Instructables HE007 Flashing LED Globe DIY Kit Instruction Manual

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Introduction:

HE007 is a Flashing LED Globe DIY Kit. It adopts a PCB three-dimensional structure design combined with motor rotation and LED light flashing circuit. Built-in 3 music at automatic looping playing mode if turn ON music play

switch. Also can adjusting the rotational speed.
It is a very interesting DIY electronic product which enables users to understand the circuit more clearly and learn soldering skills.

Function:

1. 48 LED Flashing Automatically
2. 3 Music Automatic Playing
3. Adjustable Rotational Speed
4. Adjustable ON/OFF Rotational
5. Adjustable ON/OFF Music
6. DIY Hand Soldering

Parameter:

1. Work Voltage:DC 4.5V-5V
2. Power Type: DC-005
3. LED Color: Blue+White
4. Work Temperature:-40℃~85℃
5. Work Humidity:5%~95%RH
6. Size(Installed):75*75*155mm

Use Methods:

1. Connect USB Power Wire to provide working power.
2. Switch Toggle Switch SW1 to turn ON/OFF music playing function.
3. Switch Toggle Switch SW2 to turn ON/OFF rotation function.
4. Rotate the potentiometer to change the rotation speed.

Component Listing:

NO.	Component Name	PCB Marker	Parameter	QTY
1	STC8G1K17A MCU	U2	DIP-8	1
2	IC Socket	U2	DIP-8	1
3	KT148A Music IC	U1	SOP-8	1
4	8ohm 1W Speaker	BEEP+, BEEP-	D23mm	1
5	JS-30 DC Motor	motor+, motor-	6V100RPM	1
6	RV0931 B102K Potentiometer	R1	1K	1
7	SS-12F44G5 Toggle Switch 1P2T	SW1,SW2	5Pin	2
8	Ceramic Capacitor	C2,C3	0.1UF 104	2
9	Electronic Capacitor	C1	22uF 16V	1
10	3362 Potentiometer	R3	10Kohm	1
11	Metal Film Resistor	R2	47ohm	1
12	Metal Film Resistor	R4	10Kohm	1
13	3mm White LED	ON PCB HE007-E	2Pin	24
14	3mm Blue LED	ON PCB HE007-D	2Pin	24
15	DC-005 Power Socket	DC_5V	5.5*2.1mm	1
16	USB to DC005 Power Wire	DC_5V	100cm	1
17	M3 Nut	/	/	4
18	M3*5mm Screw	/	/	13
19	M3*10mm Screw	/	/	4
20	M3*12mm Copper Pillar	/	/	4
21	M3*30mm Copper Pillar	/	/	4
22	Metal Spring	/	0.4*4*10mm	2
23	304 Stainless Steel Flat Gasket		3*5*0.3	2
24	PCB HE007-A Circuit Board Blue	/	75*75*1.6mm	1
25	PCB HE007-B Circuit Board Blue		55*55*1.6mm	1
26	PCB HE007-C Circuit Board Blue		55*55*1.6mm	1
27	PCB HE007-D Circuit Board Blue		56*65*1.6mm	1
28	PCB HE007-E Circuit Board White		94*44*1.6mm	1
Note:Users can complete the installation according to the PCB silk screen and component list.				

Application:

1. Training welding skills
2. Student school
3. DIY production
4. Project Design
5. Electronic competition
6. Gift giving
7. Home decoration
8. Souvenir/Crafts collection
9. Graduation design
10. Holiday gifts

Note:

1. It uses springs to connect different PCB internally to provide power, so the springs produce noise when rotating, which cannot be avoided.

Installation Tips:

