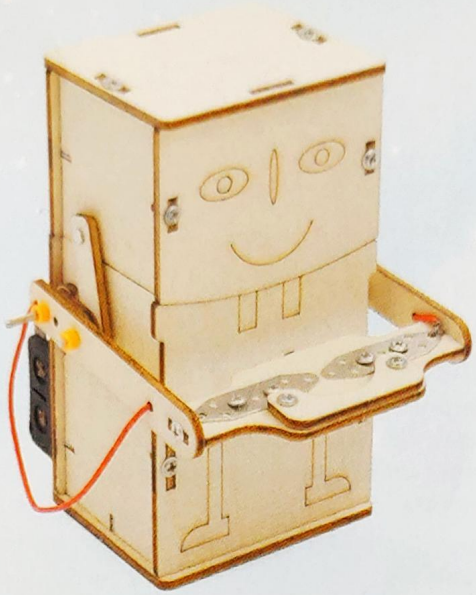
J-19

Coin swallowing robot



Introduction to Swallowing Robot

The coin swallowing robot is a kind of storage piggy bank. As long as you put a coin between the hands of the robot, it will swallow the coin into the body by itself, and then return with both hands to wait for the next coin. Isn't it amazing? Now let's make a coin swallowing robot!

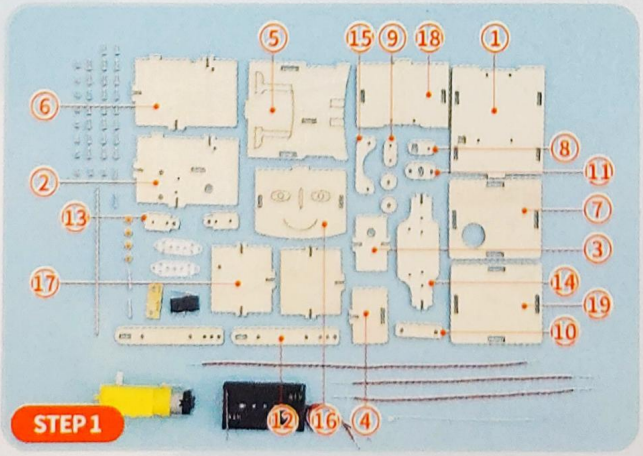
Production tools and materials to be prepared

You need to prepare several coins, a small screwdriver, a small scissors, and a pair of AA batteries. During the production process, you need to use a screwdriver to install the screws. You need to use scissors to trim the cable tie. After the production is complete, you need to use coins and batteries to make it ready. The model works normally.

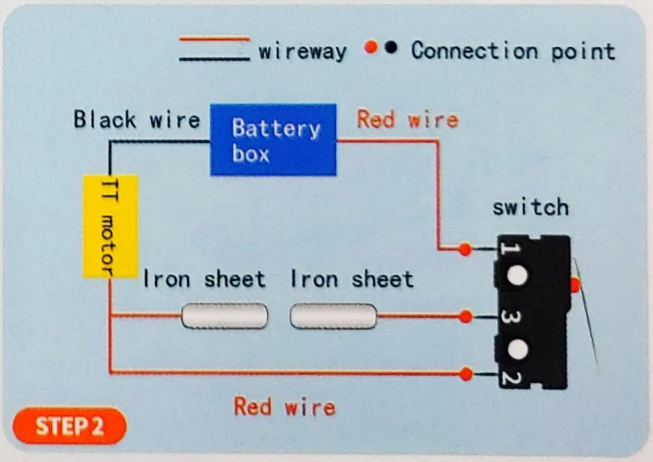
Cautions:

- 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:

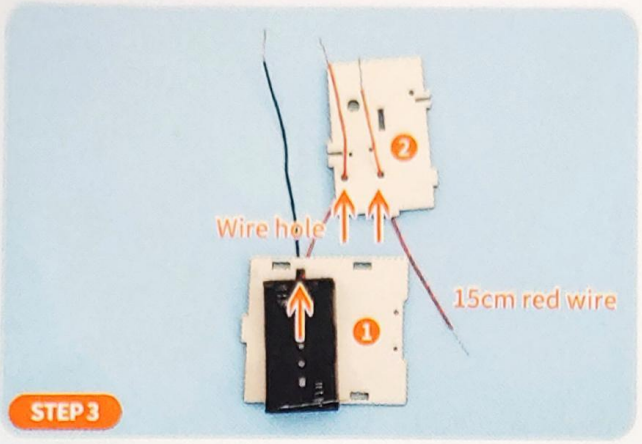


● Prepare all the assembly materials.

