

HS-B08 Assembly instructions for the Go board sorter learning kit



This product should be used with the U+ Program Card.

U+ PROGRAM CARD SUPPORTED. Arduino IDE, Mixly, Ardublock, Scratch Which programming software



Warning: Individuals under the age of 14 must use this under the guidance of a professional teacher or an adult with relevant knowledge.

Assembly and debugging of this product require the use of appropriate tools. Please take necessary safety precautions during assembly to avoid injury.

Product Description

The Go Sorter is an intelligent kit composed of line tracking sensors, servos, and other components. This kit enables functions such as Go piece sorting (start/stop with a button) and Go piece sorting (start with a button, stop after a preset time). You can also use programming software like Arduino IDE or Mixly to modify the example program or write your own program to control the Go Sorter.

Prepare tools and assembly precautions

Prepare assembly tools: 1 crosshead screwdriver with a 3mm diameter, scissors.
Prepare debugging tools: 1 computer with Windows 7, 8, 10, or 11 operating system, 1 U+ program card, 1 data cable.
To easily assemble the kit, carefully read the assembly instructions and follow the steps.



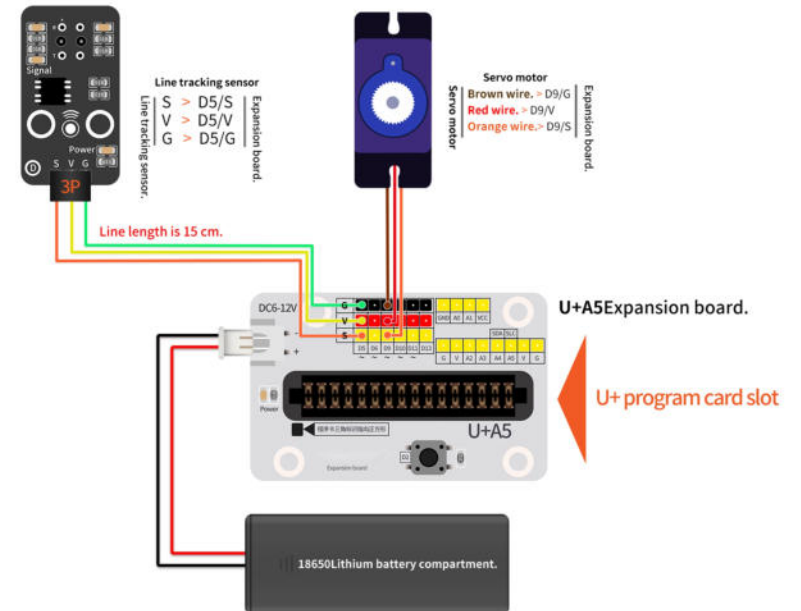
Experimental materials checklist.

[Materials not included in the kit, please prepare them yourself.]

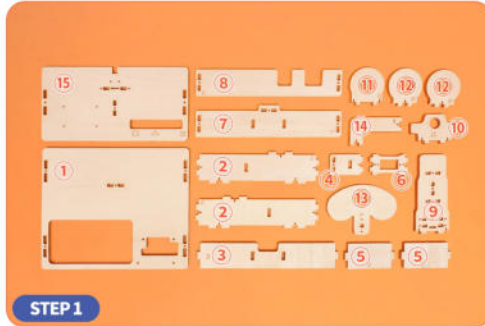
	name		Image		name		Image		name		Image
1	micro usb Data cable (Owned)	1*		2	U+ Program card (Owned)	1*		3	18650 Pointed-tip lithium batteries (Owned)	1*	
4	18650 Lithium battery pack.	1*		5	Button cap + Black floor mat	1* 1*		6	9g Servo motor + Servo horn	1* 1*	
7	U+A5 Expansion board	1*		8	Line tracking sensor	1*		9	Main body structure board	1*	
10	4mm Coarse-threaded screw + 7mm Coarse-threaded screw	10* 28*		11	Go stones (Black white) + Transparent plastic tube	20* 1*		12	3P Dupont wire (15cm) + Zip tie	1* 1*	

Circuit wiring diagram

[DuPont wire colors are randomly distributed. Please refer to the identification information corresponding to the connection interface for circuit connections.]

