

LED Dot Matrix Spectrum Bluetooth Audio Speaker DIY Kit

1.Parameter:

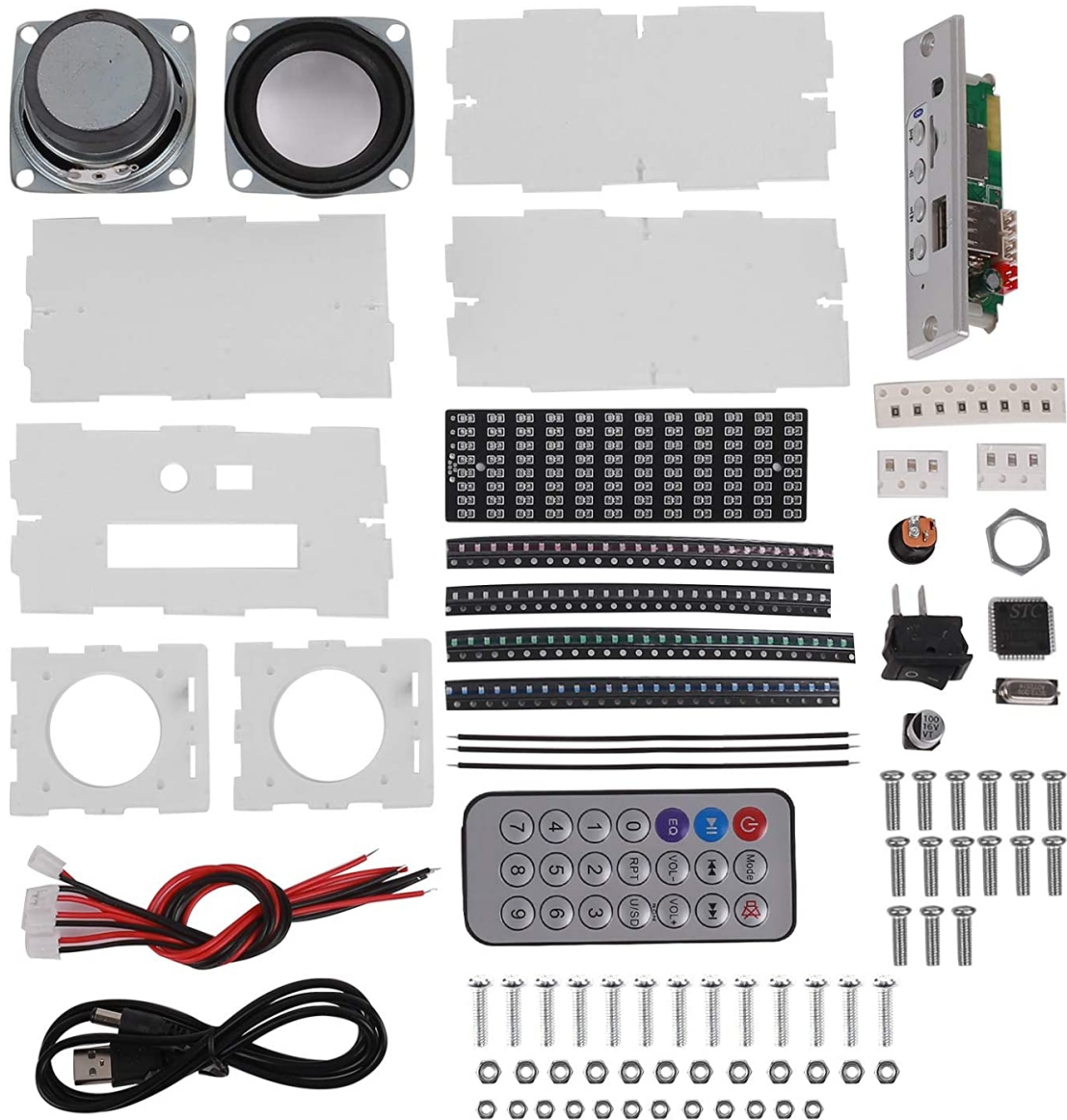
Work Voltage:DC 3.7V-5V
Bluetooth Version:5.0
Bluetooth Distance:15meter(Max)
Amplifier Power:3W*2
Music Source:Bluetooth/U-disk/TF Card
Control Type:Bluetooth/Remote Controller/On Board Button
LED Color:Yellow/Green/Red/Blue
Work Temperature:-40℃~85℃
Work Humidity:0%~95%RH
Size(Installed):135*74*64mm

2.Component listing:

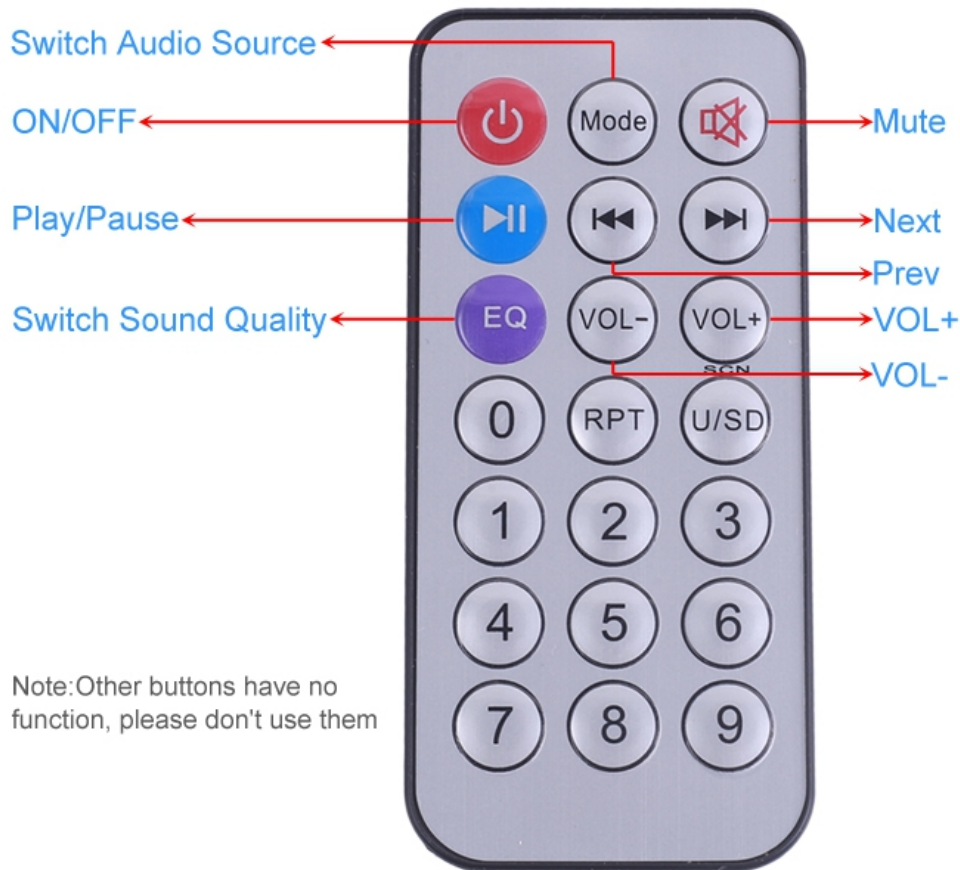
NO.	Component Name	PCB Marker	Parameter	QTY
1	STC12C5A60S2	U1	LQFP44G	1
2	SMD 0805 Yellow LED		Yellow	24
3	SMD 0805 Green LED		Green	24
4	SMD 0805 Red LED		Red	24
5	SMD 0805 Blue LED		Blue	24
6	SMD 0805 Capacitor	C3-C5	30pF	3
7	SMD 0805 Capacitor	C2	0.1uF 104	1
8	Crystal Oscillator	Y	12MHz	1
9	Aluminum Electrolytic Capacitor	C1	100uF SMD	1
10	SMD 0805 Resistor	R2-R9	510ohm	8
11	Bluetooth Audio Controller			1
12	4ohm 3W Speaker		2in 52*52*24mm	2
13	2Pin PH2.0 Wire		15cm	4
14	Black Wire		10cm	3
15	DC-022 Power Socket			1
16	Power Socket Nut			1
17	Black Switch			1
18	Transparent Acrylic Shell			6
19	M3 Screw		M3*10mm	12
20	M3 Nut		M3	12

