ICs & Robot Gadgets
Easy Deal Easy Fun

1.Description:

It is a RGB LED Bluetooth Amplifier Christmas Tree DIY Kit with RGB LED flashing in various automatic flashing effects.

2.Feature:

RGB LED Flashing Automatically. It contains 39 3mm RGB LED which can automatic flashing, gradient and showing different colors. Highly simulated Christmas tree with slightly curved PCB board.

Bluetooth Amplifier. It comes with a Bluetooth audio receiver with a 3W amplifier. So user can use it as a audio player which can play music for phone/ipad/laptop and so on. Support switch Prev/Next/V+/V- and play mode. It is not only suitable for Christmas, but can also be used with other festivals as well as on-site daily events.

FM/U-disk/TF-Card Music. In Bluetooth receiver, it not only support Bluetooth, but as can input audio from U-disk and TF card which achieve offline independent work without phone. It can also be used as a FM radio that playing currently acceptable stations. Note: It need connect a earphone in FM mode.

Acrylic Transparent Board. The 3mm thick acrylic sheet, transparent and strong, can not only support the structure of the entire Christmas tree, but also make its appearance more stable and beautiful.

DIY Soldering Kit which comes with various components. User need to install each component by hand. It not only can exercise and improve soldering skills, but also increase the interest in electronic technology. Great for electronics hobbyists, beginners, school and home education.

3.Parameter:

Product Name:RGB LED Bluetooth Amplifier Christmas Tree DIY Kit
Work Voltage:DC 4.5V-5.5V
Work Current:1A(Max)
LED Type: Flashing automatically
Audio Source: Bluetooth/FM/U-disk/TF Card
Speaker Power: 3W 4ohm
Audio Output: AUX for loudspeaker/earphone
Work Temperature:-20℃~85℃
Work Humidity:5%~85%RH
Size(Installed):74*74*200mm

4.Introduction:

Input work power supply from black 3.5*1.3mm Power Socket by USB wire.

Turn ON/OFF Toggle Switch and then the LED start to flashing automatically.
MODE button: Press to switch audio input mode from Bluetooth/FM/U-disk/TF Card.

P/P button: Play/Pause music. Start to automatically search for stations at FM Mode.
NEXT button: Short press to switch next music. Keep press to decrease volume.

PREV button: Short press to switch previous music. Keep press to increase volume.
Bluetooth Audio Mode.Open the phone to search and connect to the Bluetooth device 'BT_Audio'.

U-disk Audio Mode. Play MP3 music file.
TF Card Audio Mode. Play MP3 music file.

FM Audio Mode. Headphone must be connected at this mode, because the headphone cable acts as an FM antenna. Press P/P button to search for local FM stations. Then press NEXT and PREV buttons to switch FM stations.

5.Component List:

NO.	Component Name	PCB Marker	Parameter	QTY
1	Metal Film Resistors	A:R2,R4,R6,R7; B:R2,R4,R6	100ohm	7
2	Metal Film Resistors	A:R1,R3,R5; B:R1,R3,R5	4.7Kohm	6
3	Electrolytic capacitor	A:C1,C2,C3; B:C1,C2,C3	47uF	6
4	S9014 Transistor	A:Q1,Q2,Q3; B:Q1,Q2,Q3	TO-92	6
5	RGB LED	A:D1-D18; B:D1-D18	3mm	37
6	RGB LED	LED1-LED4	5mm	4
7	Electrolytic capacitor	C10	220uF	1
8	Monolithic capacitor	C1	1uF 105	1
9	Toggle Switch	P2	5Pin	1
10	Power Socket	DC5V	3.5*1.3mm	1
11	DuPont Female Socket	J3	7Pin	1
12	Bluetooth Amplifier	J3	45*37*18mm	1
13	4ohm 3W Speaker		52*52*25mm	1
14	USB Power Wire		80cm	1
15	XH2.54-2Pin Wire		10cm	1
16	Nylon Screw	For PCB-C	M3*6mm	8
17	Nylon Column Screw	For PCB-C	M3*10+6mm	2
18	Nylon Column	For Bluetooth Amplifier	M3*8mm	2
19	Nylon Column	For PCB-C	M3*20mm	2
20	Nylon Column	For Speaker	M3*10mm	4
21	Metal Screw	For Speaker	M3*6mm	4
22	Metal Screw		M2*8mm	8
23	Metal Nut		M2	8
24	Acrylic Board A		74*30*3mm	4
25	Acrylic Board B		74*74*3mm	1
26	Acrylic Board C	For Speaker	74*74*3mm	1
27	PCB-A		115*58*1.6mm	1
28	PCB-B		115*58*1.6mm	1
29	PCB-C		60*60*1.6mm	1