1. User needs to prepare the welding tool at first.
   1.1>.Soldering iron (<50 Watt)

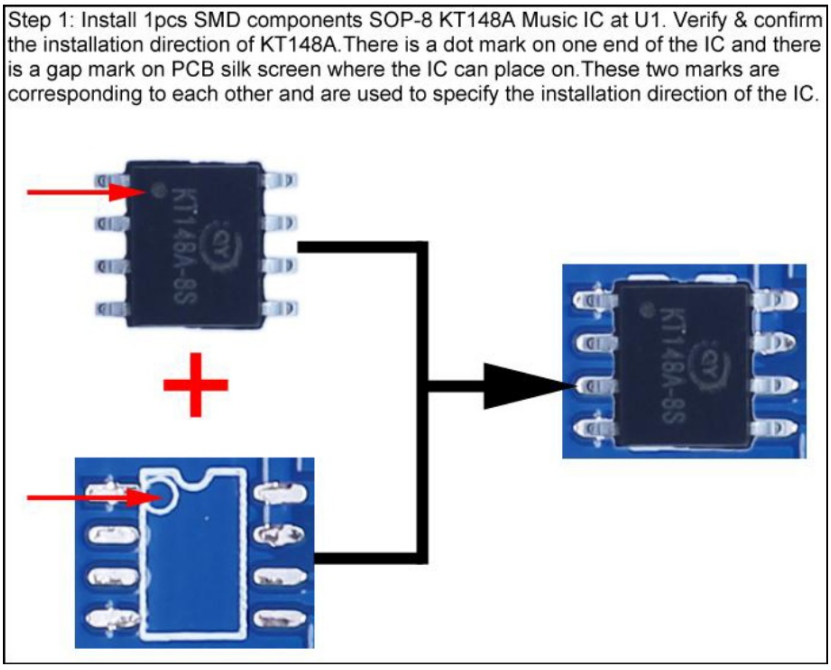
1.2>.Rosin core (“radio”) solder

1.3>.Wire cutters/strippers

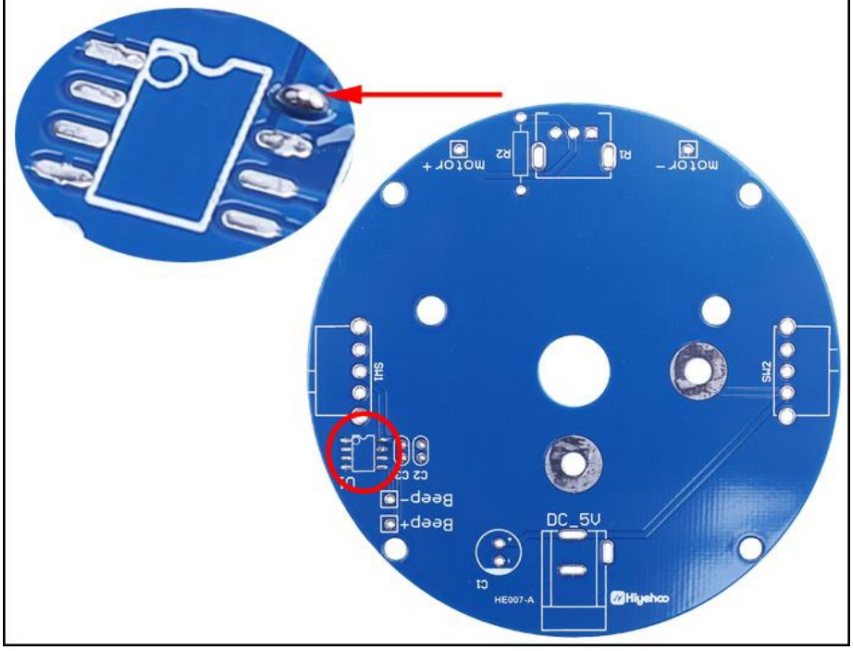
1.4>.’ + ’ screwdriver

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 components for a long time(1.0s), otherwise it will be damaged.
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. It is strongly recommended to read the installation manual before starting installation!!!
11. Please wear anti-static gloves or anti-static wristbands when installing electronic components.

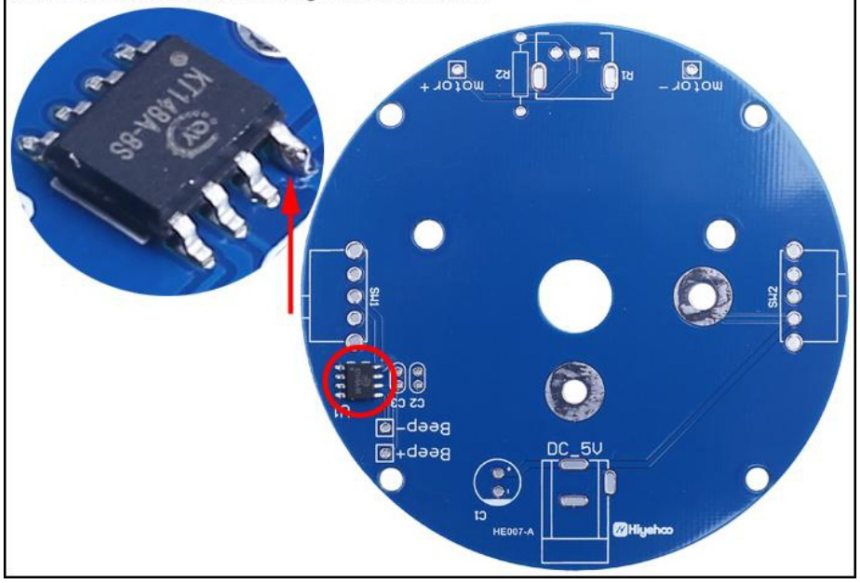
Installation Steps(Please be patient install!!!):



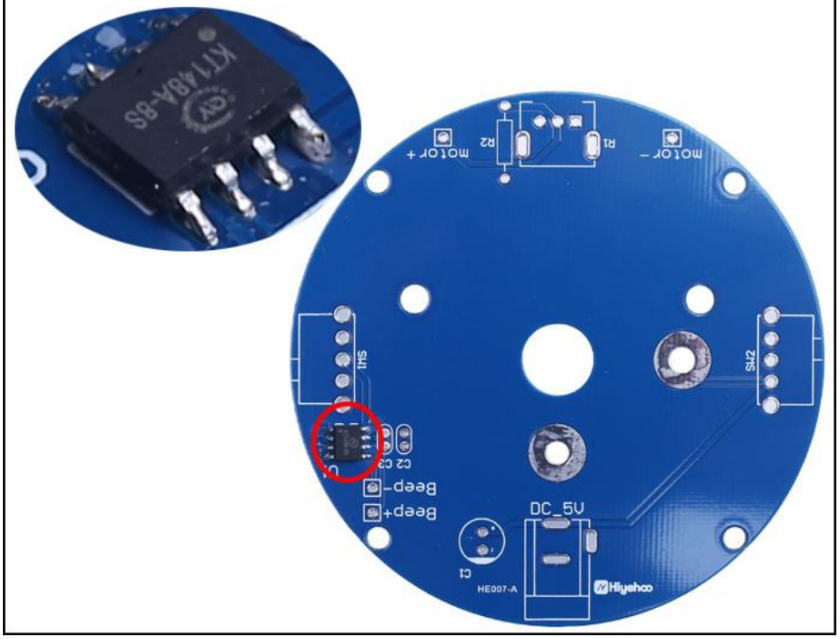
Step 2: Randomly choose a pad on the PCB, and then melt the solder on this pad.



Step 3: Fix KT148A: Use a soldering iron to melt tin on the pad just now and hold KT148A with tweezers in the other hand to place/press on U1 to prevent movement. Take care to match and align each pads. Then remove soldering iron. Then remove tweezers after solder tin cooling and solidification.