21	M2 Screw		M2*10mm	12
22	M2 Nut		M2	12
23	USB Power Cable		100cm	1
24	Remote Controller			1
25	PCB		114*36*1.6mm	1
Note: Users can complete the installation according to the PCB silk screen and component list.				

Components in Package



3.Remote Controller:



4.Installation Tips:

- 1>.The soldering iron can't touch the components for a long time(1.0 second), otherwise it will damage the components.
- 2>.Pay attention to the positive and negative of the components.
- 3>.Strictly prohibit short circuit.
- 4>.Install complex components preferentially.
- 5>.Make sure all components are in right direction and right place.
- 6>.Please wear anti-static gloves or anti-static wristbands when installing electronic components.
- 7>.User must install the LED according to the specified rules. Otherwise some LED will not light.

Note: The work voltage is 3.7V-5V, so please make sure the input voltage can not more than 5V. Otherwise, it will be damaged.

6. Installation Steps (Please be patient):

Step 1: Identify the positive and negative poles of LED and pad. It is negative if there is a green mark on LED front. It is negative where the green mark pointing to on LED back. It is negative where the white mark ">" pointing to on PCB.

Step 2: Tinplate all negative pads for LED installation.

Step 3: Install 24pcs SMD 0805 Yellow LED at the 1st/5th/9th column on black PCB. Please distinguish between positive and negative.

Step 4: Install 24pcs SMD 0805 Green LED at the 2nd/6th/10th column on black PCB. Please distinguish between positive and negative.

Step 5: Install 24pcs SMD 0805 Red LED at the 3rd/7th/11th column on black PCB. Please distinguish between positive and negative.

Step 6: Install 24pcs SMD 0805 Blue LED at the 4th/8th/12th column on black PCB. Please distinguish between positive and negative.

Step 7: Install 1pcs IC LQFP44G STC12C5A60S2 at U1. There is a small dot on one corner of IC. This dot corresponds to corner, which is not a right angle on silk screen printing, where the IC can place on.

Step 8: Install 3pcs 30pF SMD 0805 Capacitor at C3-C5.

Step 9: Install 1pcs 0.1uF 104 SMD 0805 Capacitor at C2.

Step 10: Install 1pcs 12MHz Crystal Oscillator at Y.

Step 11: Install 1pcs 100uF SMD Aluminum Electrolytic Capacitor at C1. Note that the right angle of capacitor base corresponds to the right angle of silk screen printing.

Step 12: Install 8pcs 510ohm SMD 0805 Resistor at R2-R9. Note: LED spectrum board has been installed and other components do not need to be installed.

Step 13: Know Bluetooth audio controller: Interface function introduction.

Step 14: Know Bluetooth audio controller: Wiring diagram.

Step 15: Install 2pcs 15cm 2Pin PH2.0 Wire on 2pcs 4ohm 3W Speaker. The speakers does not need to distinguish between positive and negative poles.

Step 16: Install 3pcs 10cm Black Wire to 5V/GND/L-out on Bluetooth audio controller. These three wires are used to connect Bluetooth audio controller and LED spectrum board.

Step 17: Connect three wires to LED spectrum board. Note: 5V and GND connect to 5V and GND on LED board; L-out connects to M on LED board.

Step 18: Find the power supply acrylic panel and remove the protective film from the surface.

Step 19: Fix 1pcs DC-022 Power Socket by the biggest nut on acrylic panel.

Step 20: Fix 1pcs Black Switch on acrylic panel. Pay attention to the buckle on the switch, which can be fixed by itself. Pay attention to the installation direction.

Step 21: Cut about 3cm red wire to connect DC-022 Power Socket and Black Switch. Pay attention to their pin selection and can not choose to connect other pins.



Step 22: Connect 1pcs 15cm 2Pin PH2.0 Wire to DC-022 and Switch. The red wire connect to Black Switch and the black wire connect to DC-022 Power Socket.

Step 23: Fix Bluetooth audio controller on acrylic panel by 2pcs M3*10mm Screw and 2pcs M3 Nut.

Step 24: Fix speaker on the other two are smaller acrylic panel by 8pcs M3*10mm Screw and 8pcs M3 Nut.

Step 25: Fix LED spectrum board on acrylic panel by 2pcs M3*10mm Screw and 2pcs M3 Nut.

Step 26: Connect 1pcs power wire to red socket and 2pcs speaker wires to white sockets.

Step 27: Assemble 6pcs acrylic panels by 12pcs M2*10mm Screw and 12pcs M2 Nut. Please be patient when installing the screws.

