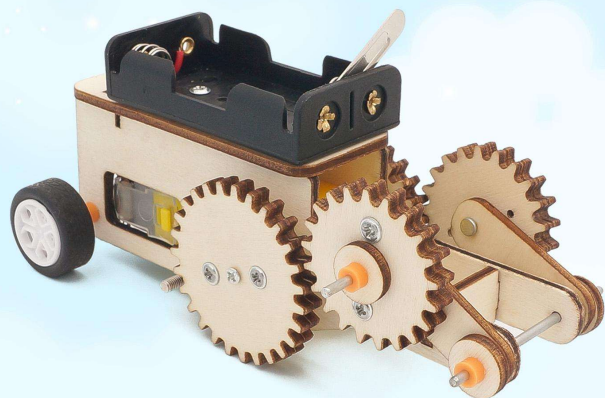


Gearbox car



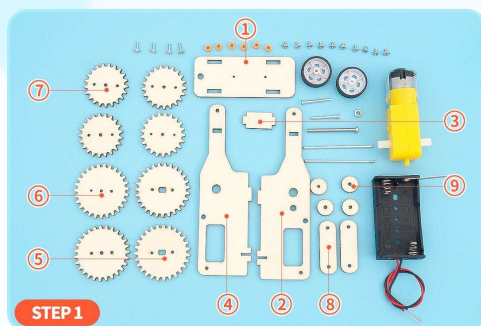
Production tools and materials to be prepared

A small phillips screwdriver and a pair of AA batteries should be prepared. During the production process, a phillips screwdriver should be used to install the screws. After the production is completed, the battery should be used to test whether the model made works normally.

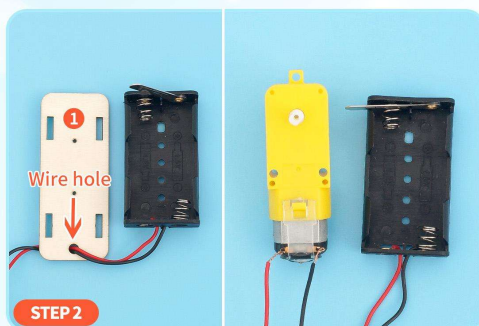
Cautions:

- Be careful when unpack the material package, to avoid sudden loss of small material (small material loss may cause the assembly fail).
- Please do not allow children under 6 years old to touch the assembly materials alone in case of accidental swallowing or injury. If children accidentally swallowed or got hurt, please timely get medical treatment!
- Please read the text of the assembly steps carefully before you start, to avoid scrapped materials.

Assembly steps:

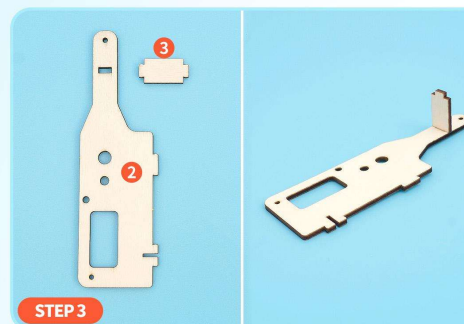


- Prepare all the assembly materials.



- Refer to the figure above, first pass the wire of the battery box through the wire hole of the No. ① board, and then connect the wire to the copper sheet of the TT motor, and the black wire to the copper sheet on the right side of the motor.

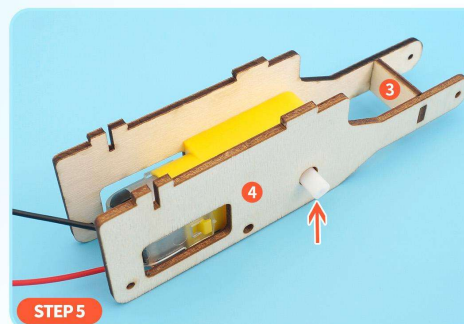
Measuring ruler 0 1 CM 2 3 4 5 6 7 8 9 10



- Install the ③ board on the ② board.



- Pass the shaft of the TT motor through the round hole of the ② plate, and pay attention to the protruding part of the TT motor stuck in the round hole of the ② plate.



- Install the No. ④ plate on the No. ③ plate and the shaft of the TT motor.



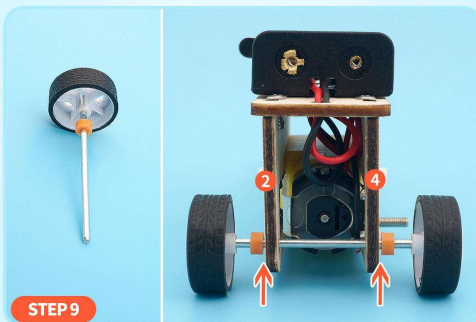
- Pass the 3.5cm screw through the ② plate, TT motor, and ④ plate in turn, and put the nut on the screw and tighten it.



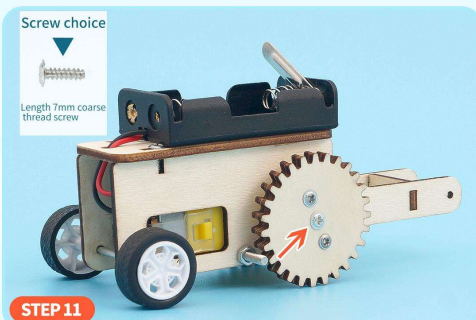
- Install the No. ① board on the ② and ④ boards with 7mm coarse-grain screws.



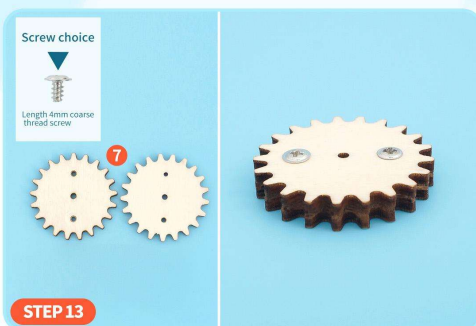
- Install the battery box on board ① with 4mm coarse-grained screws, arrange the wires and put them at the bottom of board ①.



- STEP 9**
- Refer to the above figure, install the 5cm wheel axle, tires, and orange fixing ring on the ② and ④ plates (note: leave 1mm between the orange fixing ring and the wood Clearance, leaving no gap will cause the tire to not turn).



- STEP 11**
- Install the main gear on the shaft at both ends of the TT motor with 7mm coarse-grained screws. Note: The direction of the number plate is inward.



- STEP 13**
- Refer to the figure above, use 4mm coarse-grained screws to overlap the two ⑦ plates and assemble them into a secondary gear.



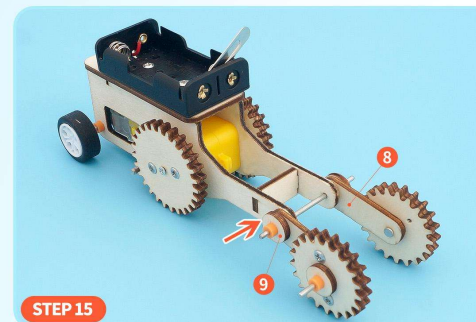
- STEP 10**
- Refer to the above figure, use 4mm coarse-grained screws to overlap and match the plates ⑤ and ⑥ to assemble the main gear. (Note: If the screw holes of the two main gears cannot be aligned, flip the other side until they are completely aligned).



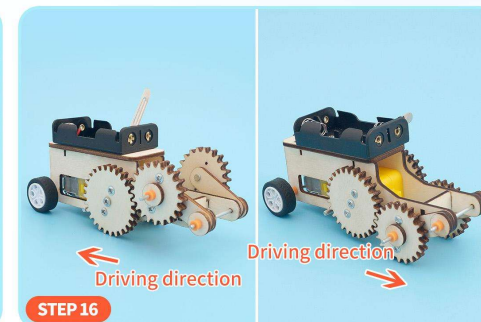
- STEP 12**
- Pass the 5cm iron shaft through the round holes of ② and ④ plates.