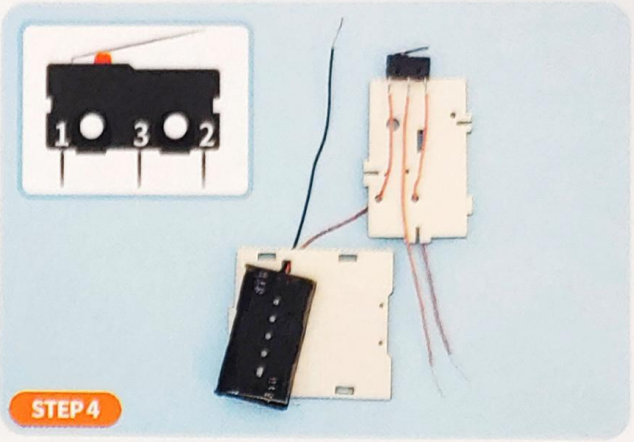


● Refer to the circuit wiring diagram.

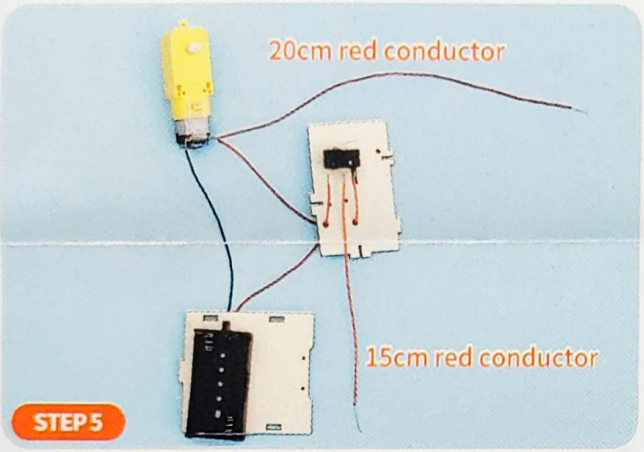
Measuring ruler



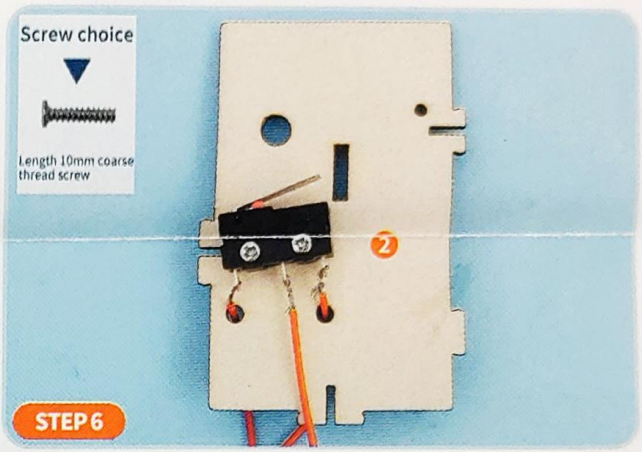
- Refer to the hole position in the above figure, first pass the lead of the battery box through the lead hole of the ① board, then pass the red lead of the battery box through the lead hole of the ② plate, and finally put the 15cm red lead through the lead hole of the ② board .