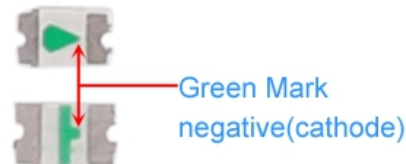
Step 28: Connect to power supply and enjoy the effect. Note Please provide sufficient working current. It is recommended to use a 5V 2A power supply.

Step 1: Identify the positive and negative poles of LED and pad. It is negative if there is a green mark on LED front. It is negative where the green mark pointing to on LED back. It is negative where the white mark ">" pointing to on PCB.

LED Front



LED Back



PCB Silk



Step 2: Tinplate all negative pads for LED installation.





Step 3: Install 24pcs SMD 0805 **Yellow** LED at the **1st/5th/9th** column on black PCB.
Please distinguish between positive and negative.
Step 4: Install 24pcs SMD 0805 **Green** LED at the **2nd/6th/10th** column on black PCB.
Please distinguish between positive and negative.
Step 5: Install 24pcs SMD 0805 **Red** LED at the **3rd/7th/11th** column on black PCB.
Please distinguish between positive and negative.
Step 6: Install 24pcs SMD 0805 **Blue** LED at the **4th/8th/12th** column on black PCB.
Please distinguish between positive and negative.

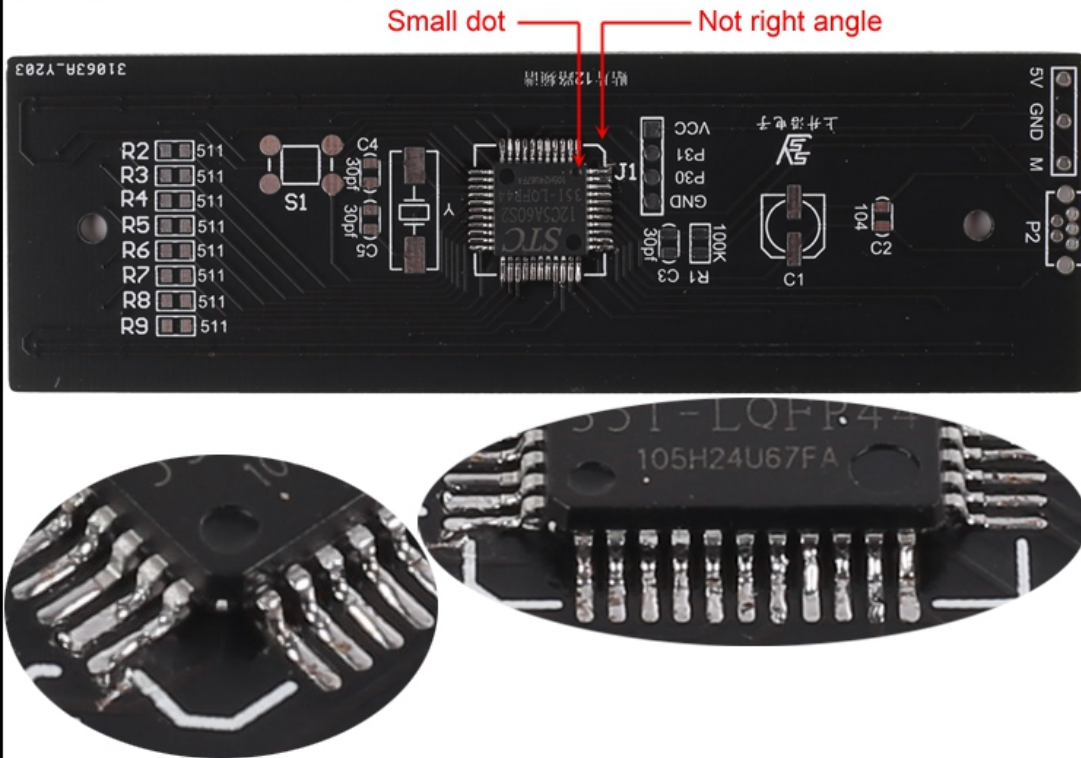


Note that the color of each column is the same!





Step 7: Install 1pcs IC LQFP44G STC12C5A60S2 at U1. There is a small dot on one corner of IC. This dot corresponds to corner, which is not a right angle on silk screen printing, where the IC can place on.



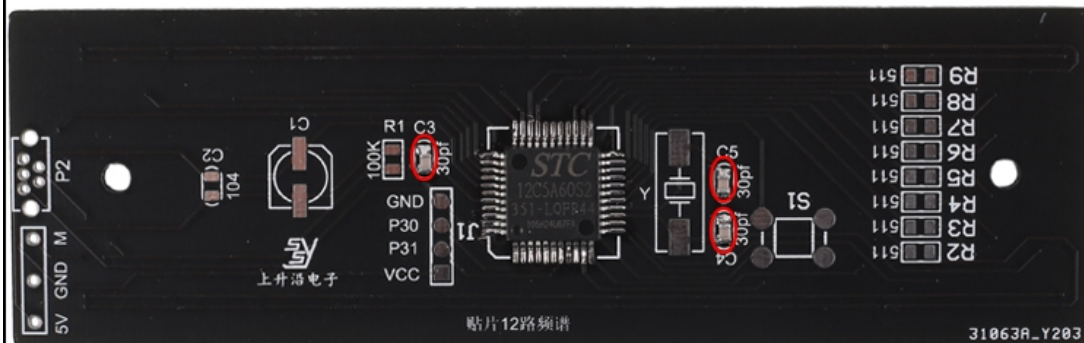


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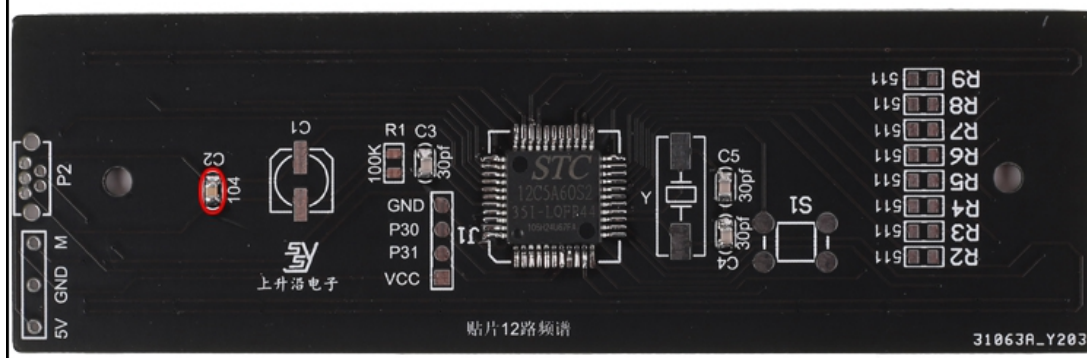
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Step 8: Install 3pcs 30pF SMD 0805 Capacitor at C3-C5.

