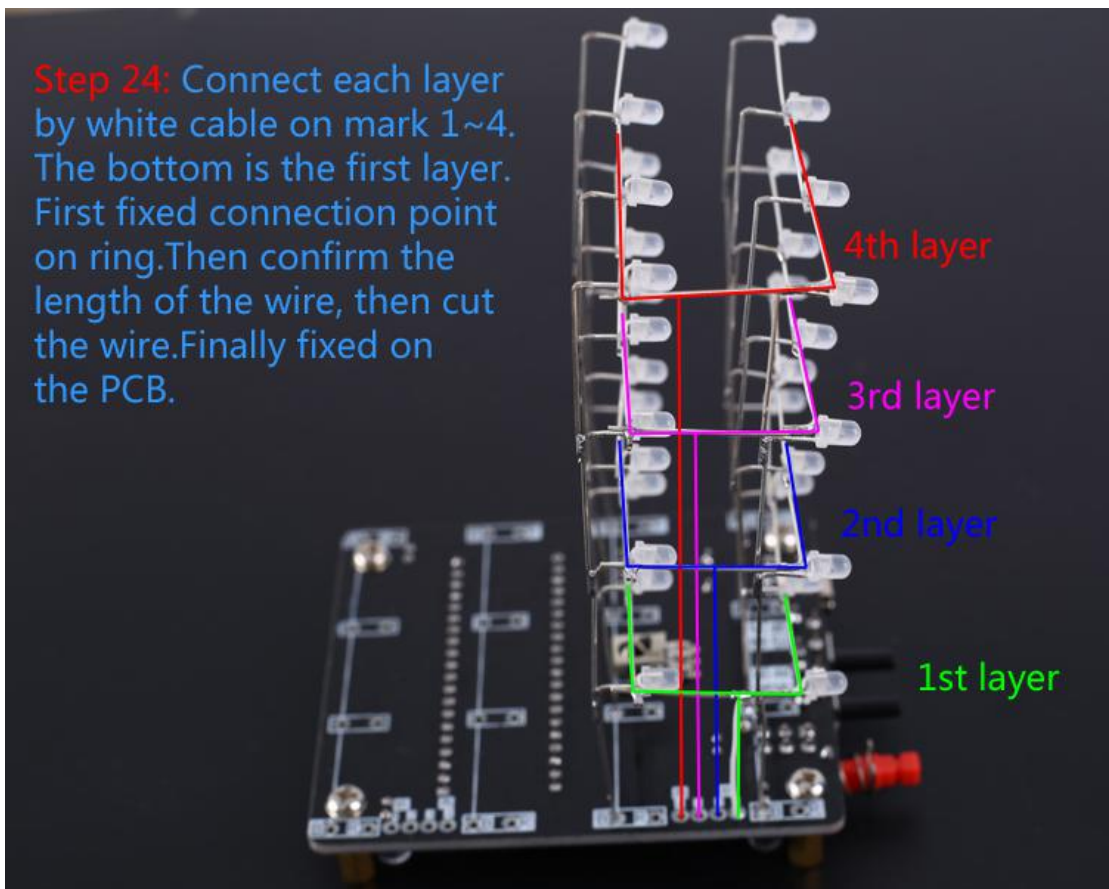




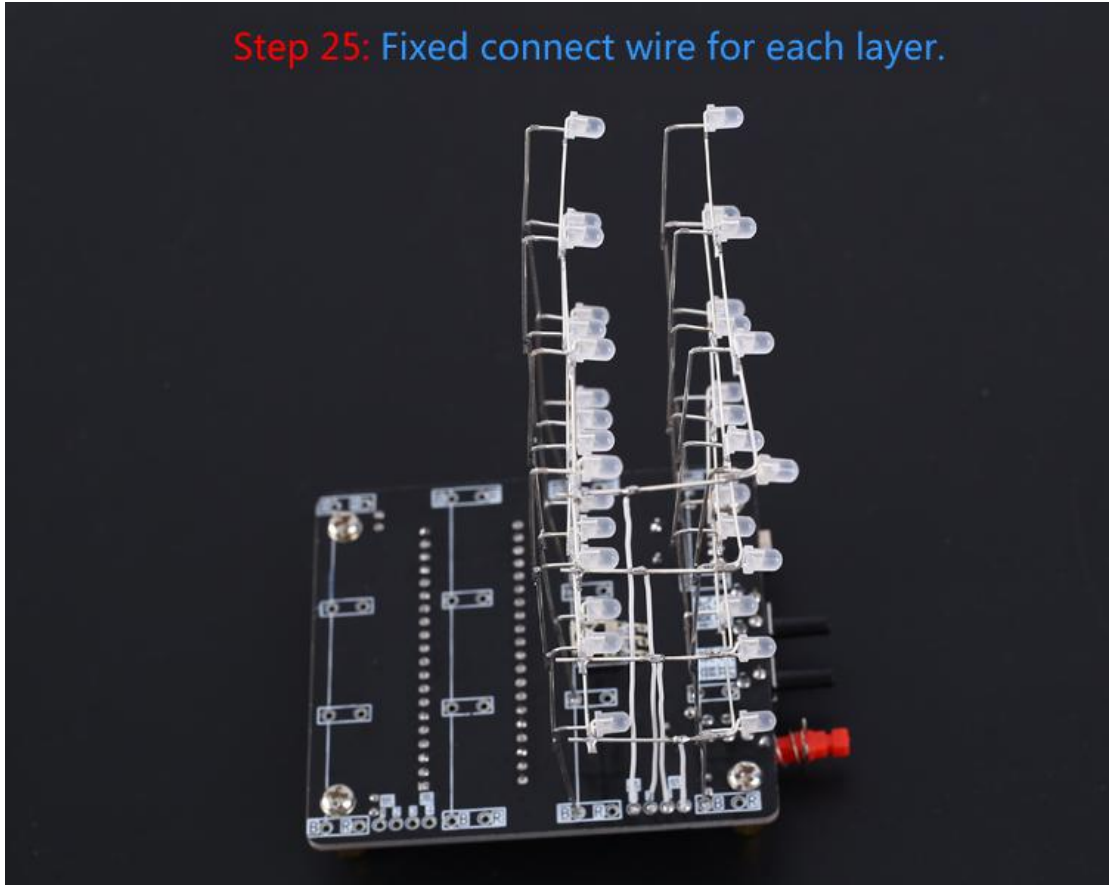
**Step 23:** Connect and fixed negative pins from 2pcs 4\*4 LED dot matrix. Cut off the extra pins.



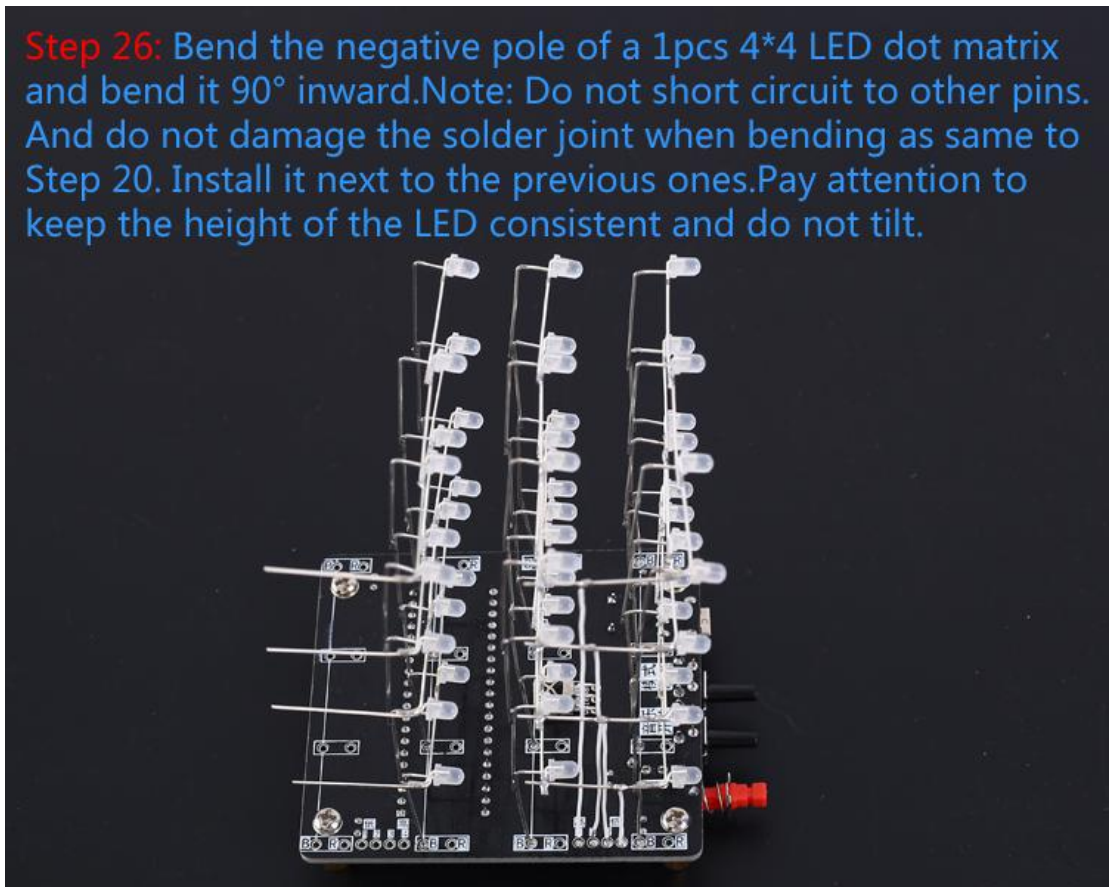
**Step 24:** Connect each layer by white cable on mark 1~4. The bottom is the first layer. First fixed connection point on ring. Then confirm the length of the wire, then cut the wire. Finally fixed on the PCB.