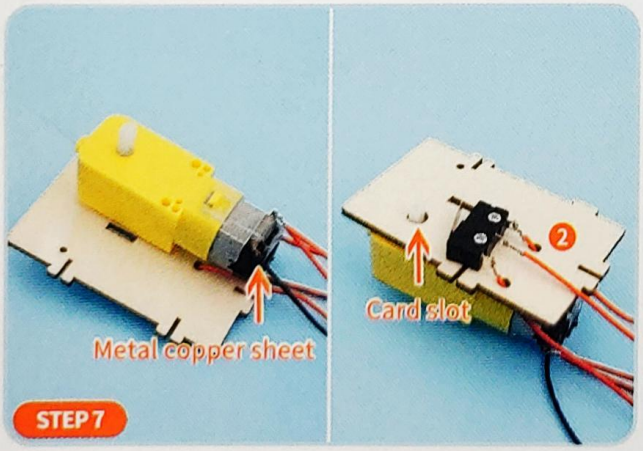
- Refer to the figure above, first connect the red wire of the battery box to the 1st port of the knife switch, and then connect the 15cm red wire to the 3 and 2 ports of the knife switch respectively.



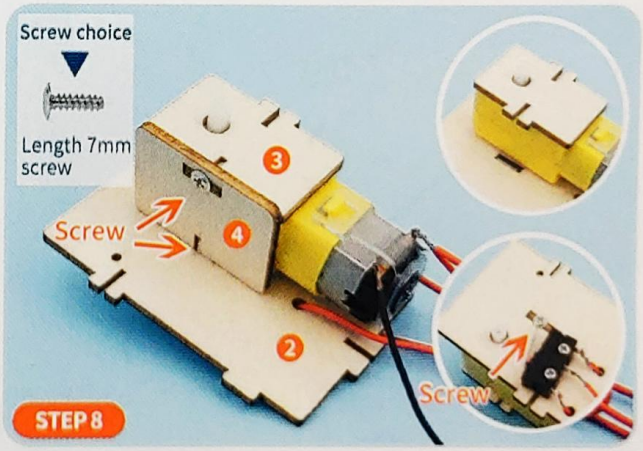
- Refer to the STEP2 circuit wiring reference diagram to connect the circuit.



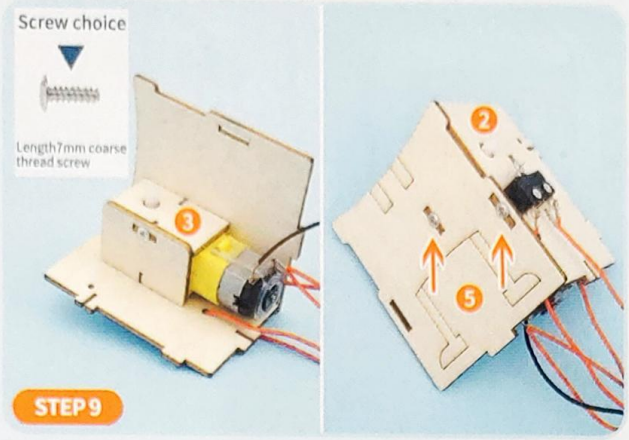
- Install the knife switch on board ② with 10mm coarse-grained screws.



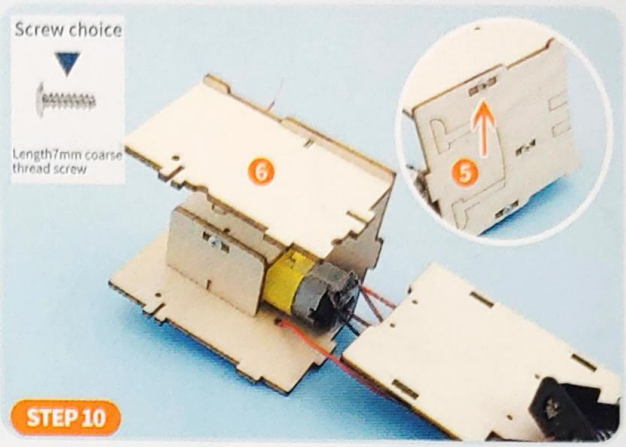
- Refer to the figure above and clamp the shaft of the TT motor into the slot of the ② board.
  Pay attention to the orientation of the metal copper sheet of the TT motor.