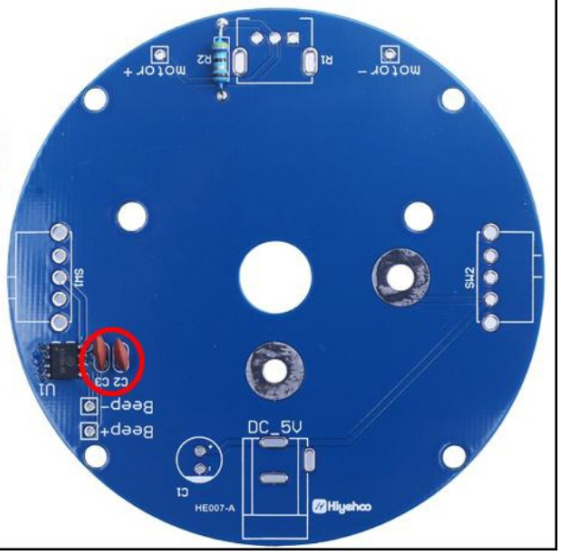


Step 4: Connect others pads on KT148A by tin and soldering iron.

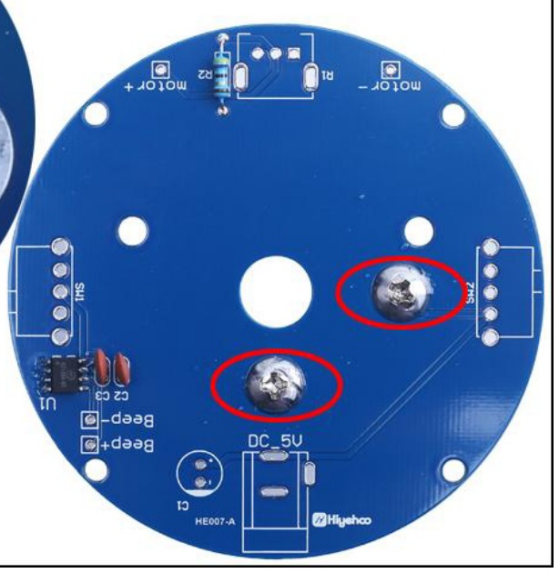


Step 5: Install 1pcs 47ohm Metal Film Resistor at R2.

Step 6: Install 2pcs 0.1UF 104 Ceramic Capacitor at C2,C3.

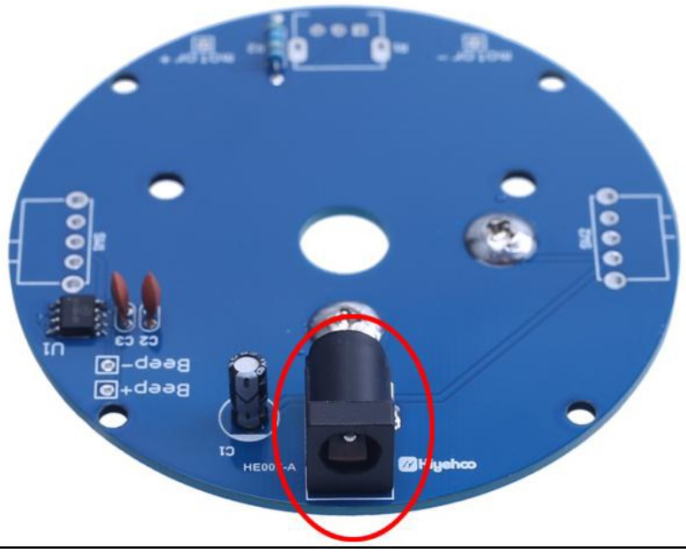


Step 7: Fix 2pcs M3*10mm Screw with 2pcs Gasket and 2pcs Nut or tin as showing.

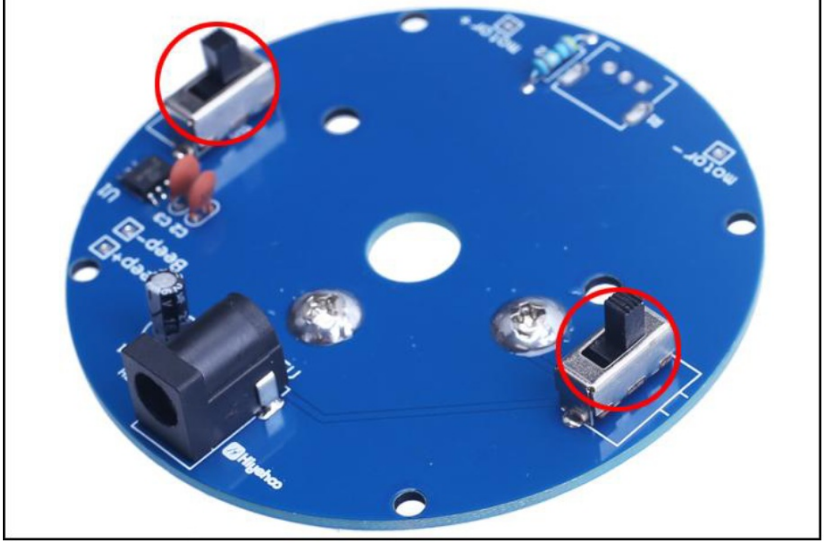


Step 8: Install 1pcs 22uF 16V Electronic Capacitor at C1. The longer pin is positive pole and connect to ' + ' pad.

Step 9: Install 1pcs DC-005 Power Socket at DC_5V.

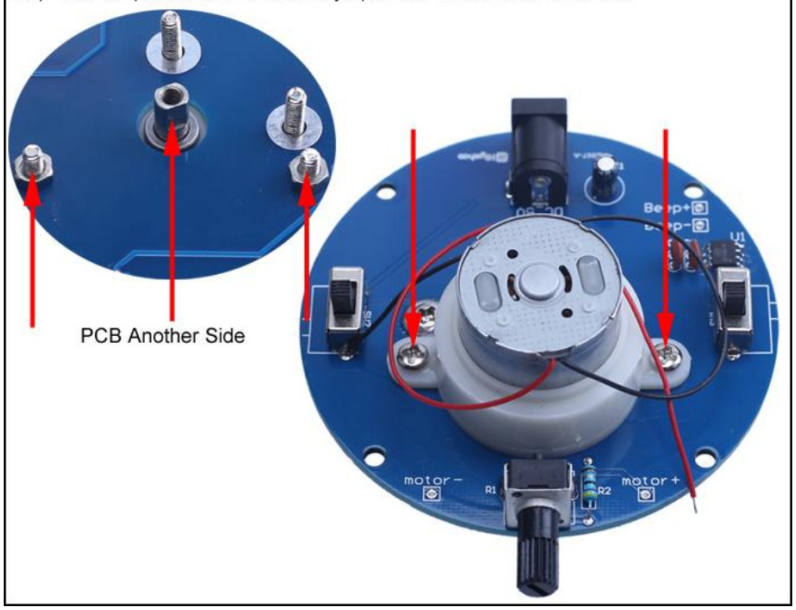


Step 10: Install 1pcs SS-12F44G5 Toggle Switch 1P2T at SW1,SW2.