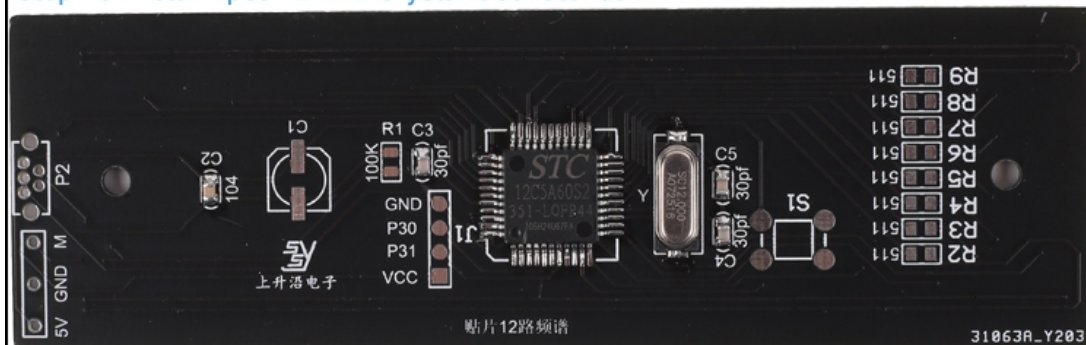


Step 9: Install 1pcs 0.1uF 104 SMD 0805 Capacitor at C2.

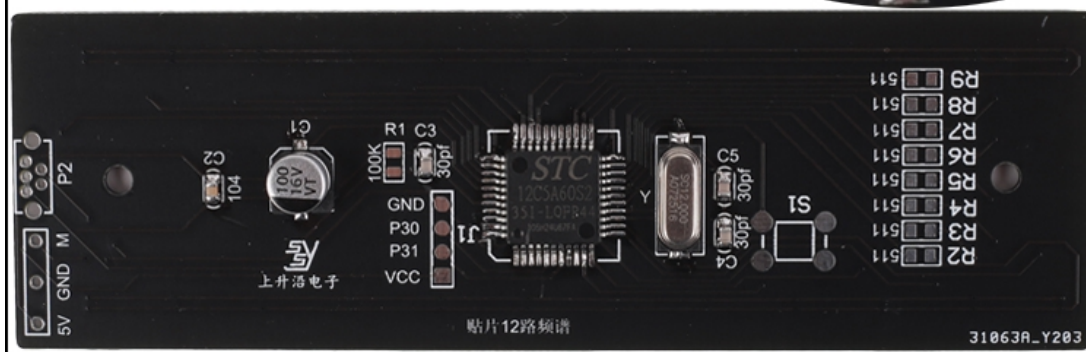




Step 10: Install 1pcs 12MHz Crystal Oscillator at Y.



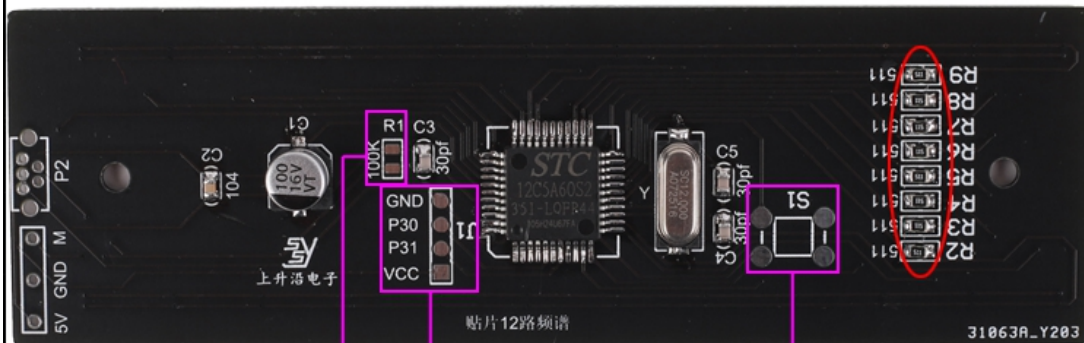
Step 11: Install 1pcs 100uF SMD Aluminum Electrolytic Capacitor at C1. Note that the right angle of capacitor base corresponds to the right angle of silk screen printing.





Step 12: Install 8pcs 510ohm SMD 0805 Resistor at R2-R9.

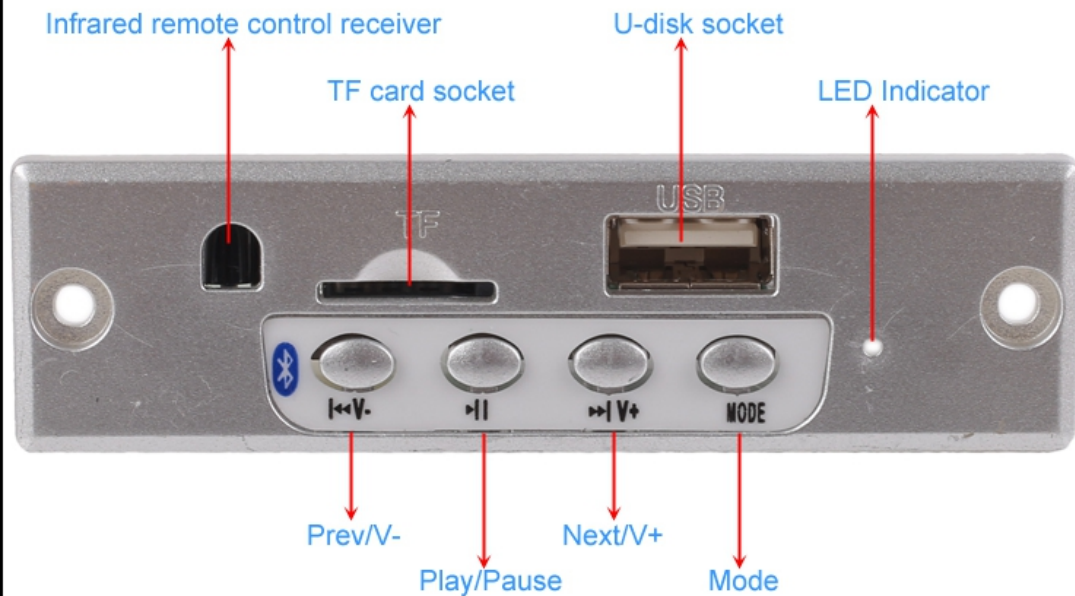
Note: LED spectrum board has been installed and other components do not need to be installed.