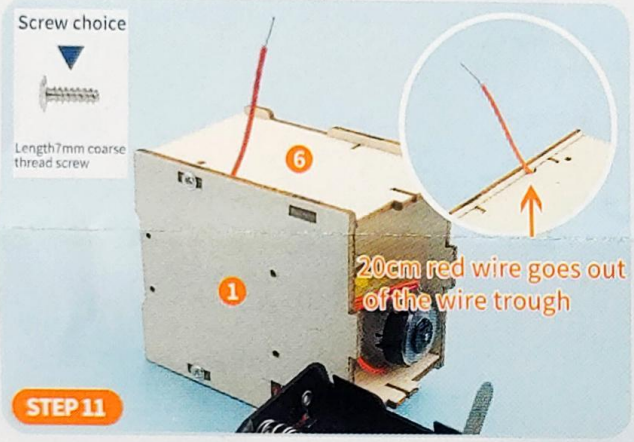
- Refer to the above figure, first clamp the ③ board on the TT motor shaft, and then use 7mm coarse-grain screws to install the ④ motor card on the ② and ③ boards.



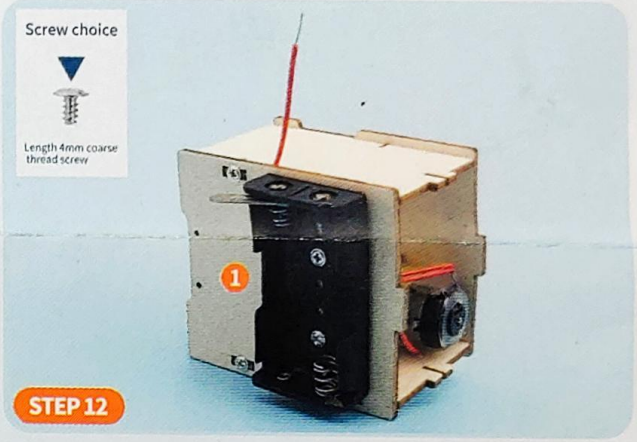
- Refer to the above figure, use 7mm coarse-grained screws to install the ⑤ plate on the ② and ③ plates.



- Refer to the above figure, install the No. 6 board on the No. 5 board with 7mm coarse-grain screws.

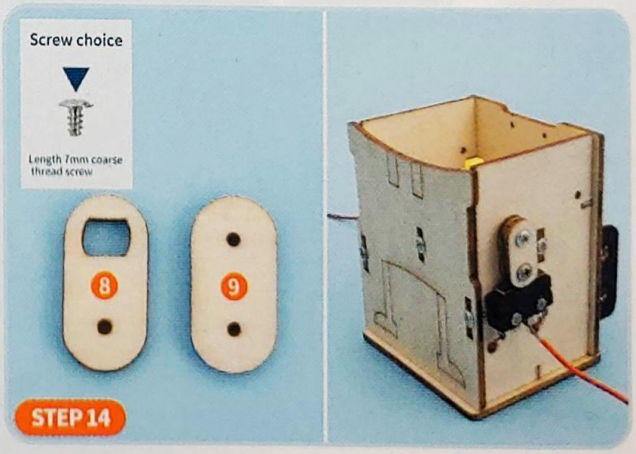


- Use 7mm coarse-grained screws to install the No. ① board on the ② and ⑥ boards.
  Note that the 20cm red wire passes through the wire trough of the ⑥ board.

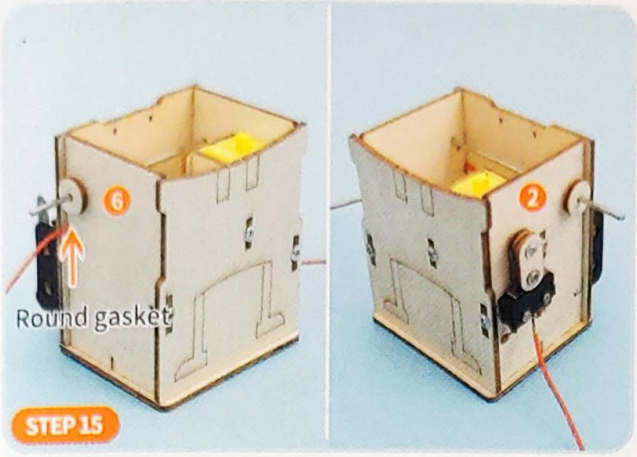


- Install the battery box on board ① with 4mm coarse-grained screws.