- STEP 14**
- Refer to the figure above, and pass the head nails through the round holes of No. ⑧ plate, secondary gear, and No. ⑨ round plate in turn, and fix the other end with an orange fixing ring.



- STEP 15**
- Refer to the above figure, install the No. ⑧ plate and No. ⑨ four plates in turn on both ends of the 5cm iron shaft, and fix them with orange fixing rings. Leave a gap of 1mm between the fixed ring and the circular plate, leaving no gap will increase the movement resistance.



- STEP 16**
- The gear shuttle is completed, install the battery on the battery box, close the knife gate, and try the effect of the gear shuttle. (The position of the secondary gear of the reciprocating gear car is adjustable, and the driving effect is different from the position of the main gear.)



Problems in production? Check if they are the following problems!

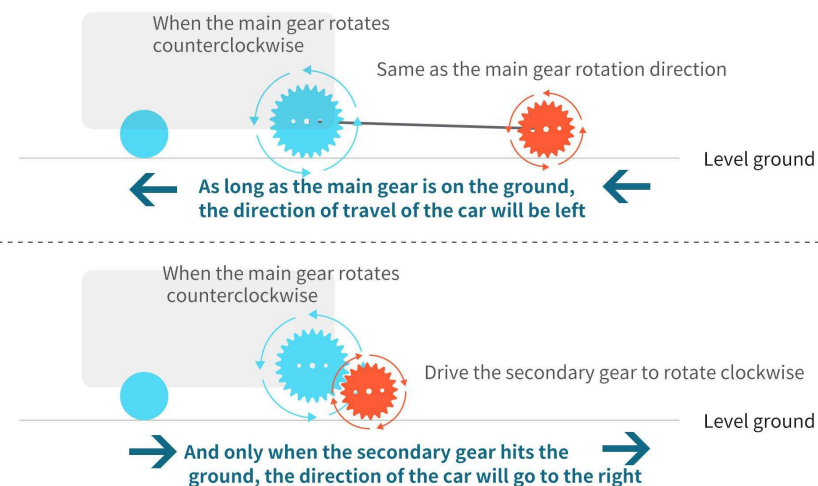
The shuttle gear trolley does not go after installation?

1. Check whether the guide is connected properly, it is recommended to reconnect the wire.
2. Check whether the fixing ring is too tight, it is recommended to leave a gap of 1mm.
3. ⑤, ⑥ No. plate, ⑦ No. plate must be overlapped and matched well when installing overlapped, otherwise the gear will not be able to rotate.
4. Check whether the battery is already low. It is recommended to replace the battery with a new one.



The principle of gear shuttle

The shuttle is converted into the kinetic energy of the motor through the electric energy in the battery. The motor drives the main gear to rotate. When the main gear hits the ground, the trolley retreats with the main gear. Only when the secondary gear hits the ground, the trolley travels forward.



Voice-activated desk lamp



Introduction to voice activated table lamp

The advantage of voice-controlled lights is that they are very power-saving, the energy consumption of voice-controlled lights is 60% less than that of general Led energy-saving lamps, and the voice-controlled lights have a long service life and are durable. After the voice-activated switch is activated by the sound, the light will be automatically turned on, and then the setting time will be extended for a period of time, generally about ten seconds, and then the light will be automatically turned off. Such delayed opening and closing Settings, people come to light, people go to the light off, to avoid the waste of electric energy at home, to a certain extent, saving the cost of living electricity; At the same time, it is convenient to explore the trouble of the switch in the dark, especially for the upstairs and downstairs, it will be more convenient, and unsafe factors will not occur.



Tools and materials to be prepared

You need a small screwdriver, a small pair of scissors, and two pairs of 5 AA batteries. During the production process, a screwdriver is needed to install the screws, scissors are needed to trim the cable ties, and batteries are needed to make the finished model work properly after production.

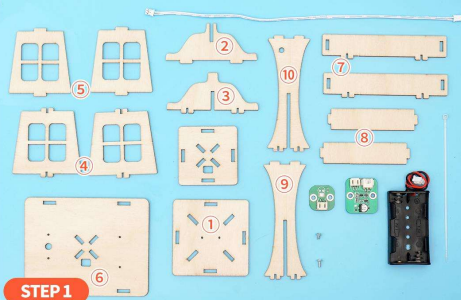


Matters needing attention

- Hello, little friends! Please be careful to open the material package to avoid the sudden loss of small materials, which may cause your small production to be unable to do well!
- Children please do not assemble small production alone, it may be dangerous to make alone, must be accompanied by parents or teachers to make oh!
- If you want to easily make a small production model, you need to read the instructions carefully and make it according to the steps. If you don't understand the question, you can ask your parents or teachers.

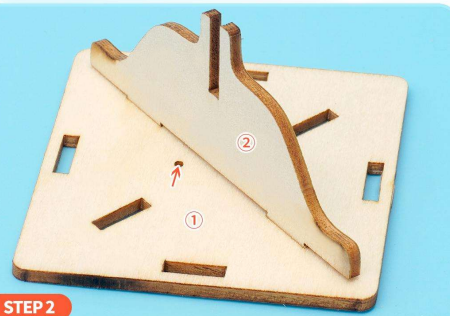


Do it with me



STEP 1

- Prepare all accessories and wood materials. Please check the numbers on the materials carefully when assembling the wood materials.



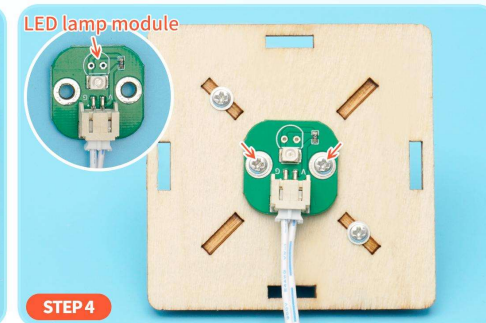
STEP 2

- Install plate ② on plate ①.



STEP 3

- Install plate ③ on plate ① with 4mm coarse grain screws.



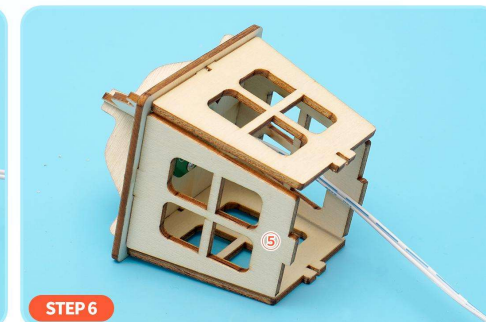
STEP 4

- First of all, install the LED light module on the No. 1 board with 4mm coarse grain screws, and then insert the double-ended terminal line into the LED light module.



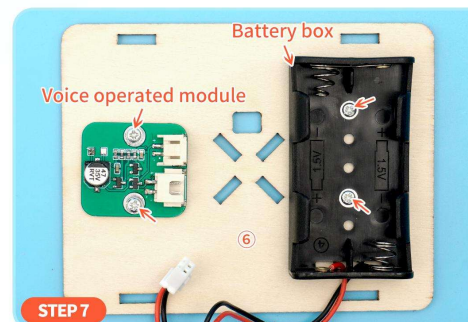
STEP 5

- Install two plates ④ on plate ① with 4mm coarse grain screws.



STEP 6

- Install two ⑤ plates on ① plates.