Note:Users can complete the installation according to the PCB silk screen and component list.

6.Note:

1>.Headphone must be connected at FM audio mode.
2>.The buttons on the Bluetooth receiver are very small, and other tools can be used to adjust them. It is recommended not to adjust, because the default parameters are all general states.

7.Installation Tips:
  1>.User needs to prepare the welding tool at first.
    1.1>.Soldering iron (<50 Watt)
    1.2>.Rosin core ("radio") solder
    1.3>.Wire cutters
    1.4>.Wire strippers
    1.5>.Philips screwdriver
  2>.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(3s), otherwise damage components.
  5>.Pay attention to the positive and negative of the components.
  6>.Strictly prohibit short circuit.
  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>.Check that all of the LED can be illuminated.
  11>.It is strongly recommended to read the installation manual before starting installation!!!
  12>.Please wear anti-static gloves or anti-static wristbands when installing electronic components.

8.Installation Steps(Please be patient):
  Step 1: Install 7pcs 100ohm Metal Film Resistors at R2,R4,R6,R7 on PCB-A and R2,R4,R6 on PCB-A.
  Step 2: Install 6pcs 4.7Kohm Metal Film Resistors at R1,R3,R5 on PCB-A/B.

  Step 3: Identify the positive(anode) and negative(cathode) lead of LED.The leads of the LED must be installed correctly, otherwise the LED cannot be turned on.Here are four methods as following:
    3.1>.According to the length of the LED lead to distinguish. The longer pin is positive(anode) lead. The shorter pin is negative(cathode) lead.
    3.2>.Identify the negative(cathode) of the LED is to look into the plastic case where one can see that the negative(cathode) is much thicker/bigger inside the plastic case than the anode lead.
    3.3>.Identify by edge of plastic case.The negative(cathode) lead of the LED should be the pin nearest the flat on the plastic case.
    3.4>.Test by 3V battery or multimeter.The pin is positive(anode) lead which has connect to the positive of 3V if LED can light up after connect 3V power supply.(LED should not be powered directly from the 3V for a short time:less then 0.5second)
    3.5>.It is positive(anode) where the white mark " + " pointing to on PCB.

  Step 4: Pay attention to the placement of the LED and then install 36pcs RGB LED at D1-D18 on PCB-A/B and bend the metal pins of the LED as shown for easy mounting.
  Step 5: Install 6pcs TO-92 S9014 Transistor at Q1,Q2,Q3 on PCB-A/B then bend again which in order to facilitate the splicing of PCB later. Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

  Step 6: Bend the pins of 1uF electrolytic capacitor about 2mm.
  Step 7: Install 6pcs 47uF Electrolytic Capacitor at C1,C2,C3 on PCB-A/B. Pay attention to distinguish between positive and negative. The Longer pin is positive pole. Note: The capacitor needs to be placed horizontally which in order to facilitate the splicing of PCB later.

  Step 8: Install 1pcs 5Pin Toggle Switch at P2 on PCB-C.

Step 9: Install 1pcs 1uF 105 Monolithic capacitor at C1 on PCB-C.

Step 10: Install 1pcs 220uF Electrolytic Capacitor at C10. Pay attention to distinguish between positive and negative.The Longer pin is positive pole.

Step 11: Install 1pcs 3.5*1.3mm Power Socket at DC5V.

Step 12: Install 4pcs 5mm RGB LED at LED1-LED4. Pay attention to distinguish between positive and negative.The Longer pin is positive pole.