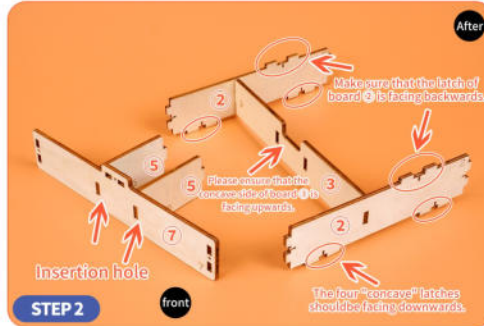


Start assembling



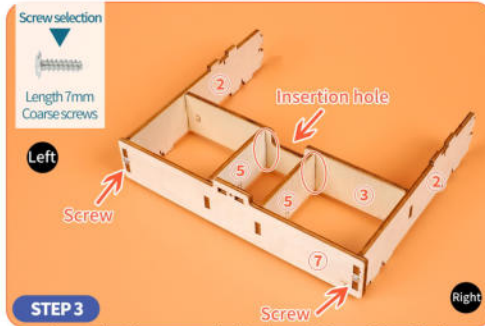
STEP 1

- Prepare all the components and wooden materials. When assembling the wooden materials, carefully check the numbers on each piece.



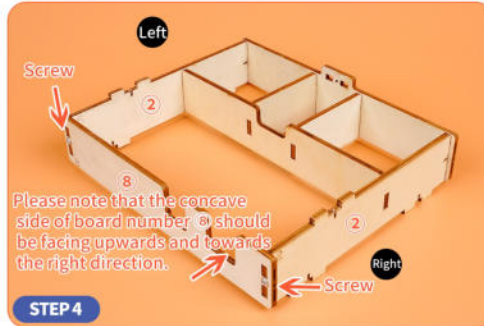
STEP 2

- Referencing the diagram, first, orient the side of board 7 with the text to the front. Align two boards 5 with the holes of board 7 and install them. Then, with the concave side facing upwards, align board 3 with the holes of the two boards 2 and assemble them together. (Note: The latches of board 2 should face backwards, and the four "concave" latches should face downwards.)



STEP 3

- Refer to the diagram and align board 5 and 7 with the installation holes of boards 2 and 3. Secure them together using a 7mm coarse-thread screw. (Pay attention to the left and right orientation)



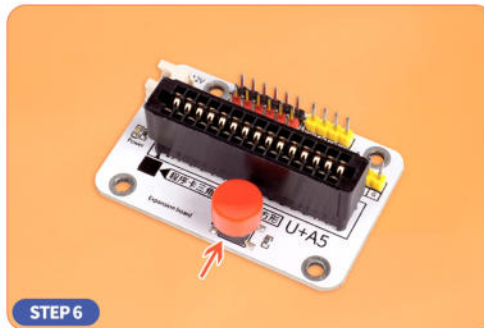
STEP 4

- Referencing the diagram, install board number 8 with the concave side facing upwards and towards the right direction onto board number 2. Secure it in place using 7mm coarse-thread screws. (Please pay attention to the left and right directions.)



STEP 5

- Referencing the diagram, first align the assembled panel from STEP 4 with the four holes on the front side of Panel 1 for installation. Then, flip it over and secure it with 7mm coarse-thread screws. Finally, attach the black foot mats to the four corners on the bottom of Panel 1.



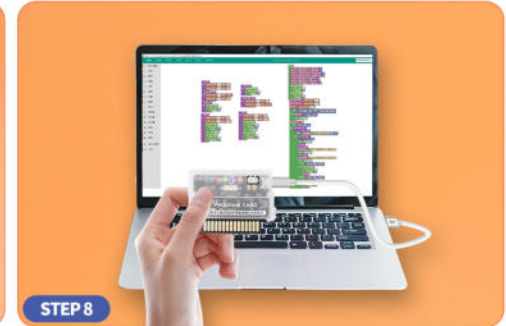
STEP 6

- Install the red keycap onto the U+A5 expansion board.



STEP 7

- Refer to the diagram and use a 4mm coarse-threaded screw to mount the U+A5 expansion board onto Panel 1.



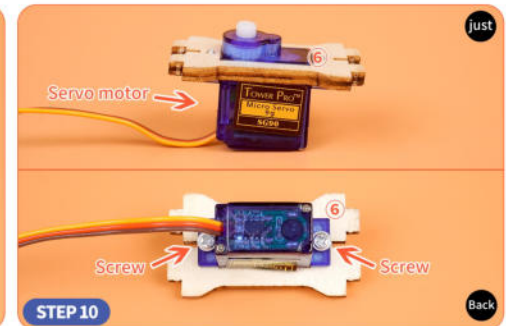
STEP 8

- Use the Mixly software to select the appropriate development board (Arduino AVR or Arduino UNO) and set the COM port. Open the corresponding example program and upload the first example program from the kit to the U+ program card.