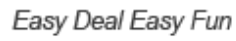
These three components do not need to be installed!



Step 13: Know Bluetooth audio controller: Interface function introduction.

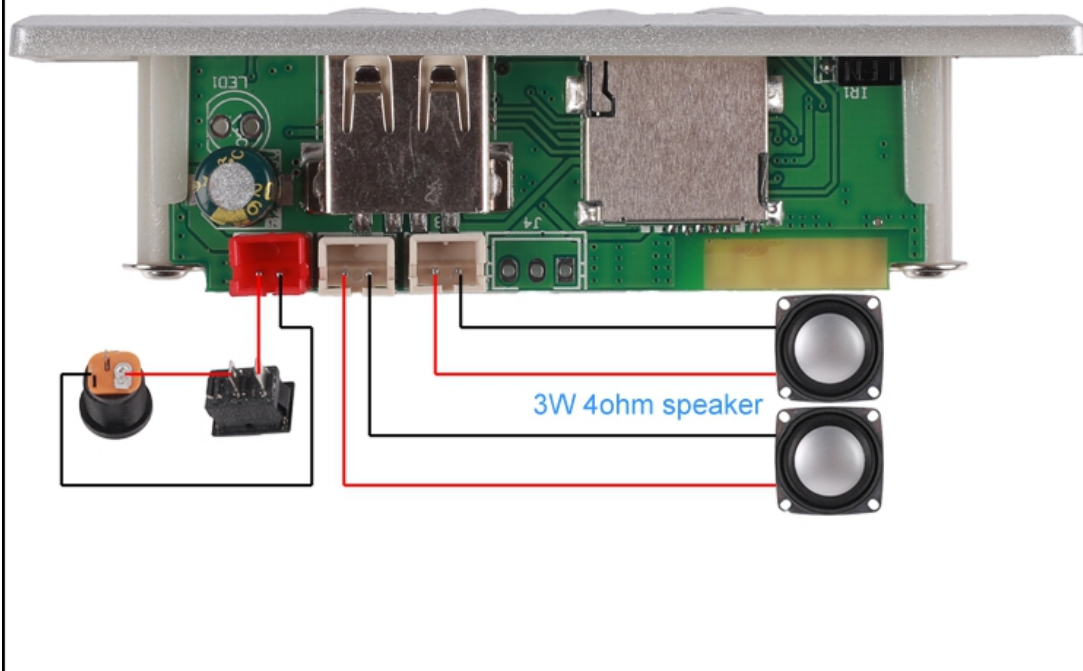


Prev/V- : Short press to select previous music; Keep press to decrease volume.
Play/Pause: It is used to play or pause music.
Next/V+: Short press to select next music; Keep press to increase volume.
Mode: It is used to switch music source: Bluetooth/U-disk/TF card.



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Step 14: Know Bluetooth audio controller: Wiring diagram.





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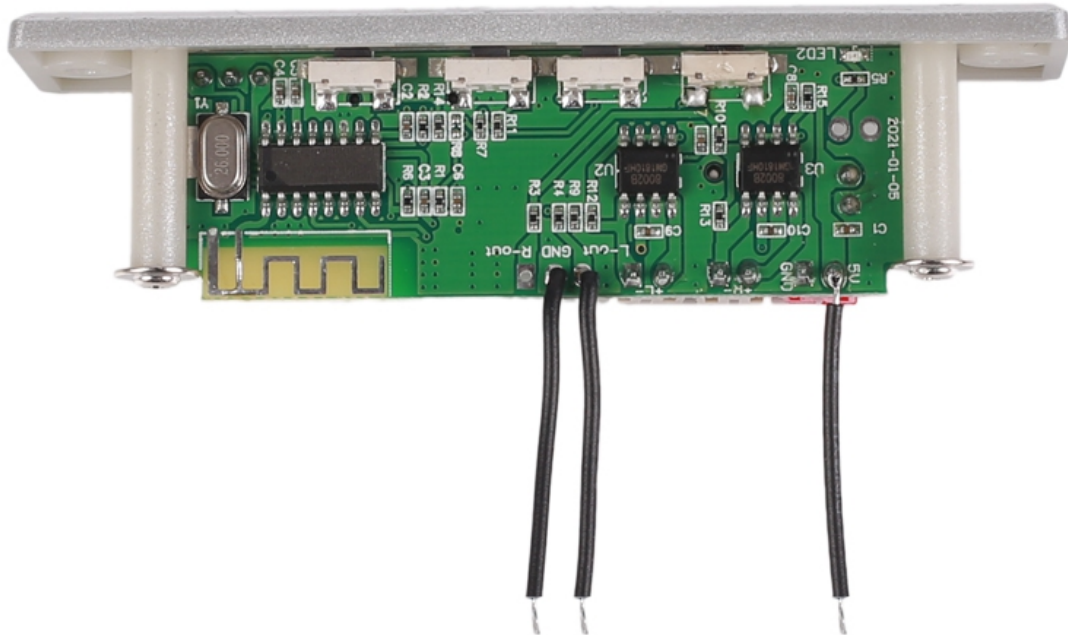
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Step 15: Install 2pcs 15cm 2Pin PH2.0 Wire on 2pcs 4ohm 3W Speaker.
The speakers does not need to distinguish between positive and negative poles.