Step 13: Install 1pcs 7Pin DuPont Female Socket at J3.

Step 14: Splicing PCB-A and PCB-B, pay attention to align the fixing points, and then fix it with solder tin wire. Pay attention to the splicing direction.

Step 15: Fix PCB-A and PCB-B on PCB-C. Pay attention to the direction of positive and negative pole. Fix each pad.

Step 16: Install 1pcs 3mm RGB LED at top. Pay attention to the direction of positive and negative pole.

Step 17: Test. Connect 5V USB power supply to test LED. It is OK if all LED flash automatically after turning on the power switch.Note: Its no need to install others in the following steps if no need to play music.

Step 18: Fix 2pcs M3*10+6mm Nylon Column Screw on PCB-C by 2pcs M3*6mm Nylon Screw.

Step 19: Install 1pcs Bluetooth Amplifier Receiver on 7Pin DuPont Female Socket. Note that its mounting holes are aligned with the Nylon Column Screw. Note align 7Pin male pin and 7pin socket.

Step 20: Fix 2pcs M3*8mm Nylon Column on M3*10+6mm Nylon Column Screw.Be careful not to be too tight.

Step 21: Fix 2pcs M3*20mm Nylon Column on PCB-C by 2pcs M3*6mm Nylon Screw.

Step 22: Tear off the protective film on the surface of the acrylic board.

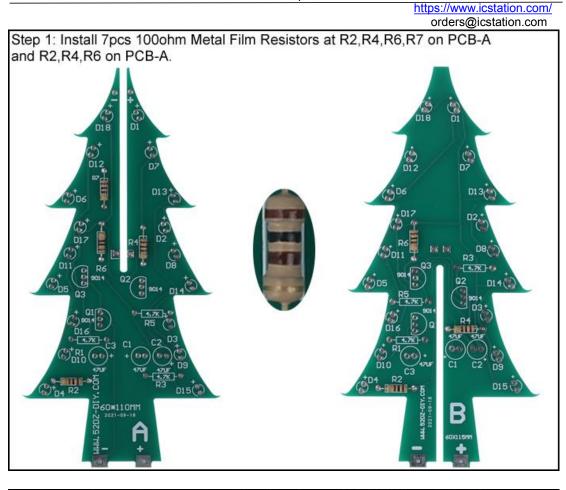Step 23: Connect 10cm XH2.54-2Pin Wire to 4ohm 3W Speaker. Red wire connect to positive pole.

Step 24: Fix 4ohm 3W Speaker on Acrylic Board C by 4pcs M3*6mm Metal Screw and 4pcs M3*10mm Nylon Column.
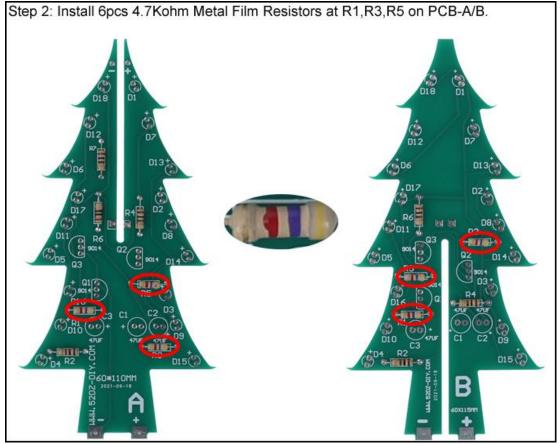
Step 25: Fix 1pcs Acrylic Board B on PCB by 4pcs M3*6mm Nylon Screw.

Step 26: Connect 4ohm 3W Speaker to Bluetooth Amplifier Receiver.

Step 27: Fix 4pcs Acrylic Board A by 4pcs M2*8mm Metal Screw and 4pcs M2 Metal Nut.

Step 28: Fix speaker Acrylic Board to PCB Acrylic Board by 4pcs M2*8mm Metal Screw and 4pcs M2 Metal Nut.