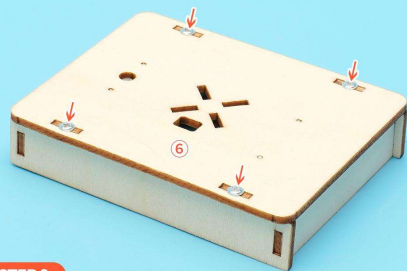
STEP 7

- Install the voice control module and battery case on board 1 with 4mm coarse grain screws.



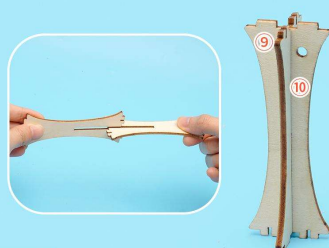
STEP 8

- Refer to the figure above to install the 7, 8 plates together.



STEP 9

- Install the ⑥ plate on the ⑦ and ⑧ plate with 4mm coarse grain screws.



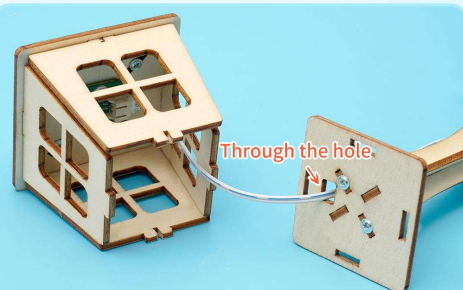
STEP 10

- Install the ⑨ and ⑩ plates together.



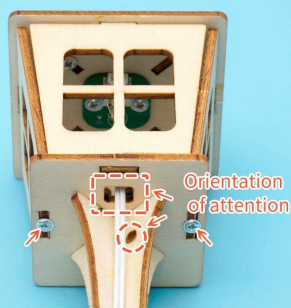
STEP 11

- Install the ⑪ plate on the ⑨ or ⑩ plate with 4mm coarse grain screws.



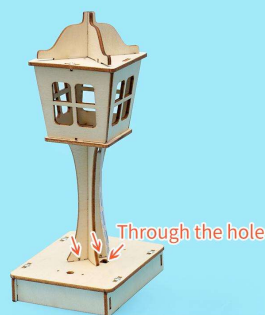
STEP 12

- Thread the double-ended terminal wire through the opening of the ⑪ board.



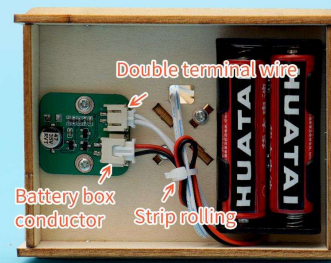
STEP 13

- Install the ⑨ and ⑩ plates on the ⑥ plates with 4mm coarse grain screws.



STEP 14

- First of all, install the ⑨ and ⑩ plates on the ⑥ plates with 4mm coarse grain screws, and then pass the double-ended terminal line through the round hole of the ⑥ plates.



STEP 15

- Insert the two-end terminal cable into the 2.0 terminal port on the acousto-optic control module, insert the battery box cable into the 2.5 terminal port on the acousto-optic control module, and then insert the battery into the battery box. Tie the cable with cable ties, and cut off the excess cable ties. *Note: Please be careful when using scissors, take good safety precautions, children must be accompanied by adults to use scissors.*



Having trouble making it? See if there is the following problem!

Voice activated desk lamp doesn't work

- 1, check whether the battery has insufficient power, such as insufficient battery power will cause the model can not operate normally, it is recommended to replace with a new battery test.
- 2, check the STEP15 wire connection is correct, incorrect wire connection will lead to short circuit or can not run, it is recommended to reconnect.

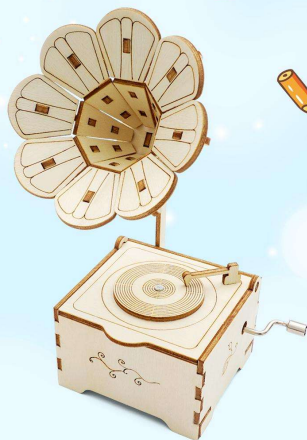


Science trivia

Voice control table lamp knowledge popularization

The working principle of the voice-controlled lamp is very simple, when there is a strong acoustic signal around the voice-controlled lamp, the internal sound sensor (microphone) will "hear" the acoustic signal into an electrical signal sent to the amplifier amplification, and then through the thyristor (previously also controlled by relays) to control the light and off of the bulb. In order to make the lamp work only at night, the actual voice-controlled lamp is generally equipped with a light recognition circuit.

DIY phonograph



Introduction to DIY phonograph

This is a music box that simulates the shape of a phonograph. The sound cylinder with small protrusions on the surface is driven to rotate at a uniform speed by the force of shaking the handle. And then suddenly put it down) to make the reed vibrate according to the set vibration frequency, so as to emit beautiful music, let us make it together.

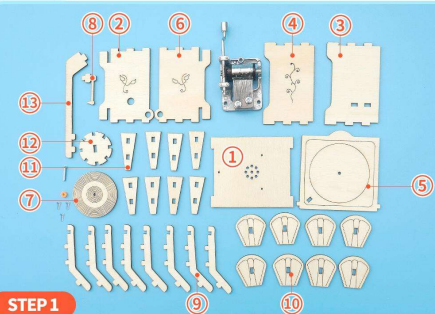
Required production tools and self-provided materials

You need to prepare a small screwdriver and a milky white glue. During the production process, you need to use a screwdriver to install the screws. You need to use milky white glue to reinforce the joints of the wooden boards.

Precautions

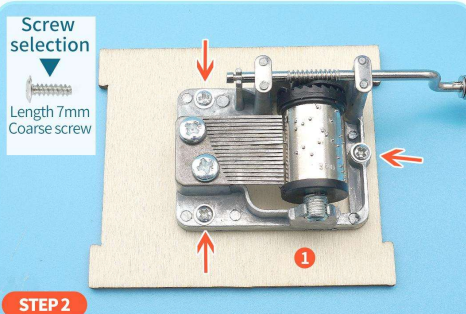
- Hello kids! Please be careful when opening the material package to avoid sudden loss of small materials. Loss of small materials may cause your small production to fail!
- Children, please don't assemble small productions separately, making them alone may be dangerous. You must make them with the company of your parents or teachers!
- If you want to easily make a small production model, you need to read the instructions carefully and follow the steps to make it. If you don't understand, you can ask your parents or teachers. Asking for help from others is also a kind of learning!

Do it with me



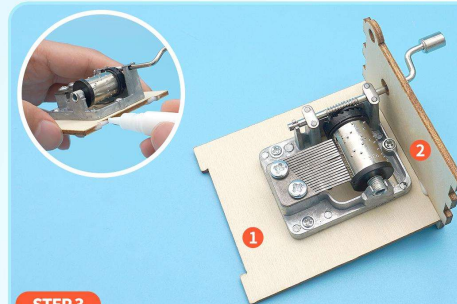
STEP 1

- Prepare small production materials.



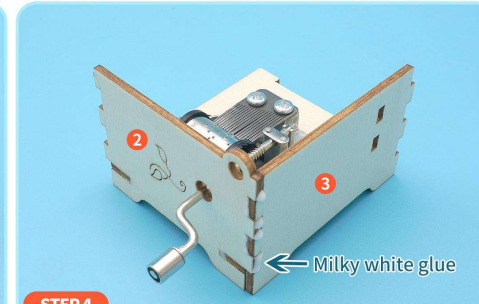
STEP 2

- Refer to the picture above, use three 7mm coarse-grained screws to install the movement on board ①.



STEP 3

- Apply the milky white glue on the ① board, and then install the ② board on the ① board. Note: Please be careful when using milky white glue, do not let the milky white glue come into contact with the eyes, skin and other parts of the human body, and take safety precautions when using it. If the milky white glue accidentally comes into contact with your eyes, please consult a doctor in time.