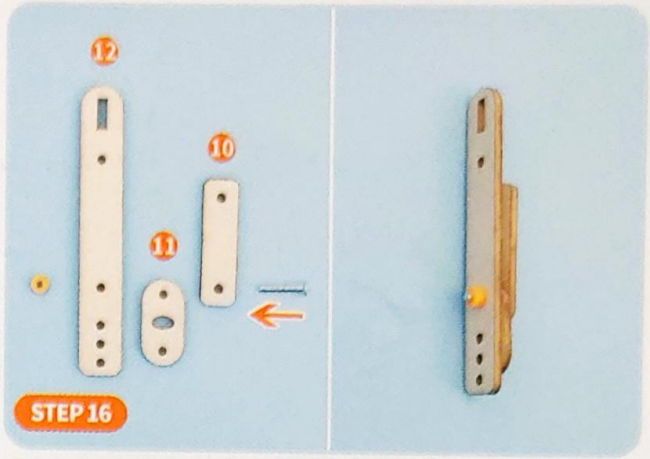
- First, use cable ties to arrange the wires, trim off the excess cable ties with scissors, and then install the ⑦ board with 7mm coarse-grain screws.
  Please be careful when arranging the lines to avoid breaking the lines. The 20cm red wire does not need to be arranged.



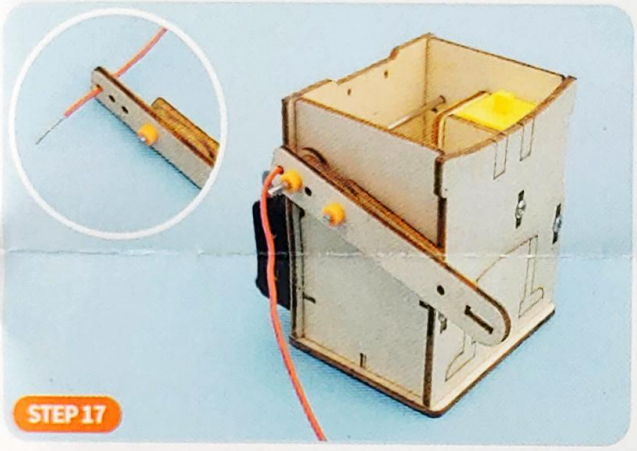
- Use 7mm coarse-grained screws to install the shaft plates ⑧ and ⑨ on the shaft of the motor.
  Note that No. ⑧ shaft plate is inside, and No. ⑨ shaft plate is outside. If it is not convenient to install, you can slightly twist the shaft until it is easy to install.



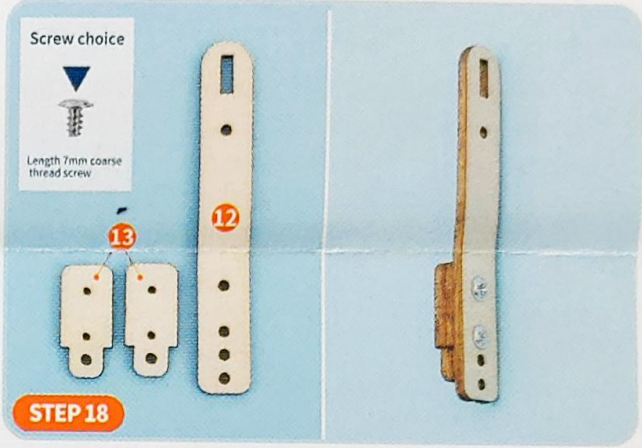
- Refer to the figure above. First, pass the 10cm iron shaft through the round holes of the ② and ⑥ plates, and then install the round gaskets on both ends of the 10cm iron shaft.