9.Install shown steps:

Step 1: Install 7pcs 100ohm Metal Film Resistors at R2,R4,R6,R7 on PCB-A and R2,R4,R6 on PCB-A.

Step 2: Install 6pcs 4.7Kohm Metal Film Resistors at R1,R3,R5 on PCB-A/B.

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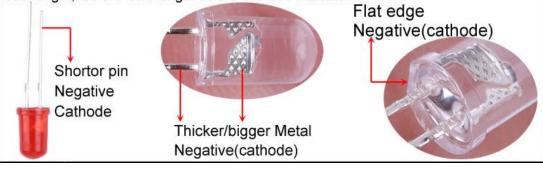
3.1>.According to the length of the LED lead to distinguish. The longer pin is positive(anode) lead. The shorter pin is negative(cathode) lead.

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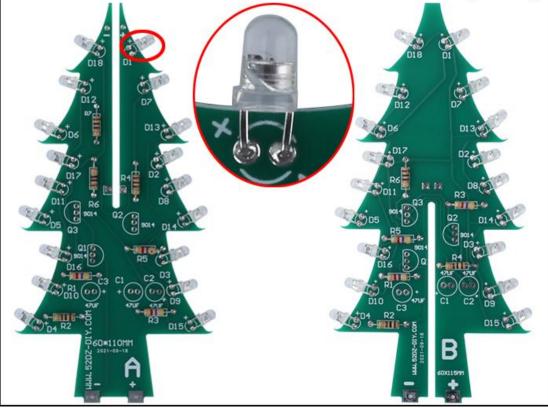
3.3>.Identify by edge of plastic case.The negative(cathode) lead of the LED should be the pin nearest the flat on the plastic case.
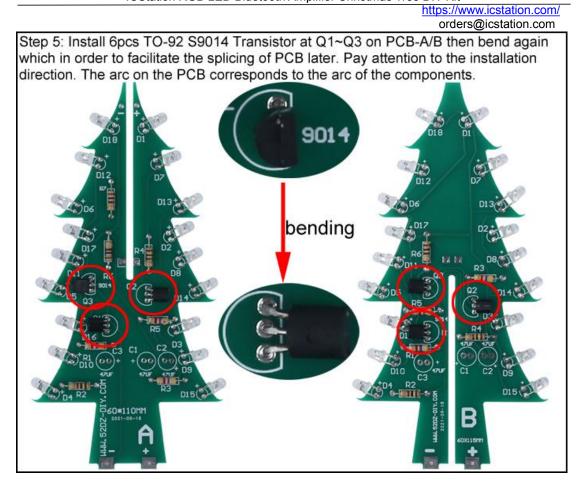
3.4>.Test by 3V battery or multimeter.The pin is positive(anode) lead which has connect to positive of 3V if LED can light up after connect 3V power supply.
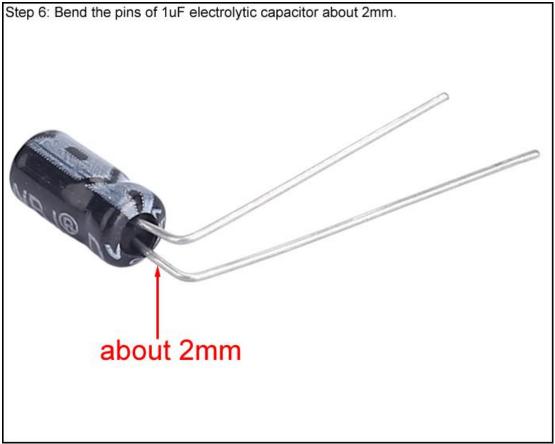(LED can not be powered directly from 3V for a short time:less then 0.5second)

3.5>.Note:If the flat on package disagrees with other indicators(short lead,large cathode lead end), then other indicators take priority. I.e. if the flat disagrees with the lead length,use the lead length as the cathode indicator.