STEP 4

- Refer to the above figure, apply the milky white glue on the ③ board, and then install it on the ② board.



STEP 5

- Refer to the above figure, apply the milky white glue on the ④ board, and then install it on the ② board.



STEP 6

- Refer to the figure above and install the No. ⑤ board on the No. ② board.



STEP 7

- Refer to the figure above, apply the milky white glue on the ⑥ board, and then install it on the ③, ④, and ⑤ boards.



STEP 8

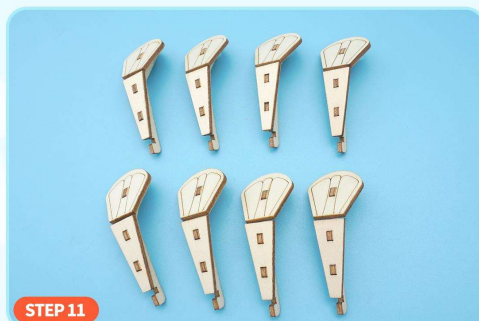
- Refer to the above figure, use a 1.3cm head shaft to install the ⑦ board on the ⑤ board, and then fix it with an orange fixing ring.



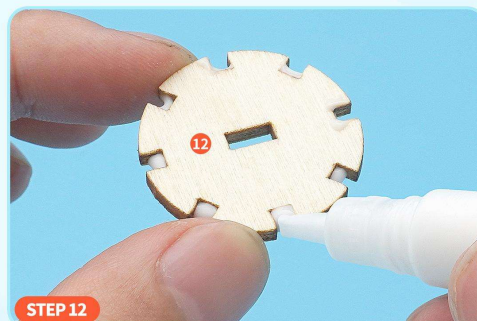
- Refer to the figure above, apply the milky white glue on the ⑧ board, and then install it on the ⑤ board.



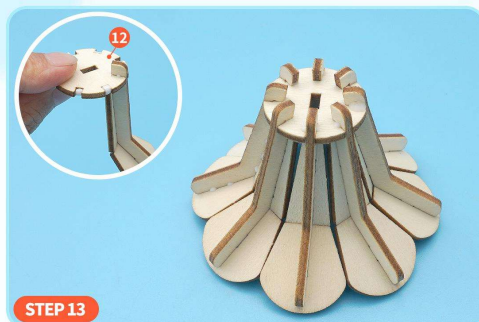
- Refer to the figure above, apply the milky white glue on the ⑨ board, and then install the ⑩ and ⑪ boards on the ⑨ board.



- Refer to the method of STEP10 to assemble all ⑨, ⑩, and ⑪ boards.



- Refer to the figure above and apply the milky white glue to the board No. ⑫.



- Refer to the figure above and install the assembled materials of STEP11 on board ⑫.



- Refer to the above picture, apply the milky white glue on the ⑬ board, and then install it on the ⑫ board.



- Refer to the figure above, apply the milky white glue on the ⑬ board, and then install it on the ③ board.



- The DIY phonograph is finished! Turn the crank clockwise, and the phonograph can play wonderful music.



Scientific knowledge

The birth story of the phonograph: On August 15, 1877, Thomas Alva Edison asked his assistant Cressy to make a strange machine consisting of a large cylinder, a crank, a receiver and a diaphragm according to the drawings. Edison pointed to the strange machine and said to his assistant: "This is a talking machine." He took out a piece of tin foil, rolled it on a metal cylinder engraved with spiral flutes, and let the needle tip lightly rubbed the tin foil to rotate. The other end is connected to the receiver. Edison shook the crank and sang to the receiver, "Mary has a little lamb, and a snowball is like a hairy coat...". After singing, put the needle back in place, and gently shake the crank again. Then, the machine turned round and round without hurries, and sang "Mary has a little lamb...", exactly the same as Thomas Alva Edison sang just now. The assistants on the side were so surprised that they could not speak when they encountered a talking machine. The news of the birth of the "Talking Machine" caused a sensation all over the world. In December 1877, Thomas Alva Edison gave a public performance of the phonograph, and public opinion immediately hailed him as "the Napoleon Bonaparte of science", one of the three most exciting inventions of the 19th century.



Various phonographs



Desktop phonograph



Cabinet type phonograph



Box-type portable phonograph

Automatic ball machine



Introduction to automatic ball machine

Automatic ball machine is an indispensable training equipment in ball sports, so that many people need to train the ball sports, a person can also train, greatly improve the individual training efficiency.

The service machine belongs to the mechanical equipment, different types of service institutions are not the same, there are mechanical, there are intelligent control simulation of real people, there are many types, but are to better improve the skill level of sports personnel.



Production tools and materials to be prepared

A small phillips screwdriver and a pair of AA batteries should be prepared. During the production process, a phillips screwdriver should be used to install the screws. After the production is completed, the battery should be used to test whether the model made works normally.

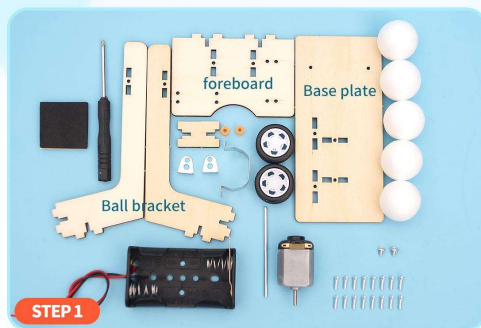


Cautions:

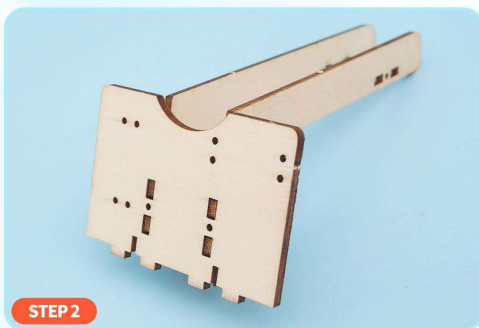
- Be careful when unpack the material package, to avoid sudden loss of small material (small material loss may cause the assembly fail).
- Please do not allow children under 6 years old to touch the assembly materials alone in case of accidental swallowing or injury. If children accidentally swallowed or got hurt, please timely get medical treatment!
- Please read the text of the assembly steps carefully before you start, to avoid scrapped materials.



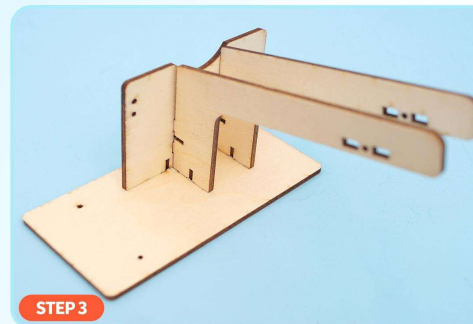
Assembly steps:



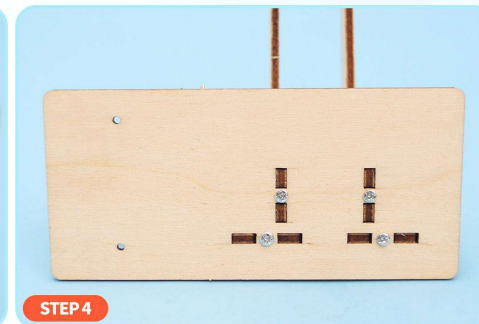
- Prepare all the assembly materials.