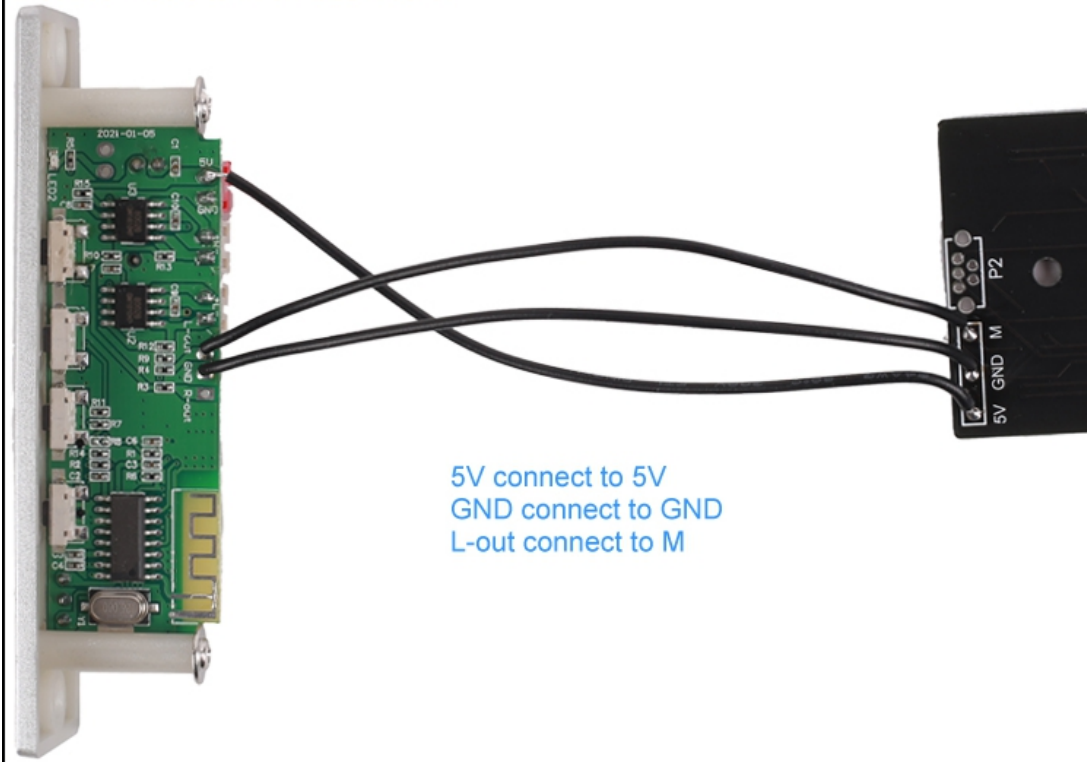
Step 16: Install 3pcs 10cm Black Wire to 5V/GND/L-out on Bluetooth audio controller. These three wires are used to connect Bluetooth audio controller and LED spectrum board.





Step 17: Connect three wires to LED spectrum board.

Note: 5V and GND connect to 5V and GND on LED board;
L-out connects to M on LED board.





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Step 18: Find the power supply acrylic panel and remove the protective film from the surface.





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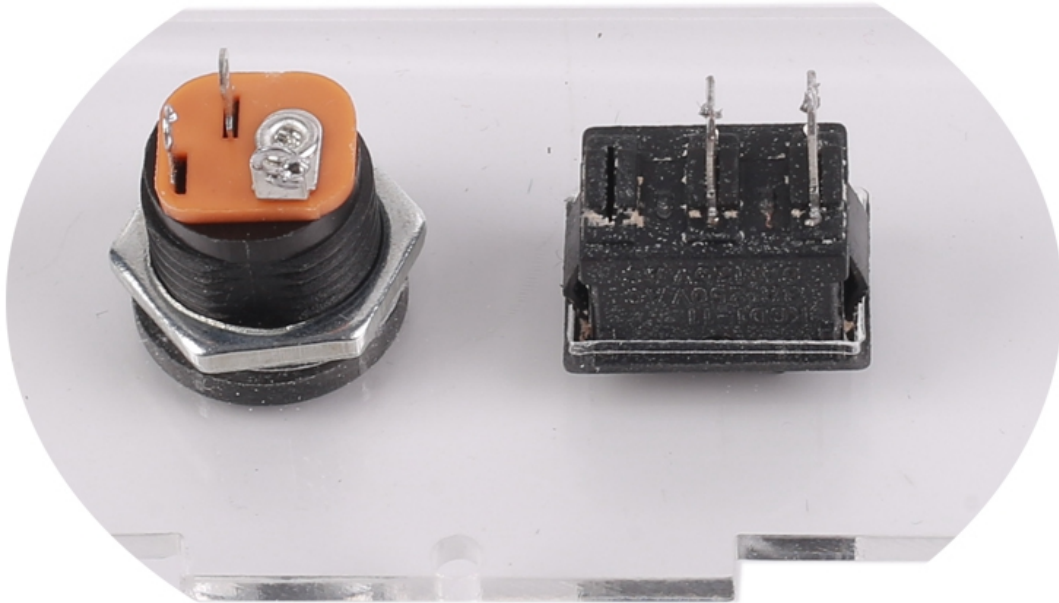
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Step 19: Fix 1pcs DC-022 Power Socket by the biggest nut on acrylic panel.