Shortor pin
Negative
Cathode

Thicker/bigger Metal
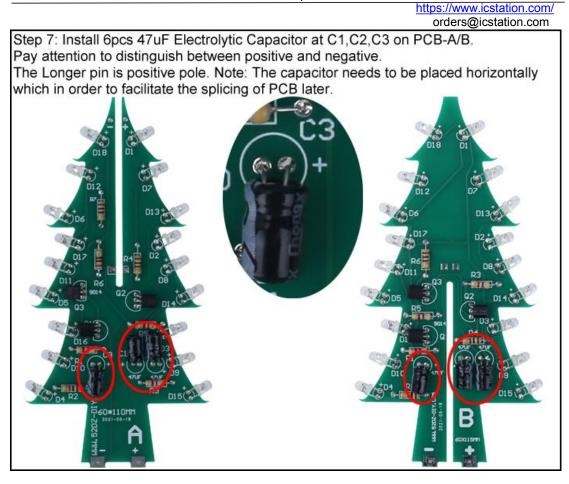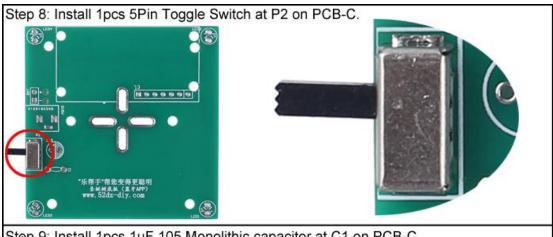Negative(cathode)

Flat edge
Negative(cathode)

Step 4: Pay attention to the placement of the LED and then install 36pcs RGB LED at D1-D18 on PCB-A/B and bend the metal pins of the LED as shown for easy mounting.
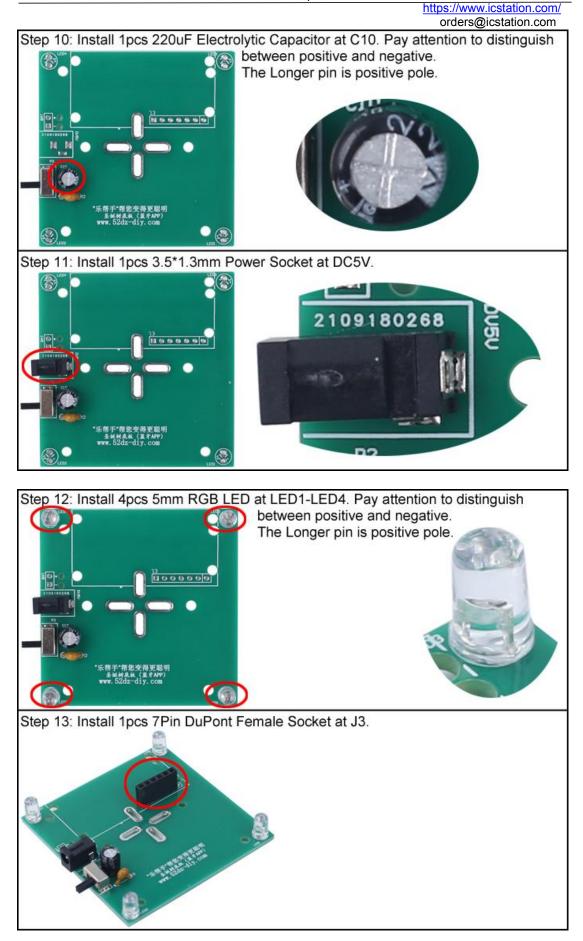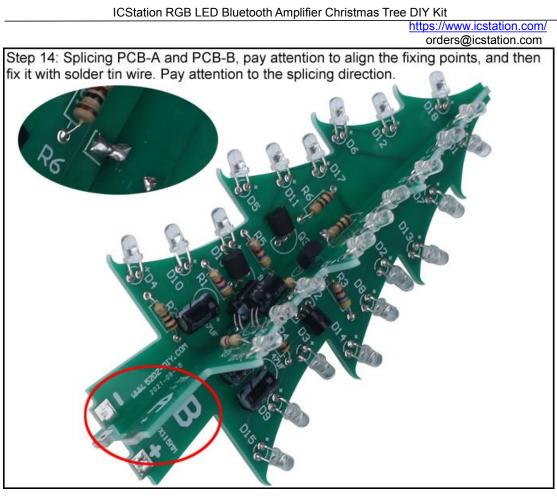
Step 5: Install 6pcs TO-92 S9014 Transistor at Q1~Q3 on PCB-A/B then bend again which in order to facilitate the splicing of PCB later. Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

bending

Step 6: Bend the pins of 1uF electrolytic capacitor about 2mm.