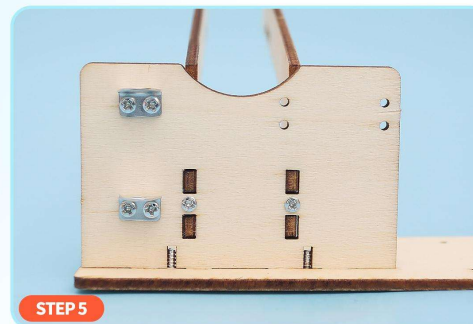
- Refer to the figure above, first put the front plate and the ball bracket plate together, pay attention to the position of the screw hole, please do not install the wrong direction.



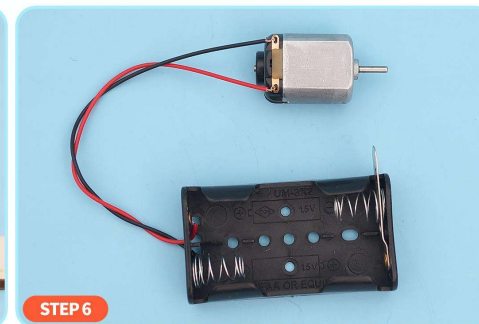
- Insert the front plate and the ball carrier into the base plate at the same time.



- Install the 7mm screw at the bottom of the base plate to secure the front plate and the ball carrier.



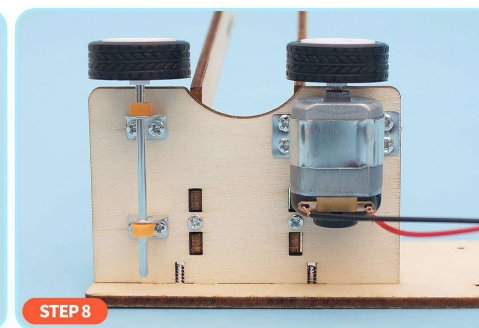
- Use 4 7mm screws to install the two center shaft racks on the front plate, and then use 2 7mm screws to secure the ball holders.



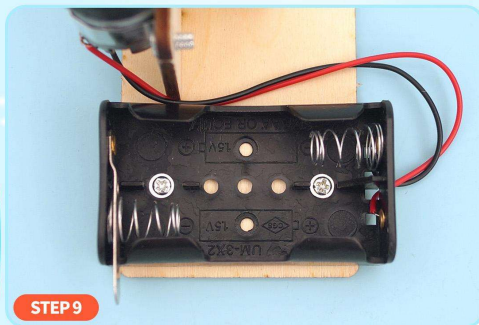
- Connect the wires on the motor according to the position of the red and black wires above.
Wiring method: first screw the metal wire core into a spiral shape, and then screw the metal wire core through the holes in the copper piece of the motor wiring, screw 3-4 turns.



- First, the rubber wheel is installed on the motor rotating shaft and the long iron shaft, and then a wheel shaft fixing ring is set on the iron shaft.

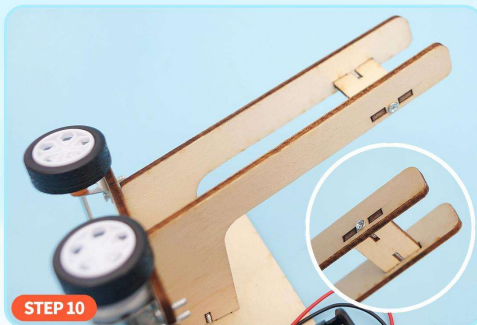


- First, the iron shaft with wheels is installed on the small round hole of the central shaft frame, and an orange fixing ring is set under the second central shaft frame. Install the motor on the front plate with 7mm screw and metal motor clip. After installation, adjust the height of the rubber wheels on both sides to keep the same.



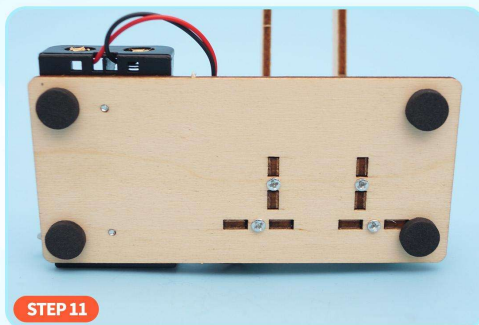
STEP 9

- Install the battery box on the base plate with 4mm screws.



STEP 10

- Install the ball carrier support plate with 7mm screw.



STEP 11

- Glue the pad to the four corners below the base plate.



STEP 12

- Automatic ball machine finished, put 5pcs foam balls on the tray, install the battery in the battery box, you can test.
(when the knife switch is closed, the power is turned on; when it is turned on, the power is turned off.)



Problems in Production? Check if they are the following problems!

I. The service machine does not work after closing the blade switch

1. Check whether the wiring has been connected and whether there is a short circuit.
2. Check whether the battery is low in power and recommend replacing it with a new one.

II. the motor is turning, why can't the ball go out

Check whether the red and black wires connected to the motor should be connected in reverse, so that the motor cannot forward the ball in reverse. This kind of problem needs to be replaced in red. The order of the black lines will return to normal.



Science tips

Automatic ball machine

Automatic serve machine is an indispensable training equipment in ball sports, so that many people need to train the ball sports, a person can also train, greatly improve the individual training efficiency.

The service machine belongs to the mechanical equipment, different types of service institutions are not the same, there are mechanical, there are intelligent control simulation of real people, there are many types, but are to better improve the skill level of sports personnel.

Principle of mechanical ball machine

The mechanical server converts the power of the motor into thrust and pushes the ball out of the track quickly. First of all, we observed that the channel distance between the rubber wheels was less than the diameter of the ball. This design made the speed of the ball rapidly synchronize with the speed of the rubber wheels when the ball passed through the channel, resulting in acceleration effect. This principle is the same as when we serve by hand. This channel should not be too wide or too narrow. If it is too wide, the ball will not touch the rotating thrust of the rubber wheel. If it is too narrow, the ball will get stuck due to the increase of resistance.



Think about it? ?

The principle of the server is not only used in the server, for example, we can also use this principle to make a paper airplane transmitter. Think, where else can you apply this principle?

Ball slide



Introduction to Ball Slides

The steel ball slide uses gear transmission to transport the steel ball to the commanding height of the track, and then returns to the bottom of the gear through the funnel-shaped cyclotron track, and then uses the electric device to achieve repeated circulation.



Tools and materials you need to prepare

You need to prepare a small screwdriver and a pair of AA batteries. During the production process, you need to use a screwdriver to install the screws. After the production, you need to use a battery to make the model work normally.

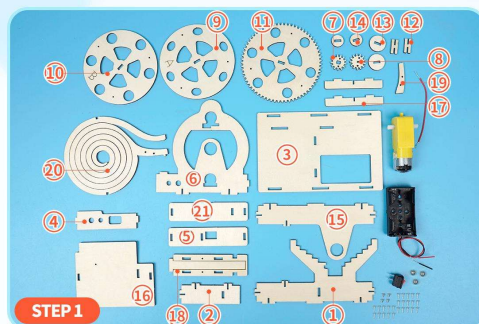


Precautions

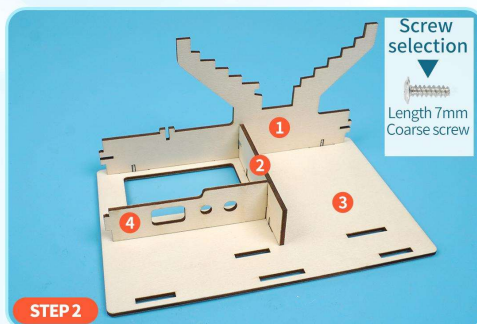
- Hello kid! Please be careful when opening the material package to avoid sudden loss of small materials. Loss of small materials may cause your small production to fail!
- Children, please do not assemble small productions alone. It may be dangerous to make them alone. You must be accompanied by parents or teachers to make them!
- If you want to easily make a small production model, you need to read the manual carefully and make it according to the steps. If you don't understand, you can ask your parents or teachers. Asking for help from others is also a kind of learning!



do it with me



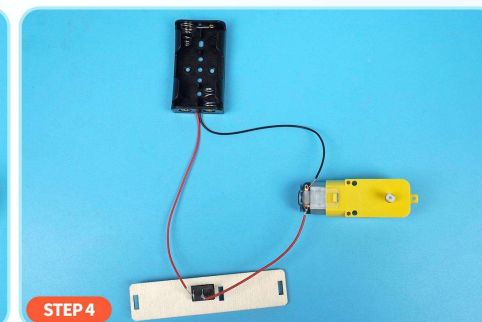
- Prepare small crafting materials.