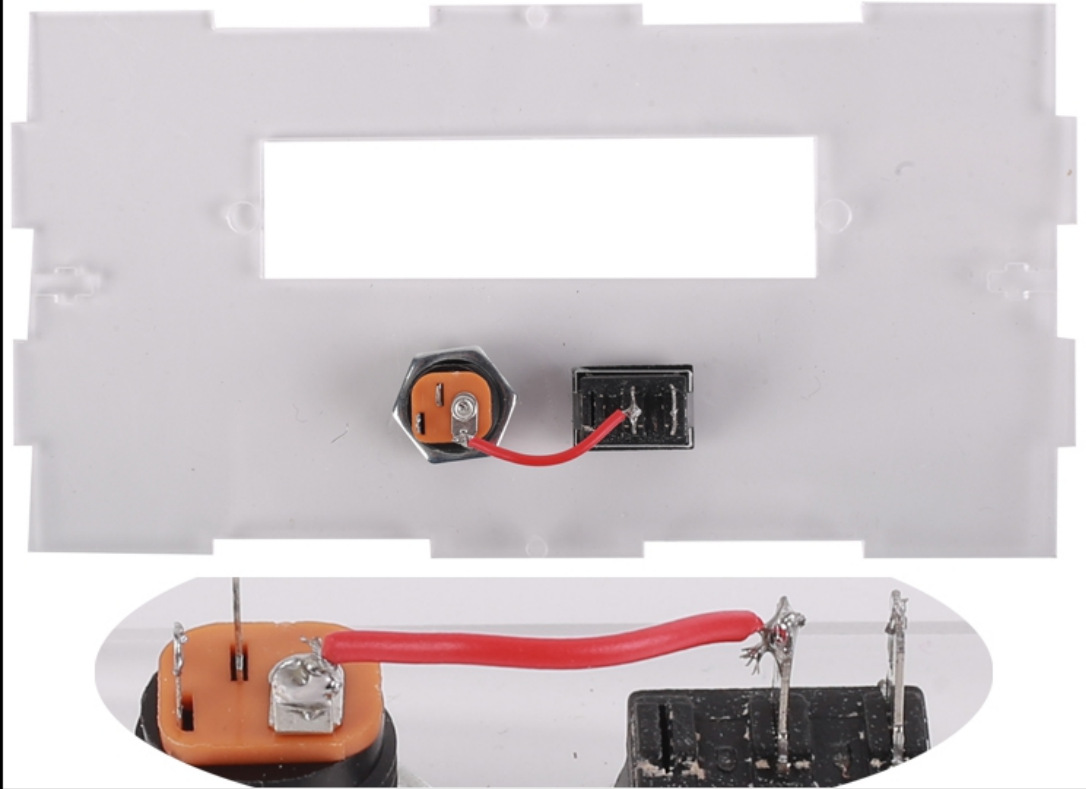


Step 20: Fix 1pcs Black Switch on acrylic panel. Pay attention to the buckle on the switch, which can be fixed by itself. Pay attention to the installation direction.





Step 21: Cut about 3cm red wire to connect DC-022 Power Socket and Black Switch. Pay attention to their pin selection and can not choose to connect other pins.



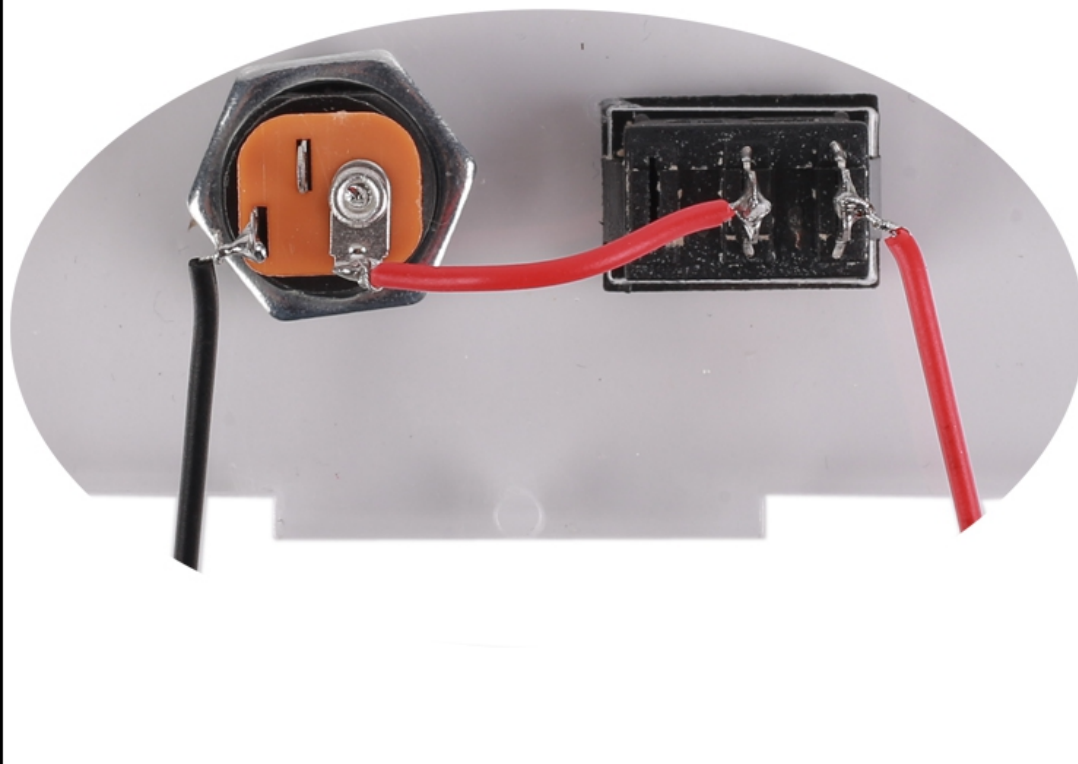


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Step 22: Connect 1pcs 15cm 2Pin PH2.0 Wire to DC-022 and Switch. The red wire connect to Black Switch and the black wire connect to DC-022 Power Socket.





Step 23: Fix Bluetooth audio controller on acrylic panel by 2pcs M3*10mm Screw and 2pcs M3 Nut.





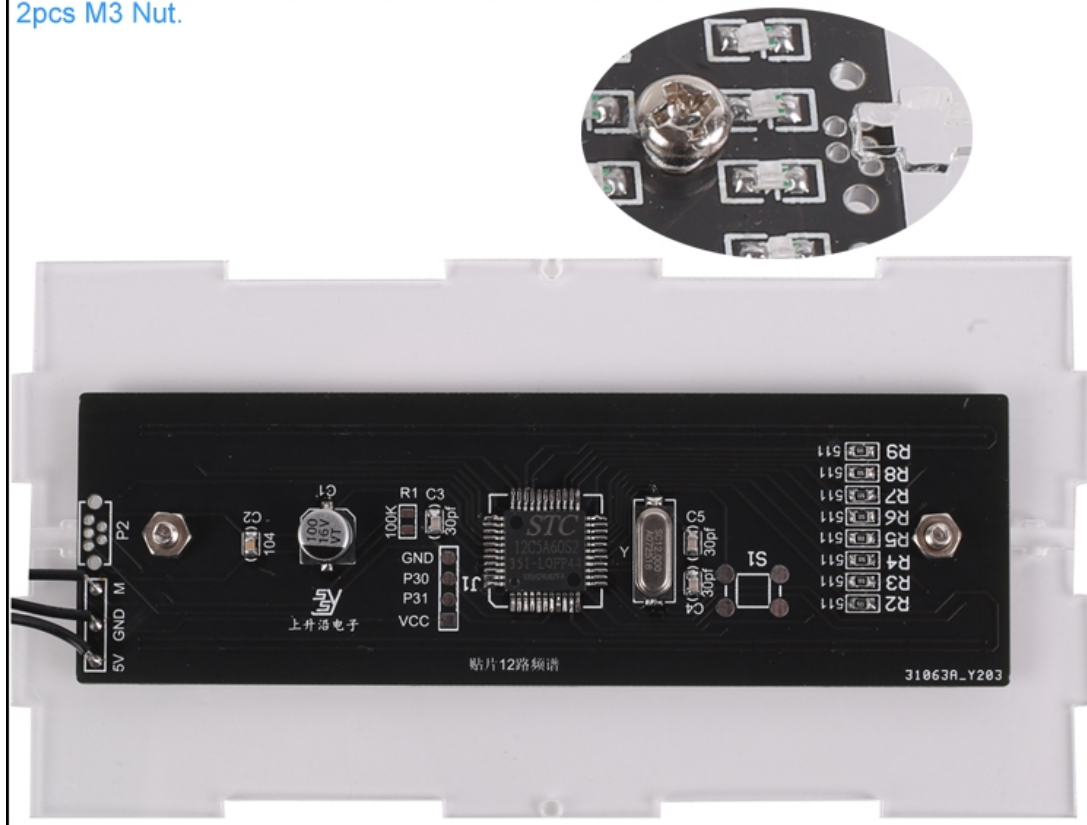
Step 24: Fix speaker on the other two are smaller acrylic panel by 8pcs M3*10mm Screw and 8pcs M3 Nut.