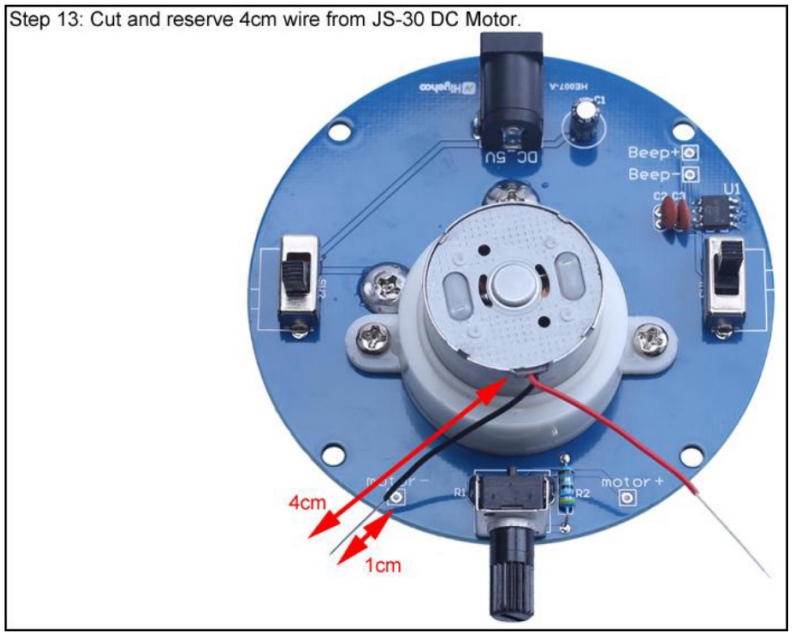


Step 11: Install 1pcs 1K RV0931 B102K Potentiometer at R1.

Step 12: Fix 1pcs JS-30 DC Motor by 2pcs M3*10mm Screw and Nut.

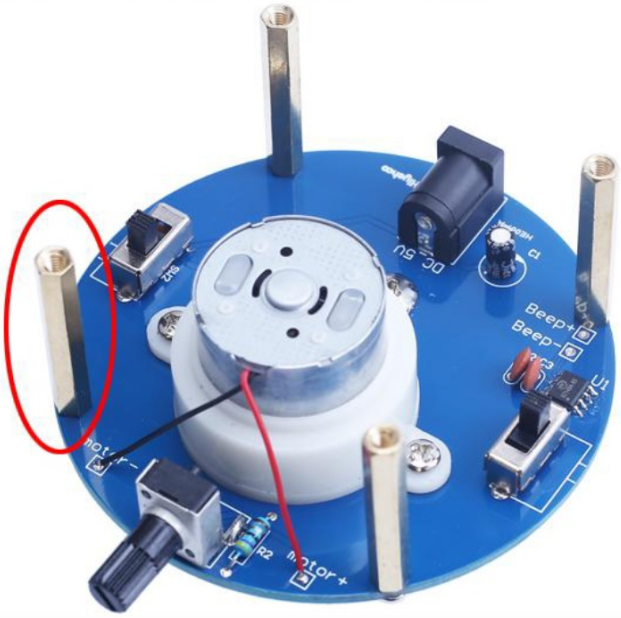


Step 13: Cut and reserve 4cm wire from JS-30 DC Motor.

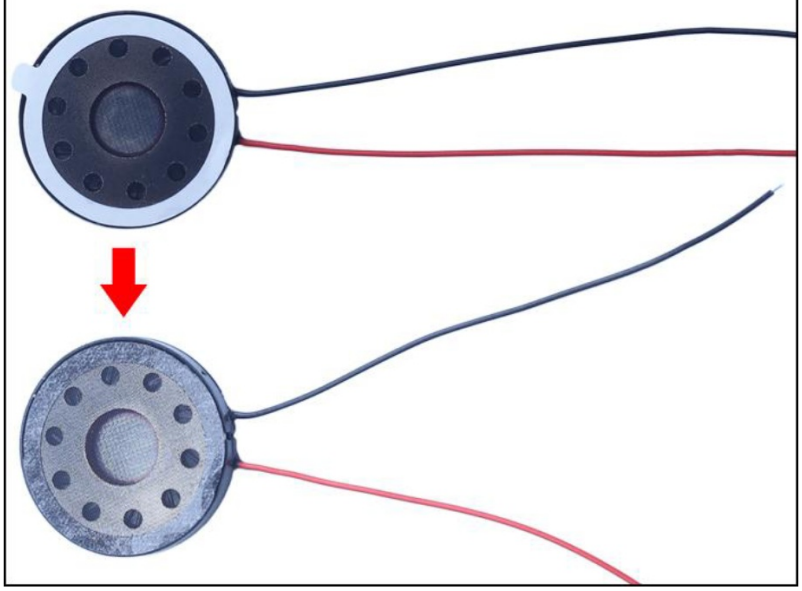


Step 14: Red wire connect to ‘ motor + ’ pad and black wire connect to ‘ motor - ’ pad.

Step 15: Fix 4pcs M3*30mm Copper Pillar by 4pcs M3*5mm Screw.