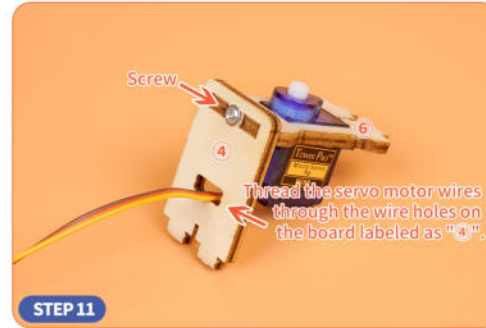
STEP 9

- Insert the program card into the slot on the expansion board. (Note the orientation of the program card, with the triangular symbol on the card pointing towards the square symbol on the expansion board slot.)



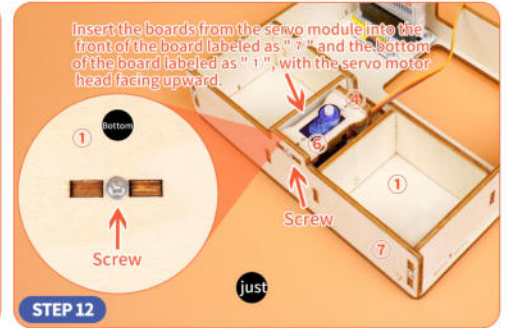
STEP 10

- Refer to the diagram and install the servo motor on the board labeled as "6". Secure it from the back using a 7mm coarse-threaded screw. (Ensure proper orientation during installation)



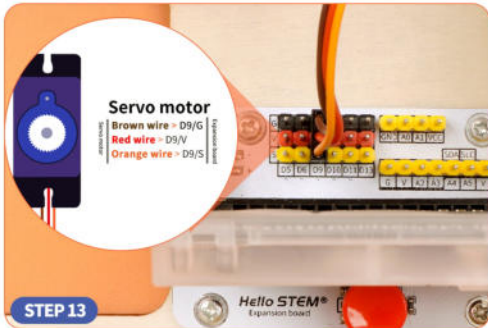
STEP 11

- Refer to the diagram. First, thread the servo motor wires through the wire holes on the board labeled as "4". Then, install the board labeled as "4" onto the board labeled as "6" and secure it using a 7mm coarse-threaded screw.



STEP 12

- Refer to the diagram. Install the board labeled as "6" from the servo module in front of the board labeled as "7". Install the board labeled as "4" in the bottom hole of the board labeled as "1". Secure both boards using a 7mm coarse-threaded screw. (Ensure that the servo motor head is facing the correct direction)



STEP 13

- Refer to the "Circuit Wiring Diagram" and plug the servo motor wire terminals into the "D9" interface on the expansion board. **(Double-check the port and wire sequence before inserting to avoid damaging the circuit board due to incorrect wiring.)**



STEP 14

- Insert boards 10 and 11 into the corresponding holes of board 9, and secure them from the back using 7mm coarse-thread screws.



STEP 15

- Refer to the diagram and install two boards, labeled 12, onto board 9. Secure them from the back using 7mm coarse-thread screws.



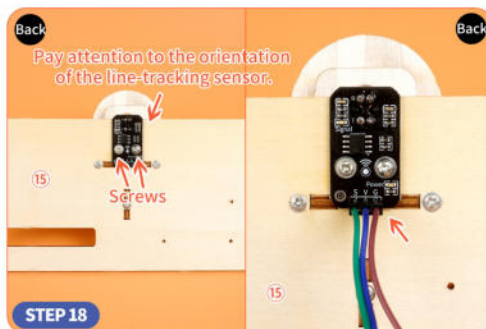
STEP 16

- Referencing the diagram, install the shorter section of board 14 onto the back of board 9, and secure it from the front using a 7mm coarse-thread screw.