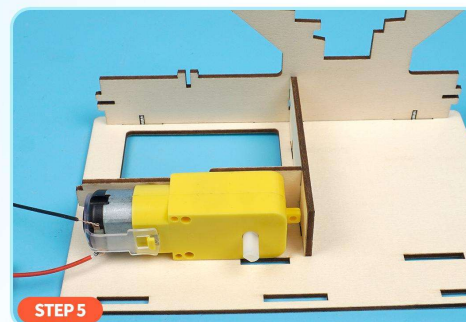
- Use 7mm rough thread screws to install the ① and ② plates on the ③ plate, and then install the ④ plate on the ② plate.



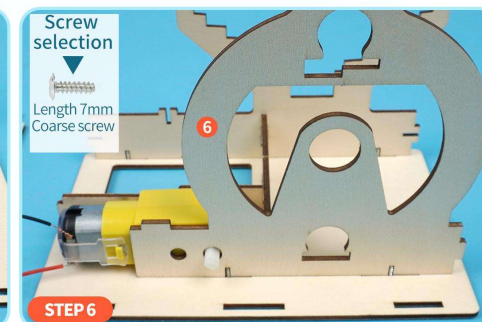
- Install the rocker switch on plate ⑤.



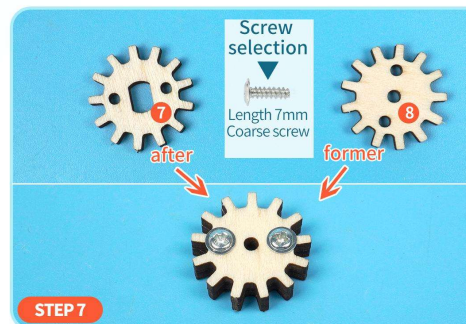
- First peel the battery box wire, then connect the red wire of the battery box to the rocker switch, the black lead to the TT motor, and finally connect the 10cm red wire to the rocker switch and the TT motor.



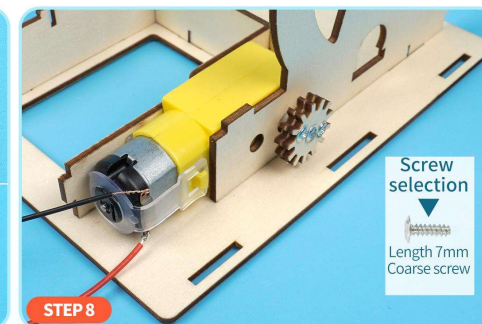
- Install the TT motor in the hole of No. ④ plate. **NOTE:** Motor leads are oriented.



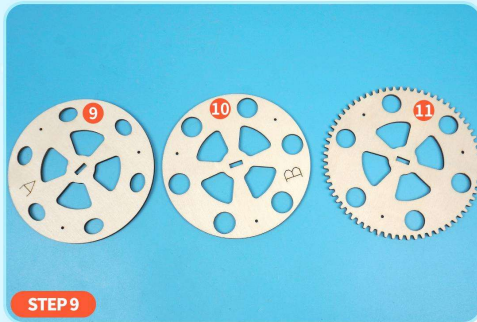
- Install the No. ⑥ plate on the No. ③ plate through the motor shaft, and then fix it with 7mm rough thread screws.



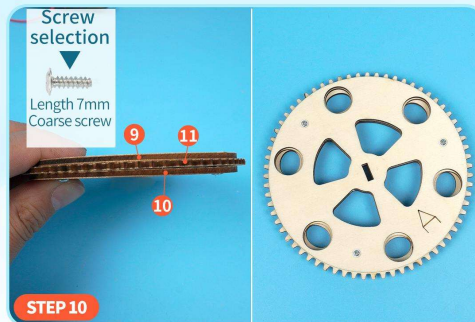
- Install plate ⑧ on plate ⑦ with 7mm coarse-grained screws.



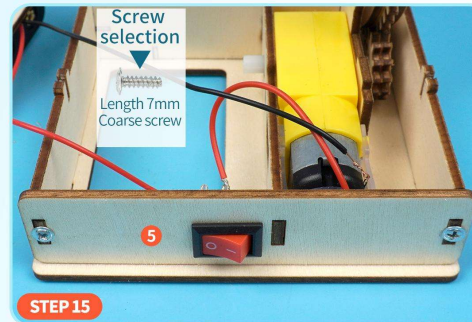
- Install the plates ⑦ and ⑧ on the TT motor shaft with 7mm coarse-grained screws.



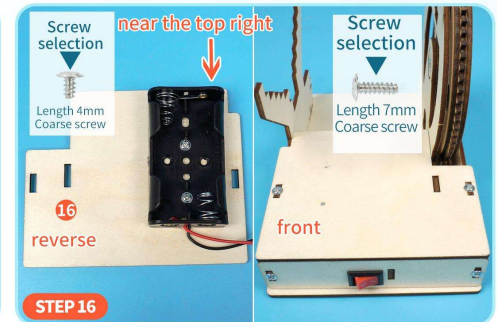
- Prepare plates ⑨, ⑩, ⑪.



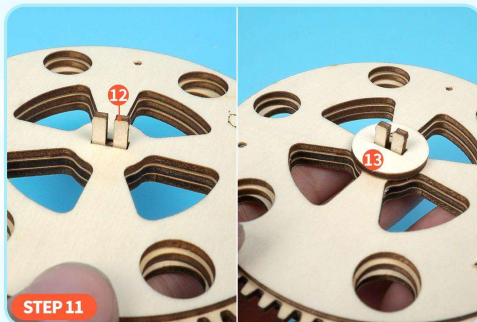
- First align the holes ⑨, ⑩ and ⑪, and then fix them with 7mm coarse thread screws.



- Install the No. ⑤ plate on the No. 1, ④, ⑮ plates first, and then fix it with 7mm coarse-grained screws.



- First, install the battery box on the upper right side of the reverse side of No. ⑮ plate with 4mm coarse-grained screws, then install No. ⑮ on the No. 1, ⑥, ⑮ plates, and finally fix it with 7mm screws.



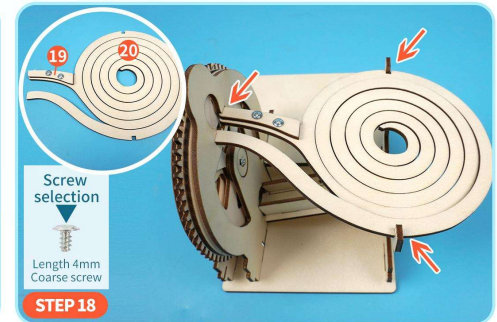
- Pass the ⑫ plate through the ⑨, ⑩, ⑪ plates, and then install the ⑬ plate through the ⑫ plate on the ⑩ plate.



- Install the ⑭ plate through the ⑬ plate and install it on the ⑬ plate, and then fix it with 7mm coarse-grained screws, and install the other side in the same way, and the turntable is completed.