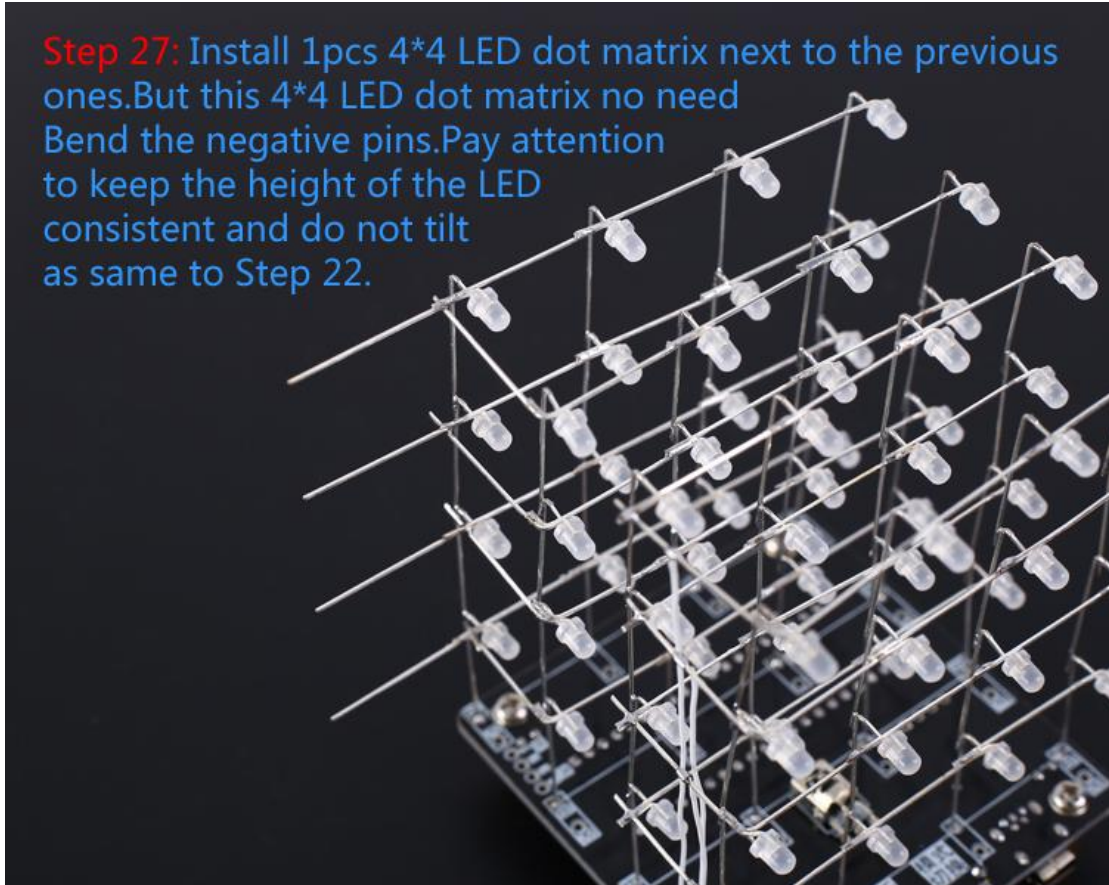
**Step 25:** Fixed connect wire for each layer.



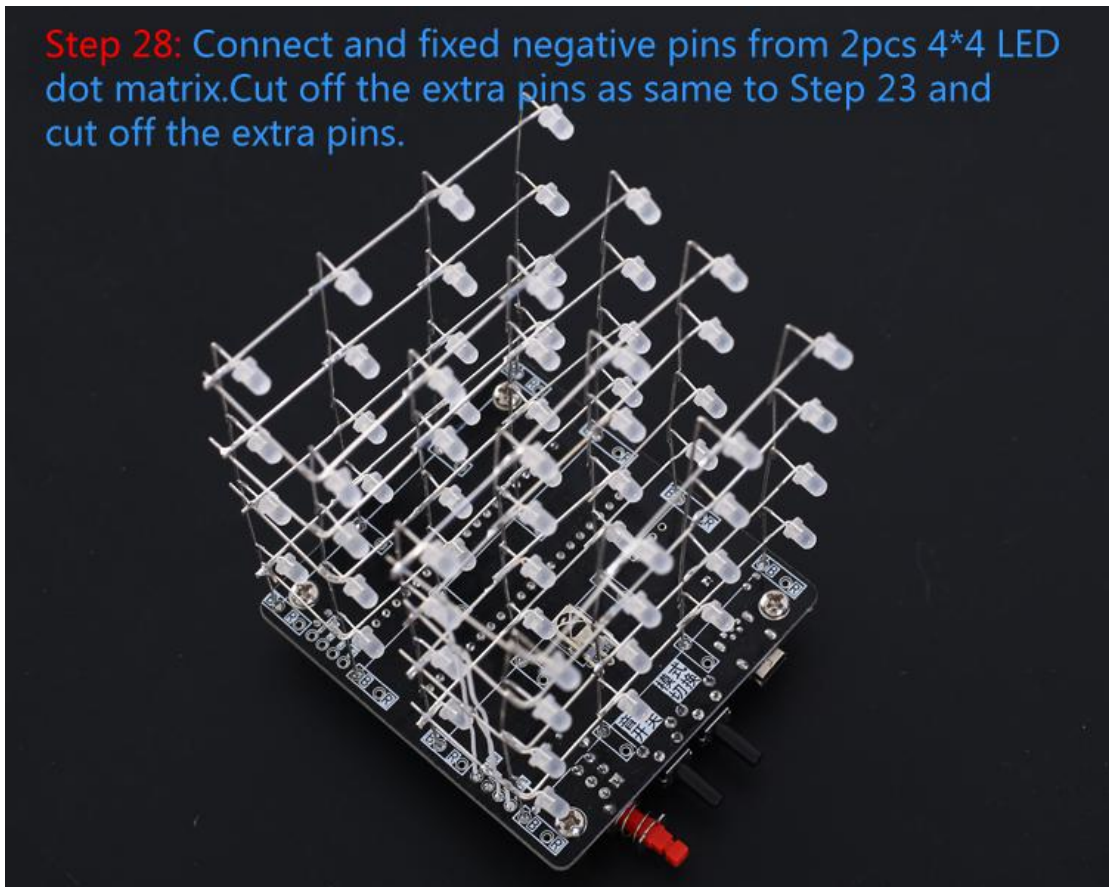
**Step 26:** Bend the negative pole of a 1pcs 4\*4 LED dot matrix and bend it 90° inward. Note: Do not short circuit to other pins. And do not damage the solder