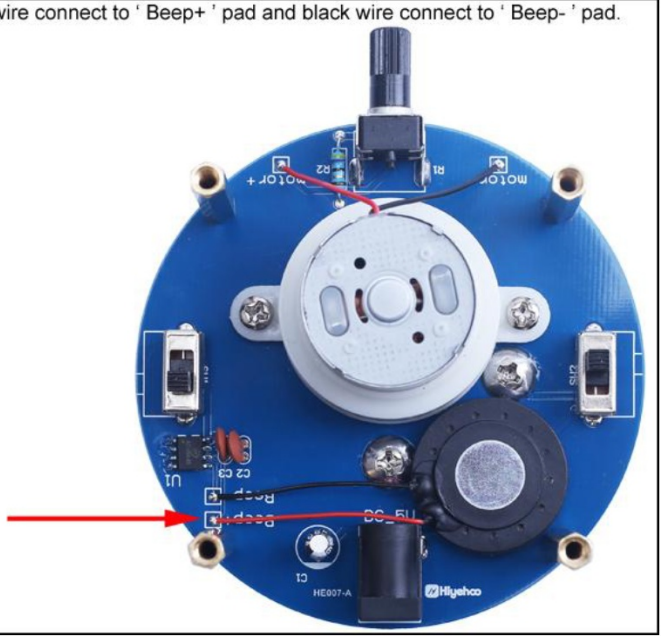
Step 16: Tear off the protective film on the surface from speaker.



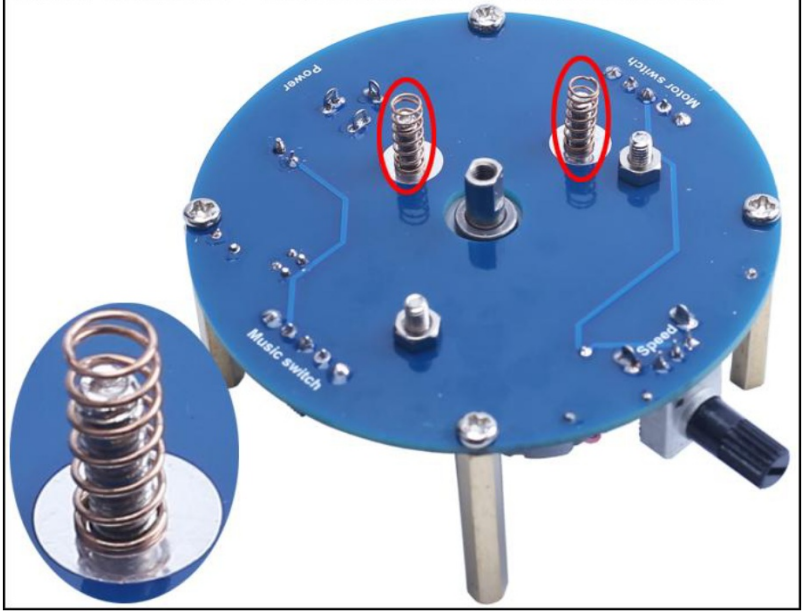
Step 17: Stick the speaker at the position shown in the picture.

Step 18: Cut and reserve 4cm wire from speaker.

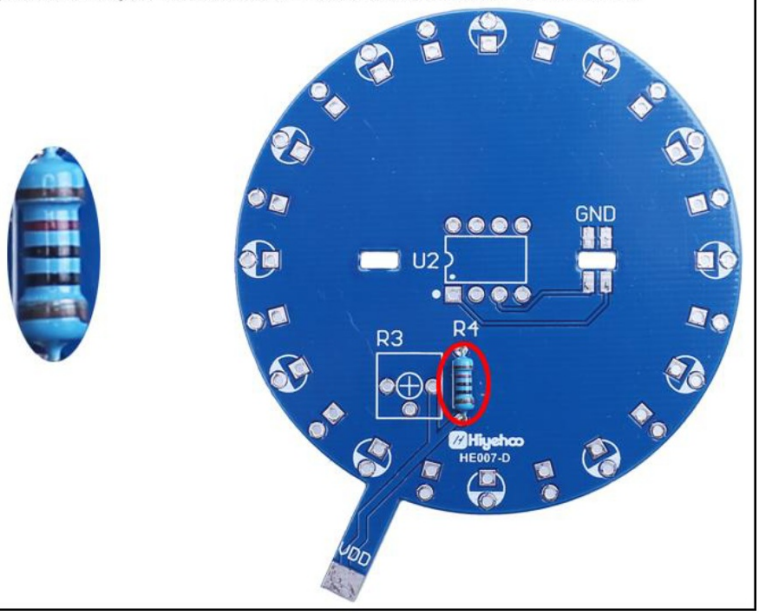
Step 19: Red wire connect to ' Beep+ ' pad and black wire connect to ' Beep- ' pad.



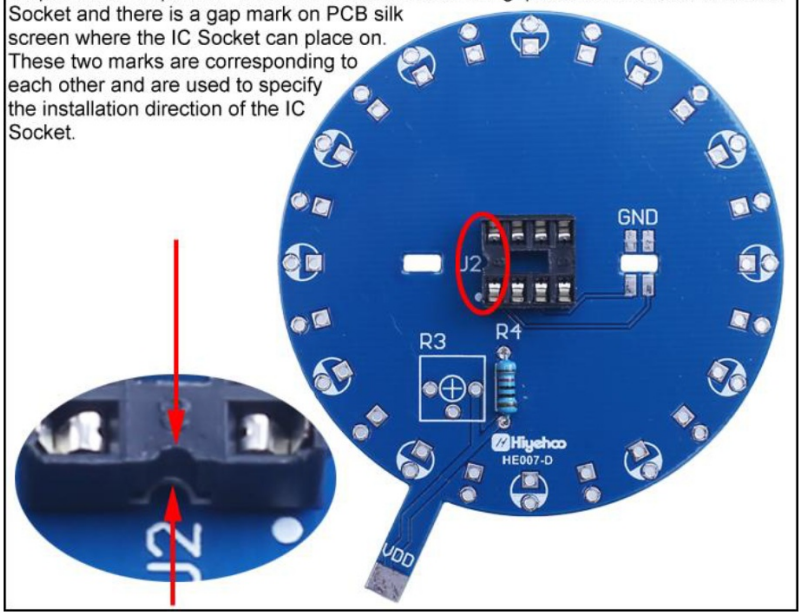
Step 20: Place 2pcs 0.4*4*10mm Metal Spring on M3*10mm Screw as shown.