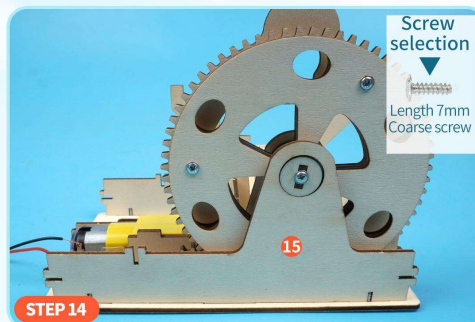
- Install two ⑰ plates on ⑱ plates with 7mm rough thread screws.



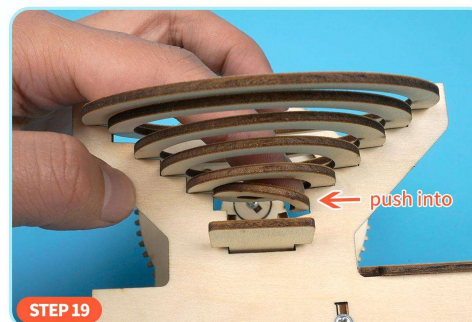
- First, install the ⑲ plate on the ⑳ plate with 4mm coarse-grained screws, and then install the ㉑ plate on the grooves of the ① and ⑥ plates.



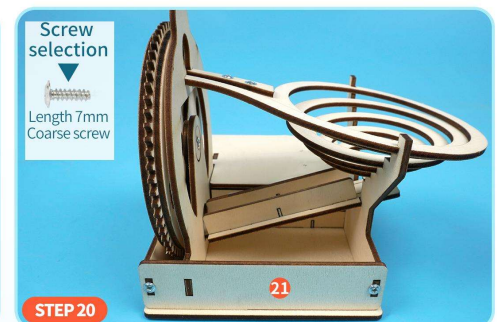
- Put the turntable on the hole of plate ⑥. **Note:** The ⑨ plate with the letter A is facing, and the big gear and the small gear must be completely matched.



- First, snap the turntable into the hole of the plate ⑮. Then use 7mm rough thread screws to install No. ⑮ plate on No. ③ plate.



- Use your fingers to press plate ⑳ into the groove of plate ①.



- Install the ㉑ board on the ①, ⑥, ⑮ boards, and then fix it with 7mm coarse-grained screws, the steel ball slide is completed! Put the battery in the battery box, turn on the switch, and then put the steel ball on the track, and the steel ball slide will work.

Autoplotter



Autoplotter Introduction

Beautiful lines, brilliant colors. It is a perfect combination of mathematics and physics. The scanner can create more than one hundred flower gears of different sizes and different shapes. Each gear has a different shape, and each rotation of it is in accordance with the laws of mathematics and physics. There is a close connection.



Production tools and materials to be prepared

A small phillips screwdriver, a small pair of scissors and a pair of AA batteries should be prepared. During the production process, a screwdriver should be used to install the screws, a scissors should be used to cut the circular paper. After the production is completed, the battery should be used to test whether the model made works normally.

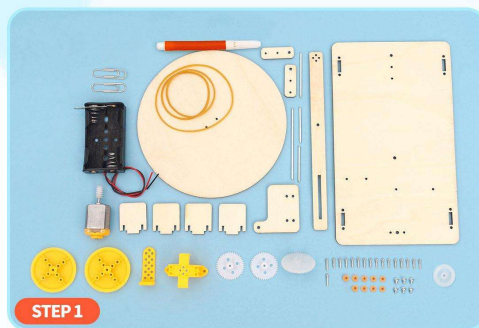


Cautions:

- Be careful when unpack the material package, to avoid sudden loss of small material (small material loss may cause the assembly fail).
- Please do not allow children under 6 years old to touch the assembly materials alone in case of accidental swallowing or injury. If children accidentally swallowed or got hurt, please timely get medical treatment!
- Please read the text of the assembly steps carefully before you start, to avoid scrapped materials.

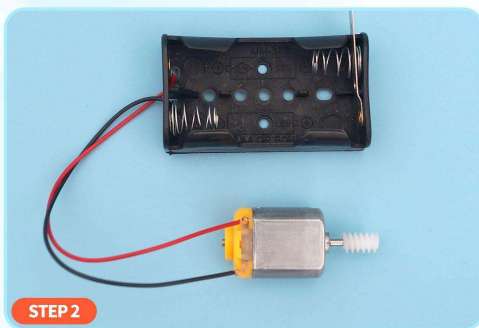


Assembly steps:



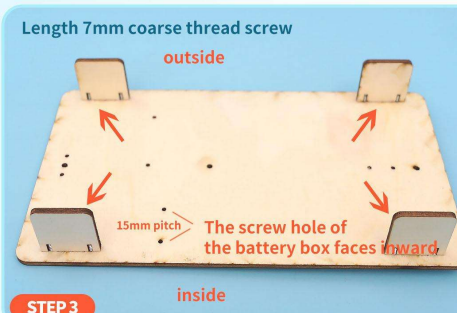
STEP 1

- Prepare all the assembly materials.



STEP 2

- Connect the output line of the battery box to the motor, please refer to the wiring position of the red and black lines in the above figure. Wiring method: first twist the metal wire core into a spiral shape, and then pass the metal wire core through the small hole of the copper wire of the motor and turn it 3-4 times.



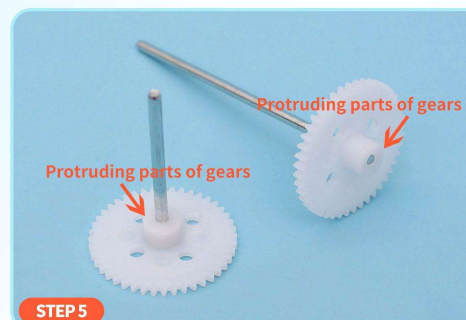
STEP 3

- Install the four supporting feet on the main board with a length 7mm screw. Pay attention to the direction of the screw hole of the battery box when installing.



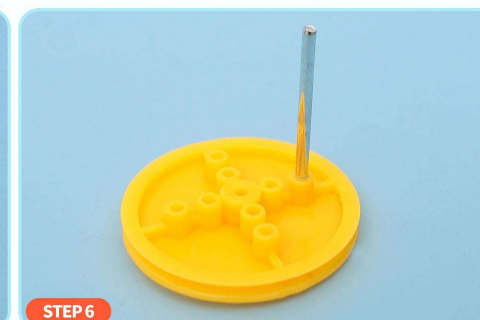
STEP 4

- Install the two small gaskets on the main board with length 10mm screws. Please install the corresponding holes and install the small holes.



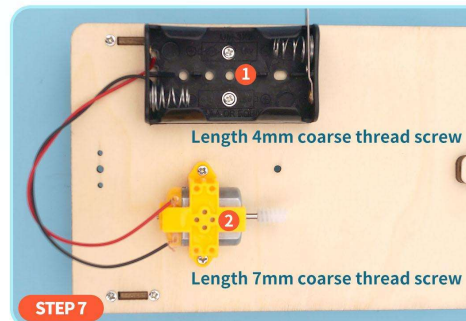
STEP 5

- Install the two empty white gears on the 3cm and 6cm iron shafts respectively. Pay attention to the protruding parts of the gears and do not install them wrong. Iron shaft installation method: first find a piece of pad, put the shaft upright on the pad, hold the gear with the other hand to the hole, and then hold the gear with both hands and press down firmly.



STEP 6

- Install length 3cm iron shaft to the peripheral hole on the yellow pulley.