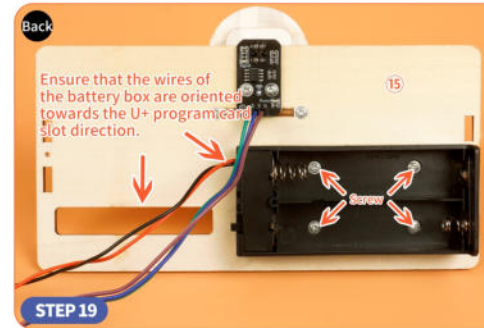
STEP 17

- Referencing the diagram, install board number 9 and 14 onto board number 15, and secure them at the back using 7mm coarse-thread screws. **Please place the U+ program card in slot number 5 with the arrow pointing to the**



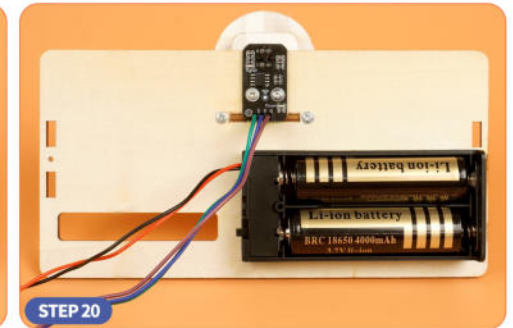
STEP 18

- Install the line-tracking sensor on the back of the board labeled as number 5, as shown in the diagram. Secure it using a 4mm coarse-thread screw. Connect a 3-pin DuPont wire terminal to the line-tracking sensor.



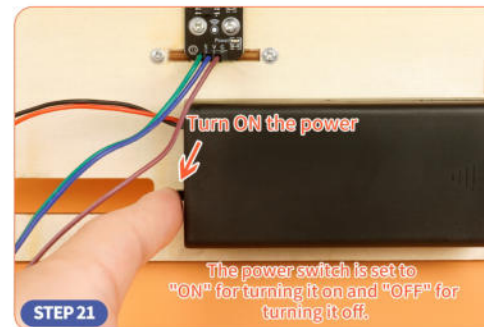
STEP 19

- Install the battery box on the back of the board labeled as number 5 using 4mm coarse-thread screws, as shown in the diagram. **(Ensure that the wires of the battery box are oriented towards the U+ program card slot direction.)**



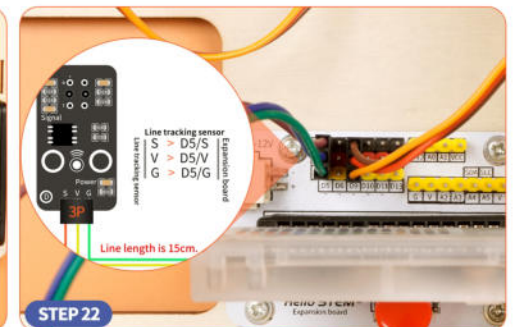
STEP 20

- Insert the 18650 batteries into the battery box.



STEP 21

- Referencing the diagram, install the battery cover and turn ON the power. The power switch is located on the side with the wires, with "ON" indicating the power is turned on and "OFF" indicating the power is turned off. **This step involves applying power to the servo to realign its shaft.**



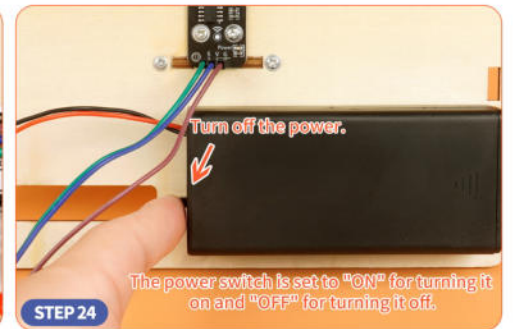
STEP 22

- Refer to the circuit wiring diagram and insert the wire terminals of the line tracking sensor into the [D5] interface on the expansion board. **Please double-check the port and wire sequence before inserting. Incorrect wire sequencing may cause damage to the circuit board.**



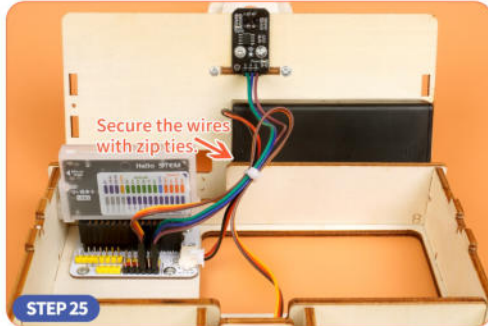
STEP 23

- Refer to the circuit wiring diagram and insert the wire terminals into the DC 6-12V power interface on the expansion board.