Step 21: Install 1pcs 10Kohm Metal Film Resistor at R4 on PCB HE007-D.



Step 22: Install 1pcs DIP-8 IC Socket at U2.There is a gap mark on one end of the IC Socket and there is a gap mark on PCB silk screen where the IC Socket can place on. These two marks are corresponding to each other and are used to specify the installation direction of the IC Socket.



Step 23: 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:

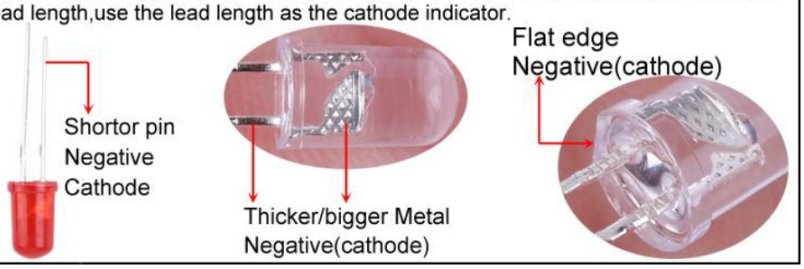
23.1>.According to the length of the LED lead to distinguish. The longer pin is positive(anode) lead. The shorter pin is negative(cathode) lead.

23.2>.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.

23.3>.Identify by edge of plastic case.The negative(cathode) lead of the LED should be the pin nearest the flat on the plastic case.

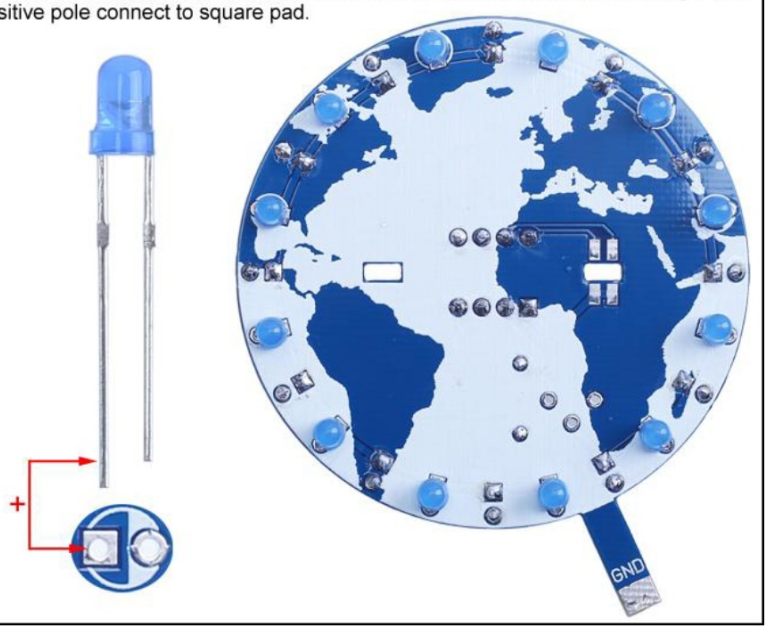
23.4>.Test by 3V battery or multimeter.The pin is positive(anode) lead which has connect to positive of 3V if LED can light up after connect 3V power supply.
(LED can not be powered directly from 3V for a short time:less then 0.5second)

23.5>.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.

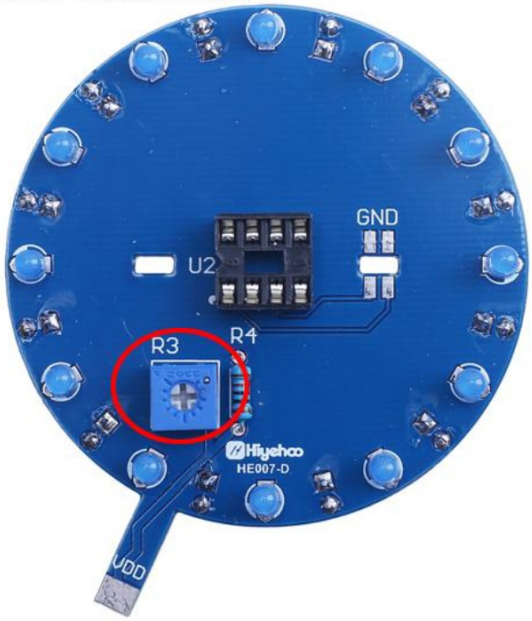


Step 24: Install 12pcs 3mm Blue LED on the same side which has silk screen mark as shown. Note: the longer pin is positive pole connect to square pad.

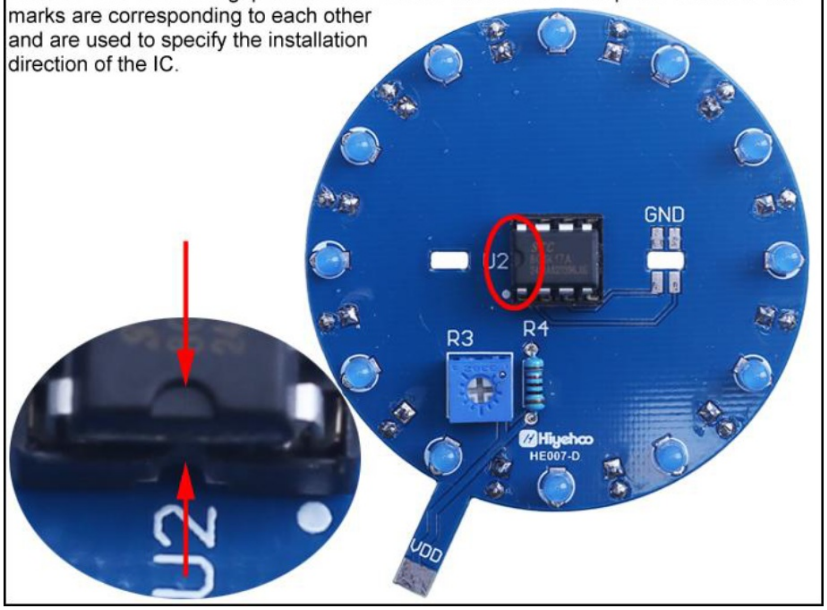
Step 25: Install 12pcs 3mm Blue LED on another side as shown. Note: the longer pin is positive pole connect to square pad.