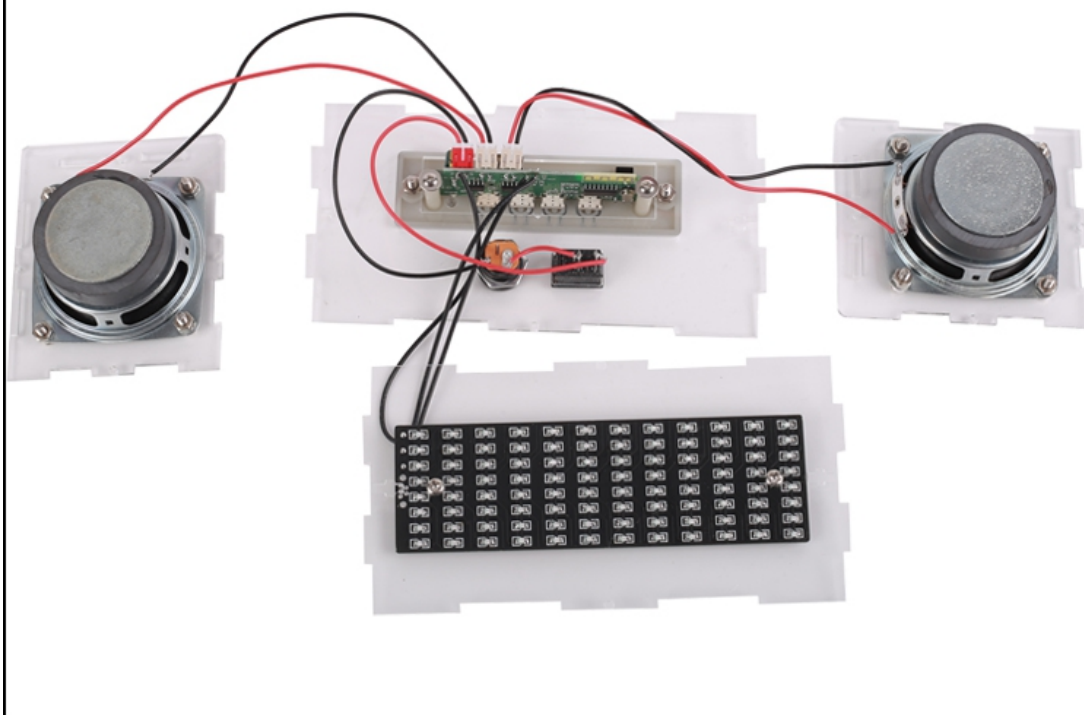
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Step 25: Fix LED spectrum board on acrylic panel by 2pcs M3*10mm Screw and 2pcs M3 Nut.





Step 26: Connect 1pcs power wire to red socket and 2pcs speaker wires to white sockets.



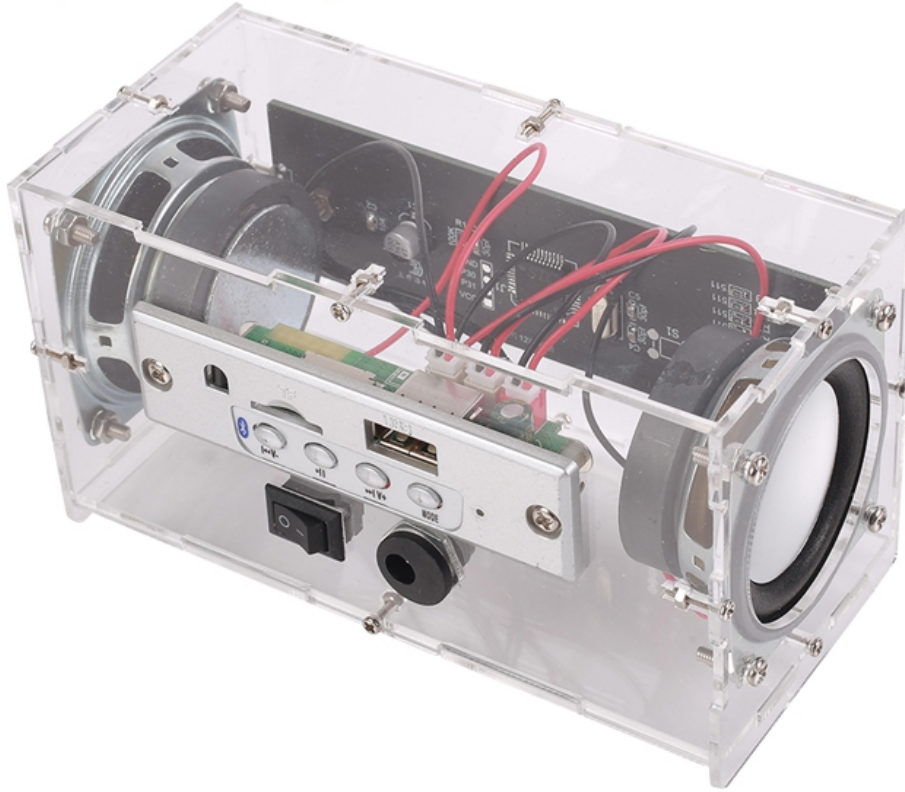


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Step 27: Assemble 6pcs acrylic panels by 12pcs M2*10mm Screw and 12pcs M2 Nut. Please be patient when installing the screws.





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Step 28: Connect to power supply and enjoy the effect. Note Please provide sufficient working current. It is recommended to use a 5V 2A power supply.