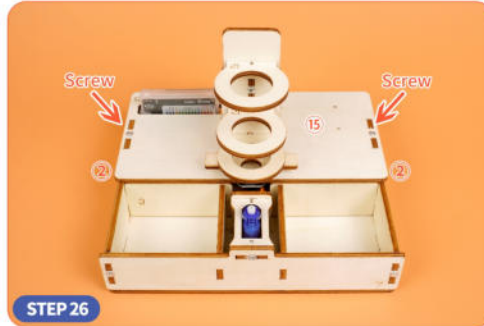
STEP 24

- Pull the switch towards the "OFF" direction to turn off the power. **(This step is to prevent damage to the servo when installing the servo disc in STEP 28.)**



STEP 25

- Refer to the diagram and neatly organize all the wires. Use zip ties to secure the middle section of the wires, and trim off any excess zip tie with scissors. (Note: Exercise caution and prioritize safety when using scissors to avoid injury.)



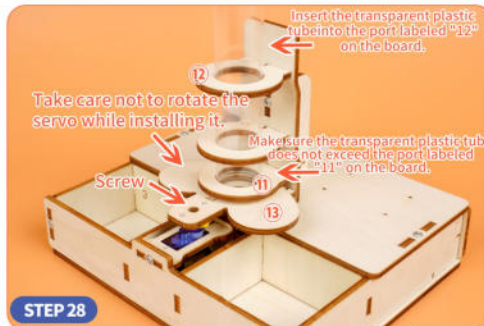
STEP 26

- Align the No. 15 plate according to the diagram and install it onto the two No. 2 plates. Secure it in place using 7mm coarse-thread screws.



STEP 27

- Refer to the diagram and begin by attaching the yellow servo disc to the No. 13 plate using 7mm coarse-thread screws. (Ensure that the protrusion of the yellow servo disc is facing upward.)



STEP 28

- Refer to the diagram and invert the board labeled "13" so that the servo horn's spline faces downwards. Install it onto the servo and secure it using a 7mm coarse-threaded screw. (Be careful not to rotate the servo during installation.) Insert the transparent plastic tube into the port labeled "12" on the board. (The transparent plastic tube should not exceed the port labeled "11" on the board.) At this step, the Go stone sorter is completed!



STEP 29

- Refer to the diagram and press the red button on the U+A5 expansion board to activate the Go stone sorter.



STEP 30

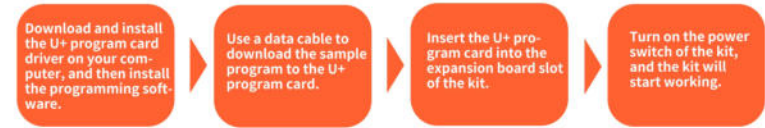
- The Go stone sorter has two modes: 1. Go stone sorting mode (button-activated, preset time stop) 2. Go stone sorting mode (button-activated start/stop)

After assembly, it is important for you to double-check if everything is installed correctly to avoid any potential hazards during debugging.



- Carefully inspect the entire kit to ensure that no components are installed incorrectly. If any components are installed incorrectly, it may prevent the kit from functioning properly.
- Please carefully review the circuit wiring diagram to ensure the wire connections are correct. Incorrect wire connections can cause a short circuit in the circuit, leading to the burning of electronic components. In severe cases, it can result in dangerous situations such as fires or explosions.
- Carefully inspect if the pins on the bottom of the circuit board are in contact with other metal components. If there is contact, check if any components are not properly installed, leading to a lack of isolation between the circuit board and other metal parts.
- Please verify the power supply type and the battery model used in this kit. Incorrect use of power supply or batteries can result in dangerous situations such as fires or explosions.
- If you encounter any unfamiliar issues, please contact the online customer service of the official service website or consult relevant professionals during the working hours from Monday to Saturday, 9:00-18:00. Avoid blind operation as it may lead to danger.

Please refer to the following procedure to debug and conduct experiments on the toolkit.



You may encounter the following issues during the debugging process. Refer to the tips below to see if you can troubleshoot the problem!

The Go sorter is not functioning properly after installation, and the following issues may have occurred.



- Check if the wiring is loose or connected incorrectly. Please refer to the circuit wiring diagram for specific instructions.
- Verify if the battery is low on power and consider replacing it with a new one.
- Ensure that the sensor and expansion board are connected correctly using DuPont wires. Refer to the circuit wiring diagram for guidance.
- Verify if the U+ PROGRAM CARD has downloaded the program.
- Check if the U+ PROGRAM CARD is inserted correctly. Inserting it in the wrong direction can cause a short circuit. Refer to "STEP9" for the correct way to insert the card.
- Ensure that the circular hole on board 13 aligns with the circular hole on board 11.