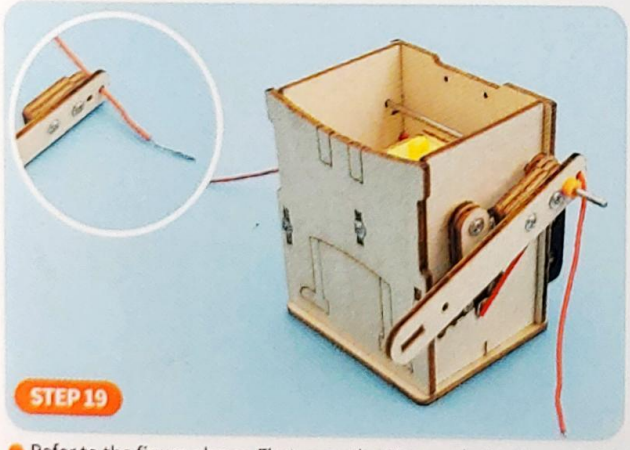
- Refer to the hole position in the figure above, and pass the 1.3cm heading shaft through the number plates ⑩, ⑪, and ⑫ in sequence, and fix it with an orange fixing ring at the other end. The left arm is assembled.



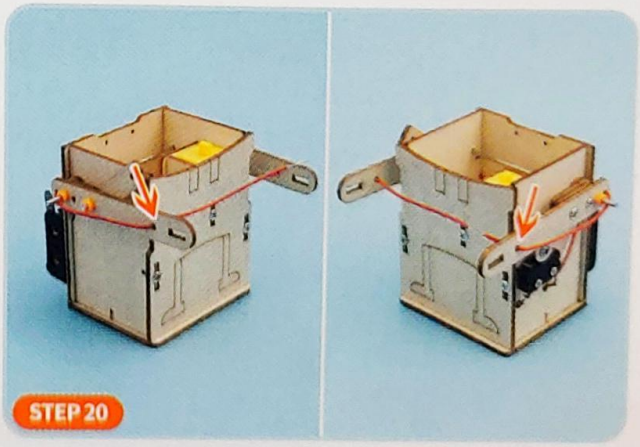
- Refer to the above figure. First, pass the 20cm red wire through the round hole of the left arm, then install the left arm on the 10cm iron shaft, and fix it with the orange fixing ring. Leave a 1mm gap between the fixing ring and the number plate ⑫. Leaving a gap will increase the rotation resistance.



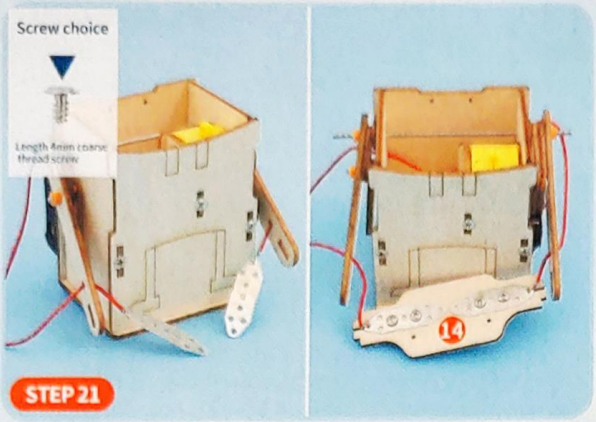
- Refer to the hole position in the figure above and assemble the ⑫ and two ⑬ plates into the right arm with 7mm coarse-grain screws.



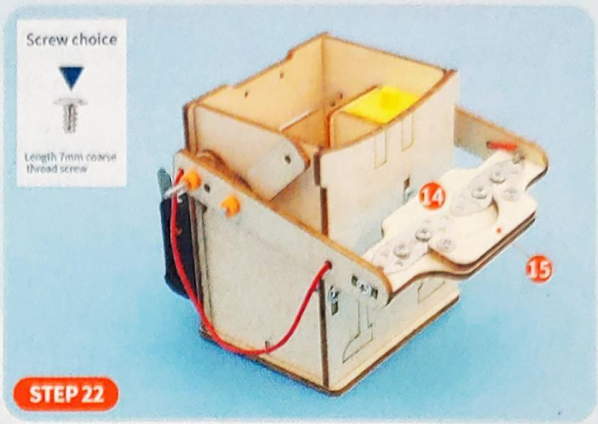
- Refer to the figure above. First, pass the 15cm red wire through the round hole of the right arm, then install the right arm on the 10cm iron shaft, and fix it with the orange fixing ring. Leave a 1mm gap between the fixing ring and the number plate ⑫. Leaving a gap will increase the rotation resistance.