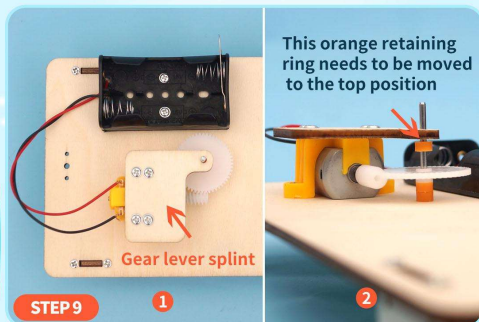
STEP 7

- ① Install the battery box on the main board with length 4mm screws; ② Install the motor on the main board with length 7mm screws and motor holder



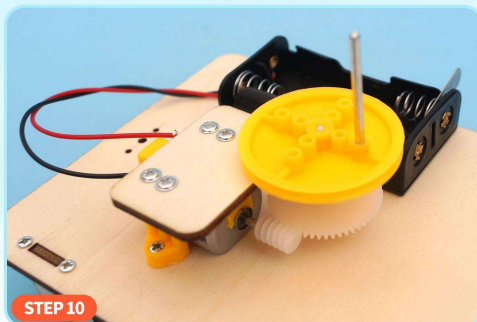
STEP 8

- Referring to the above picture, install the white gear with no holes on the 4cm iron shaft. The gear is installed in the middle of the shaft. The protruding part of the gear is equipped with 2 orange fixing rings, and the non-protruding part is equipped with 1 orange fixing ring. Note: When installing the white gear, first put the shaft upright on the wooden board and hold it by hand, then the round hole of the white gear is aligned with the shaft, hold the gear with both hands and press down firmly to the middle of the shaft.



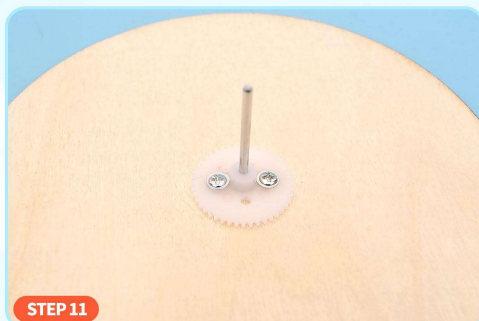
STEP 9

- First insert the gear rod into the round hole on the main board with the double retaining ring facing down (refer to Figure 2), and then install the gear rod clamping plate on the motor clamp with length 4mm screw.



STEP 10

- Install the yellow pulley with the short shaft on the gear lever.



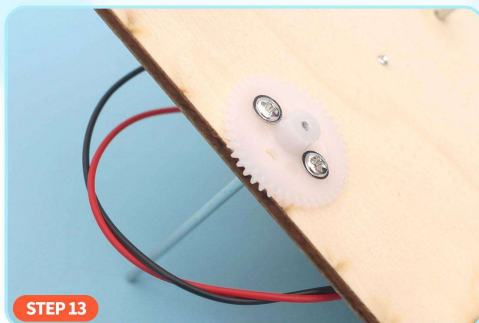
STEP 11

- Use length 4mm screw to install the 3cm gear lever on the round turntable.



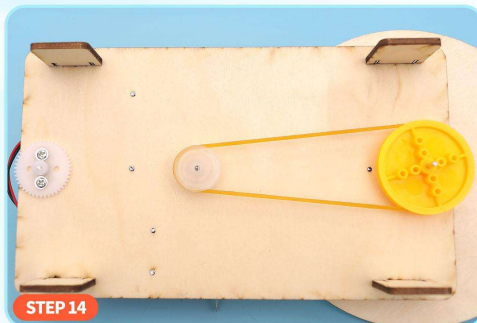
STEP 12

- First install the round turntable on the main board, then install an orange retaining ring on the bottom shaft, and then install the yellow pulley on the shaft.



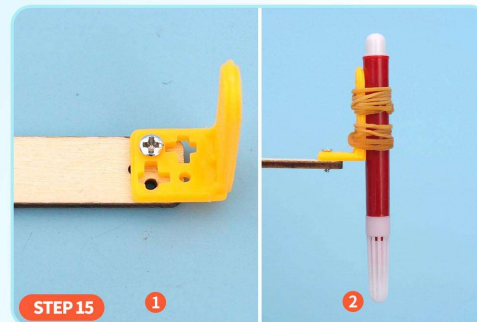
STEP 13

- Install the 6cm gear rod on the main board with length 4mm screw (the iron shaft passes through the middle hole, and install screws on both sides).



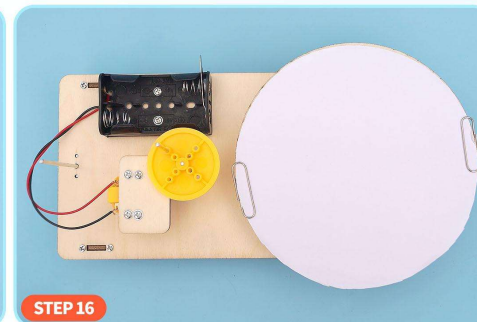
STEP 14

- First, install the white pulley on the rotating shaft in the middle of the main board (the protruding part of the pulley is facing inward), and then install a rubber band with a diameter of 6 cm on the pulley.



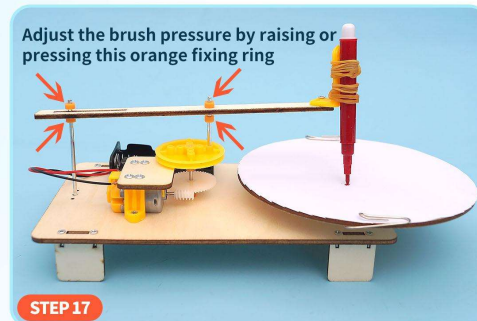
STEP 15

- ① Use the length 7mm screw to install the L-shaped angle code on the painting rod. ② Use the rubber band to fix the drawing pen country on the L-shaped corner code.



STEP 16

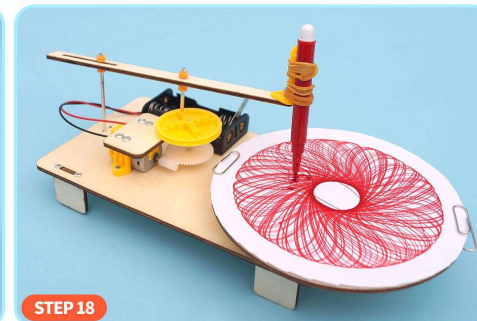
- Use scissors to cut a piece of round white paper, and then use a paper clip to fix the round white paper on the round turntable.



STEP 17

Adjust the brush pressure by raising or pressing this orange fixing ring

- First install the orange fixed picture on the iron shaft, and then install the drawing rod on the iron shaft. Install the orange fixing ring on top of the painting rod, and use the upper and lower fixing rings to clamp the painting rod.



STEP 18

- The production of the automatic painting instrument is completed, install the battery on the battery box, close the knife switch, and the painting instrument can automatically draw! (L-shaped angle code can be adjusted left and right, different patterns can be drawn at different angles)



Problems in Production? Check if they are the following problems!

The motor does not rotate

1. Check whether the wiring is connected, and check whether the knife switch on the battery box is closed.
2. Check if the battery is low, it is recommended to replace with a new battery.

Why some areas can't draw color

1. The contact force between the brush and the paper is not enough. You can increase the pressure of the brush by pressing the orange fixing ring on the yellow pulley.
2. The ink of the watercolor pen is insufficient, please replace with a new watercolor pen.



Science tips

Automatic plotter

Beautiful lines, brilliant colors. It is a perfect combination of mathematics and physics. The painting instrument can create more than one hundred flower gears of different sizes and different shapes. Each gear has a different shape, and each rotation of it is in accordance with the laws of mathematics and physics. There is a close connection.



Think about it? ?

Change the angle of the L-shaped corner code, and carefully observe the lines drawn by the brush. These lines have a common feature. What is this feature?