about 2mm

Step 7: Install 6pcs 47uF Electrolytic Capacitor at C1,C2,C3 on PCB-A/B.
Pay attention to distinguish between positive and negative.
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Step 8: Install 1pcs 5Pin Toggle Switch at P2 on PCB-C.

Step 9: Install 1pcs 1uF 105 Monolithic capacitor at C1 on PCB-C.

Step 10: Install 1pcs 220uF Electrolytic Capacitor at C10. Pay attention to distinguish between positive and negative. The Longer pin is positive pole.

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Step 12: Install 4pcs 5mm RGB LED at LED1-LED4. Pay attention to distinguish between positive and negative. The Longer pin is positive pole.

Step 13: Install 1pcs 7Pin DuPont Female Socket at J3.

Step 14: Splicing PCB-A and PCB-B, pay attention to align the fixing points, and then fix it with solder tin wire. Pay attention to the splicing direction.

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Step 16: Install 1pcs 3mm RGB LED at top. Pay attention to the direction of positive and negative pole.

Step 17: Test. Connect 5V USB power supply to test LED. It is OK if all LED flash automatically after turning on the power switch.

Note: It no need to install others in the following steps if no need to play music.

Step 18: Fix 2pcs M3*10+6mm Nylon Column Screw on PCB-C by 2pcs M3*6mm Nylon Screw.
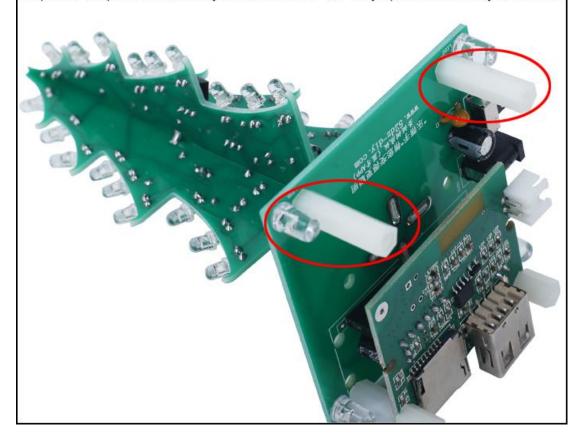

Step 19: Install 1pcs Bluetooth Amplifier Receiver on 7Pin DuPont Female Socket. Note that its mounting holes are aligned with the Nylon Column Screw. Note align 7Pin male pin and 7pin socket.
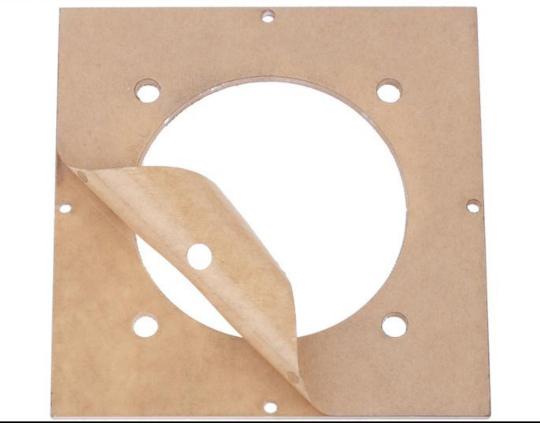
Step 20: Fix 2pcs M3*8mm Nylon Column on M3*10+6mm Nylon Column Screw. Be careful not to be too tight.
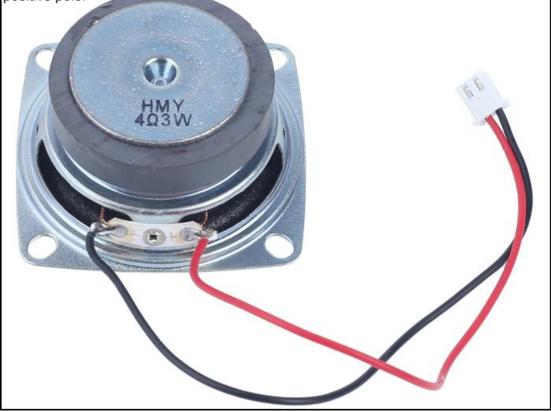