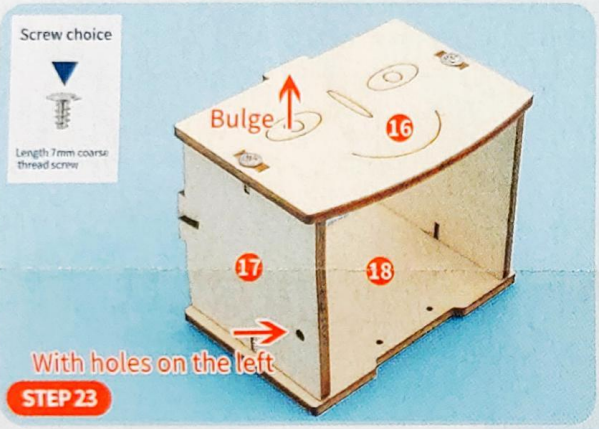
- Refer to the hole position in the figure above, and pass the 20cm, 15cm red wire through the wire hole of the ⑫ board.



- Refer to the figure above, first connect one end of the red wire to the metal iron sheet, and then install the metal iron sheet on the ⑭ board with 4mm coarse-grained screws.

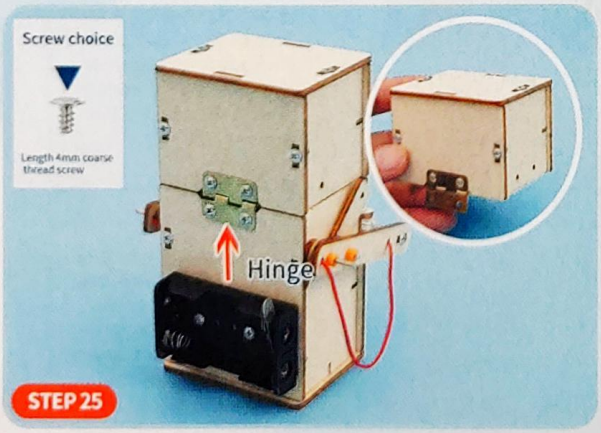


- Use 7mm coarse-grained screws to install the number plate ⑮ on the number plate ⑭. The body part is assembled.

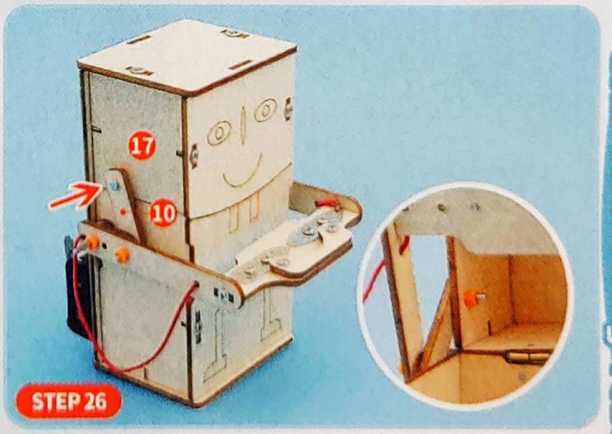


- Refer to the figure above, and install the ⑯, two ⑰ and ⑱ boards with 7mm coarse-grained screws. Note that the direction of the middle protruding position is the same, and the plate with holes in the number ⑰ is installed on the left side.

- Refer to the figure above, install the number plate ⑲, and complete the head assembly.



- Refer to the picture above and assemble the head and body parts with 4mm coarse-grain screws and hinges.



- Refer to the hole position in the above figure, and pass the 1.3cm head shaft through the ⑩ and ⑰ plates in turn, and fix it with an orange fixing ring at the other end. Leave a 1mm gap between the fixing ring and the ⑰ plate. No gap will cause Rotation resistance increases. The coin swallowing robot is finished, put the battery on the battery box, turn on the knife switch, and try to put coins on the robot arm.