joint when bending as same to Step 20. Install it next to the previous ones. Pay attention to keep the height of the LED consistent and do not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



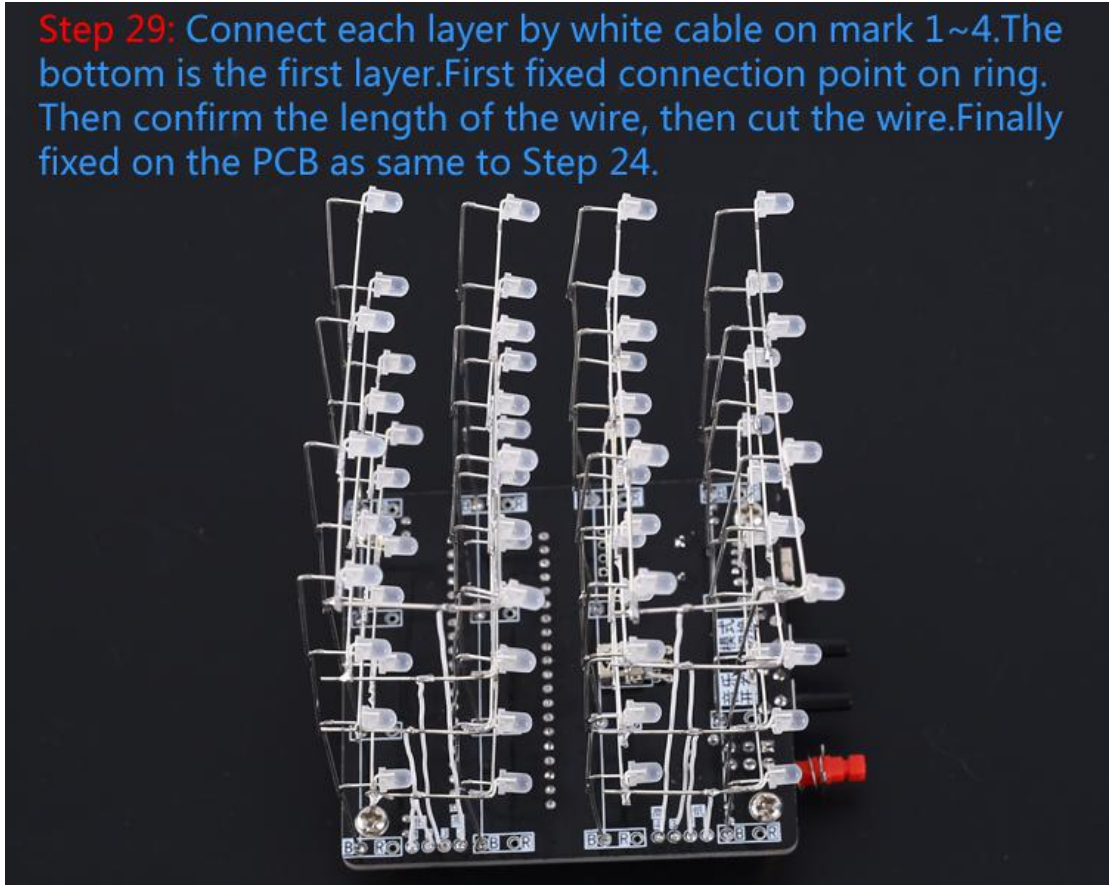
**Step 27:** Install 1pcs 4\*4 LED dot matrix next to the previous ones. But this 4\*4 LED dot matrix no need Bend the negative pins. Pay attention to keep the height of the LED consistent and do not tilt as same to Step 22.



**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.



13. Effect demonstration (Only for appreciation)