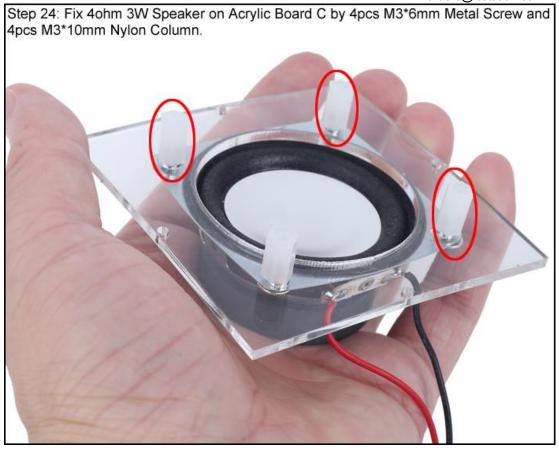Step 21: Fix 2pcs M3*20mm Nylon Column on PCB-C by 2pcs M3*6mm Nylon Screw.

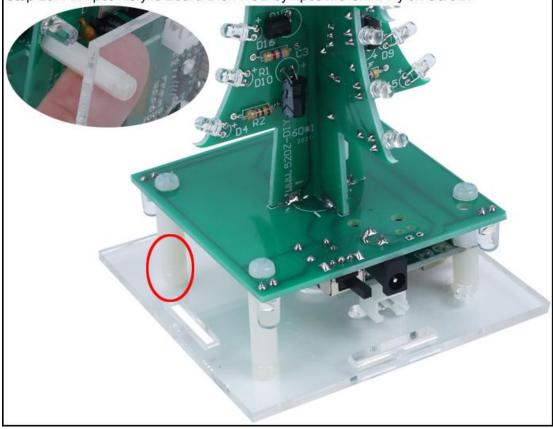Step 22: Tear off the protective film on the surface of the acrylic board.
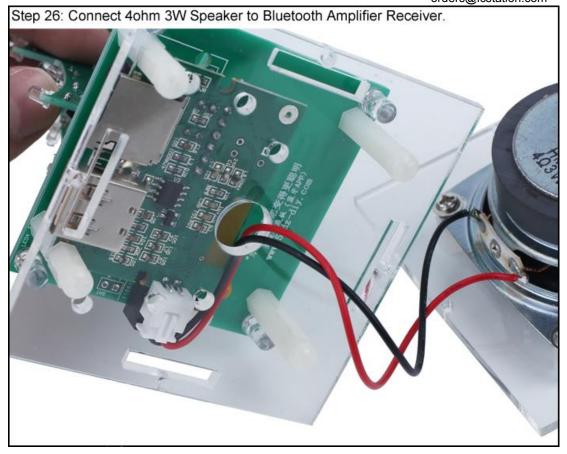

Step 23: Connect 10cm XH2.54-2Pin Wire to 4ohm 3W Speaker. Red wire connect to positive pole.

Step 24: Fix 4ohm 3W Speaker on Acrylic Board C by 4pcs M3*6mm Metal Screw and 4pcs M3*10mm Nylon Column.

Step 25: Fix 1pcs Acrylic Board B on PCB by 4pcs M3*6mm Nylon Screw.

Step 26: Connect 4ohm 3W Speaker to Bluetooth Amplifier Receiver.

Step 27: Fix 4pcs Acrylic Board A by 4pcs M2*8mm Metal Screw & 4pcs M2 Metal Nut.

Step 28: Fix speaker Acrylic Board to PCB Acrylic Board by 4pcs M2*8mm Metal Screw and 4pcs M2 Metal Nut.