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

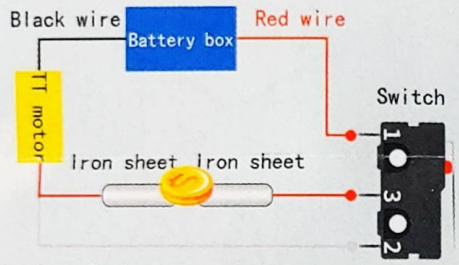
The robot does not respond after putting a coin on the arm

1. Check whether the wires are connected correctly, please refer to the STEP2 circuit wiring reference diagram.
2. Check whether the wire connection is loose. It is recommended to reconnect the wire.
3. Check whether the battery is low, it is recommended to replace the battery with a new one.
4. Check whether the fixing ring is too tight. It is recommended to leave a gap of 1mm.

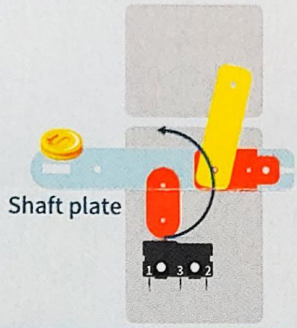
Science tips

The coin swallowing robot is composed of two series circuits controlled by a knife switch.

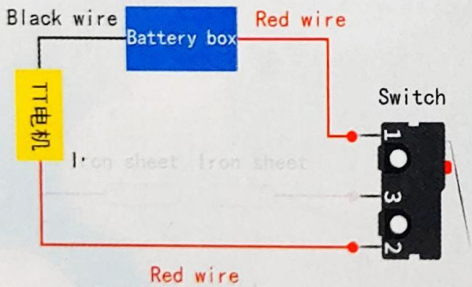
The reason why the coin swallowing robot is able to eat coins is that it uses the conductive properties of conductors. Coins are conductive materials. When the coin touches two metal iron pieces, it connects to the circuit shown in Figure 1. The power supply provides power to the TT motor and is installed in the TT. The shaft plate on the motor rotates with the TT motor. At the same time, release the button that presses the knife switch and the baffle on the raised arm, so that the arm can be lifted, and there is a connecting rod connected to the head of the robot on the other arm. When the arm is raised, the head is also raised at the same time. When the arm is raised to a certain height, the coin will fall into the belly of the robot. When there is no conductive material, the circuit of example Figure 1 is disconnected. When the circuit is connected, the TT motor continues to rotate until the entire circuit is disconnected after the shaft plate presses the knife switch, the arm is no longer lifted, and the robot no longer swallows coins.



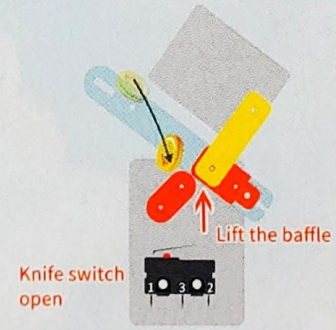
Example figure 1



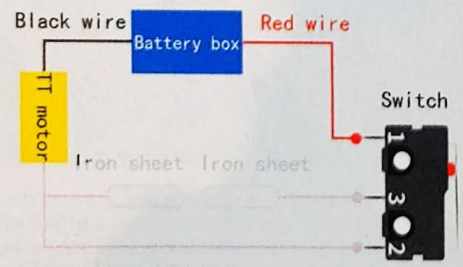
When coins are inserted, the circuits of ports 1 and 3 are connected, and the circuits of port 2 are disconnected, and the TT motor starts to work, driving the rotation of the shaft plate.



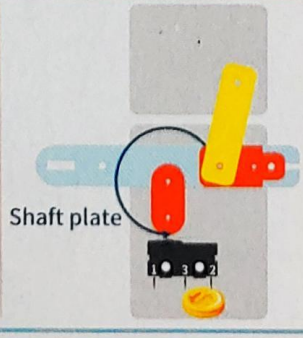
Example figure 2



When the shaft plate rotates and no longer presses the knife switch, the circuit of port 1 and port 2 is connected, the circuit of port 3 is disconnected, the TT motor continues to rotate, and the arm is raised to a certain height. The coin fell into the body.



Example figure3



When the rotating shaft plate rotates one week and then press the knife switch again, the entire circuit is disconnected, and the coin swallowing robot completes a coin swallowing action. Only when the coin is re-inserted, the robot will start swallowing coins.