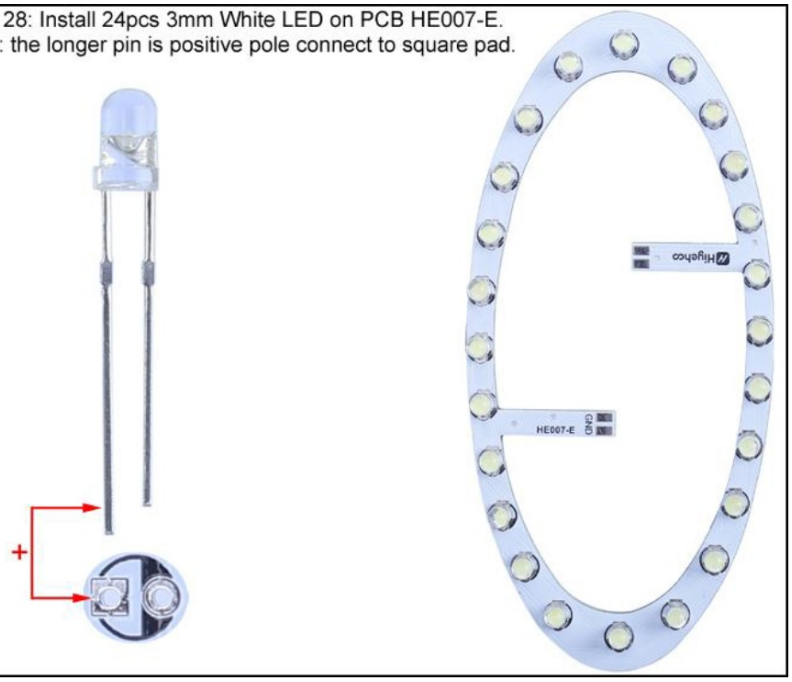
Step 26: Install 1pcs 10Kohm3362 Potentiometer at R3.



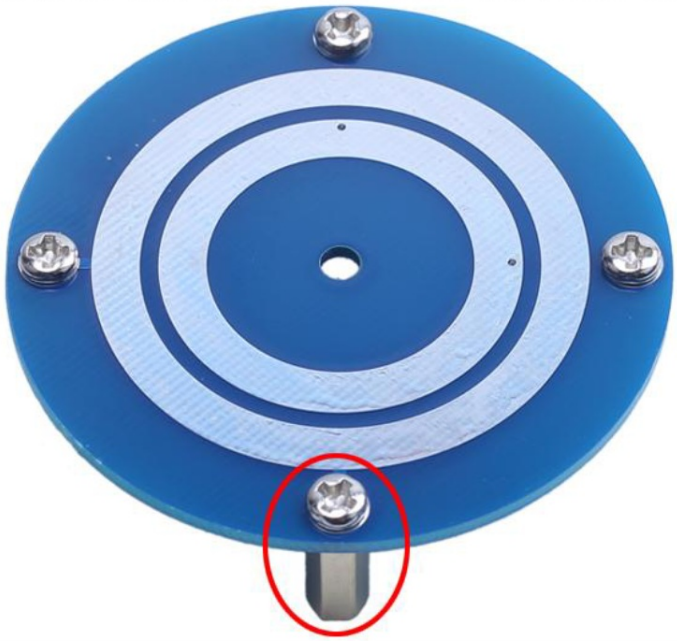
Step 27: Install 1pcs DIP-8 STC8G1K17A MCU at U2.There is a gap mark on one end of the IC and there is a gap mark on IC Socket where the IC can place on.These two marks are corresponding to each other and are used to specify the installation direction of the IC.



Step 28: Install 24pcs 3mm White LED on PCB HE007-E.
Note: the longer pin is positive pole connect to square pad.

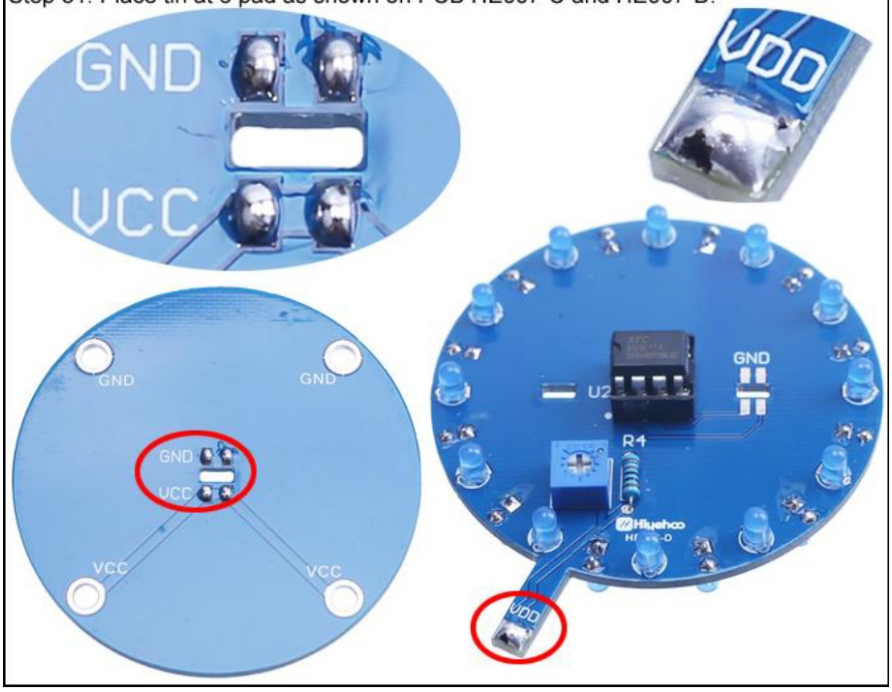


Step 29: Fix 4pcs M3*12mm Copper Pillar on PCB HE007-B by 4pcs M3*5mm Screw.

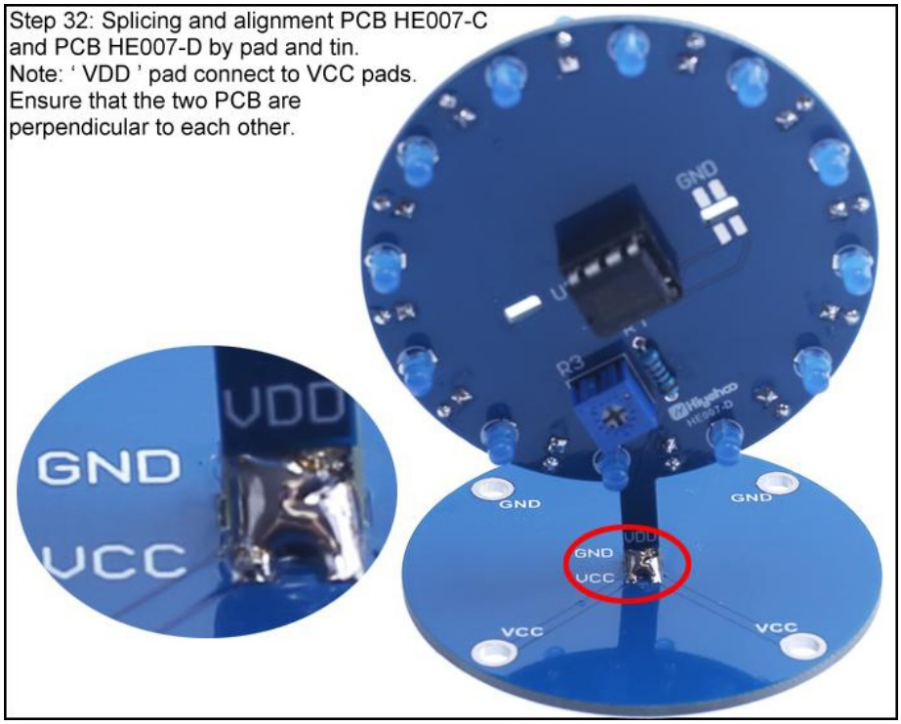


Step 30: Fix PCB HE007-B on DC Motor by M3*5mm Screw.

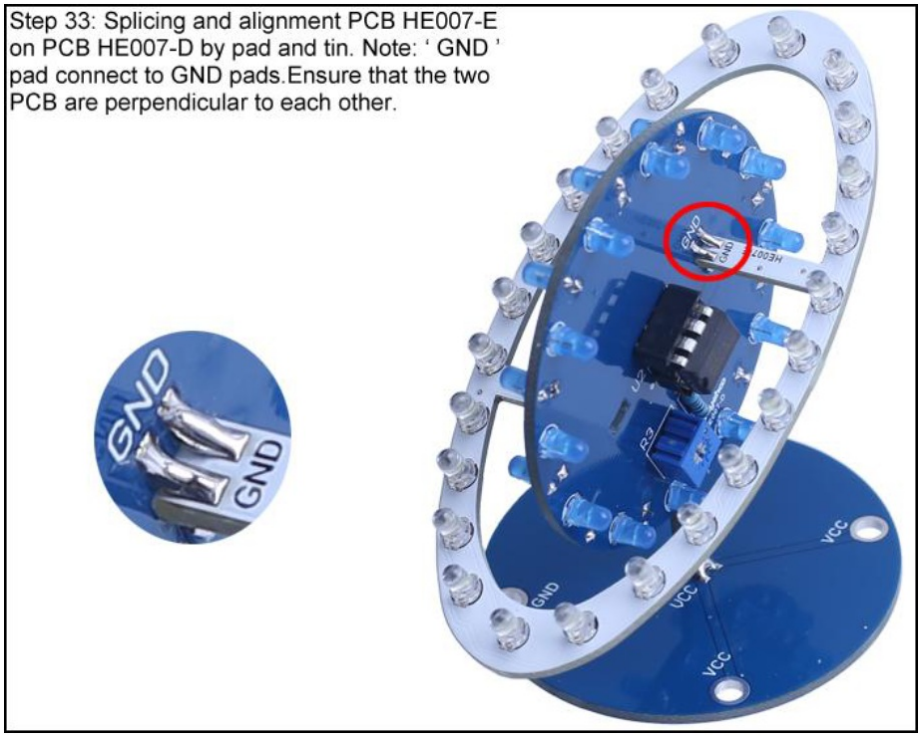
Step 31: Place tin at 6 pad as shown on PCB HE007-C and HE007-D.



Step 32: Splicing and alignment PCB HE007-C and PCB HE007-D by pad and tin.
Note: ‘ VDD ’ pad connect to VCC pads.
Ensure that the two PCB are perpendicular to each other.



Step 33: Splicing and alignment PCB HE007-E on PCB HE007-D by pad and tin. Note: ' GND ' pad connect to GND pads.Ensure that the two PCB are perpendicular to each other.



Step 34: Fix PCB HE007-C on PCB HE007-B by 4pcs M3*5mm Screw.

Documents / Resources

	Instructables HE007 Flashing LED Globe DIY Kit [pdf] Instruction Manual HE007, HE007 Flashing LED Globe DIY Kit, Flashing LED Globe DIY Kit, LED Globe DIY Kit, Globe DIY Kit, Kit

References

- User Manual

Manuals+, **Privacy Policy**

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