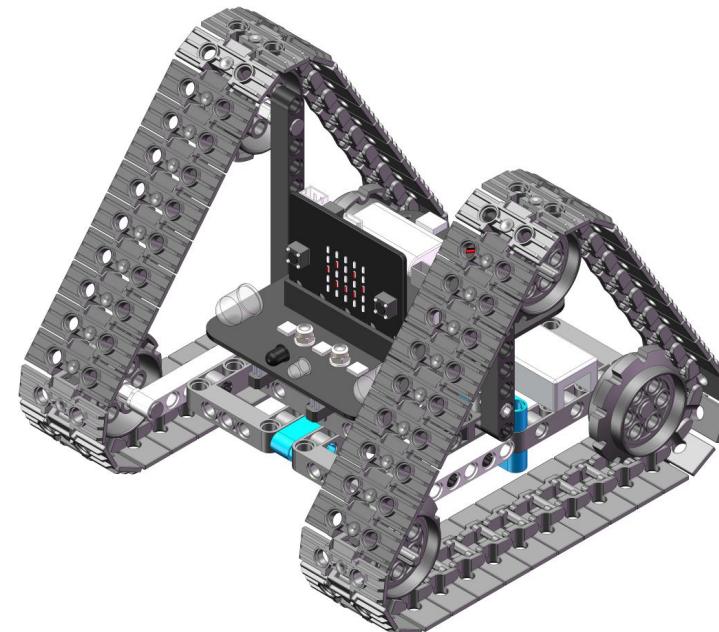
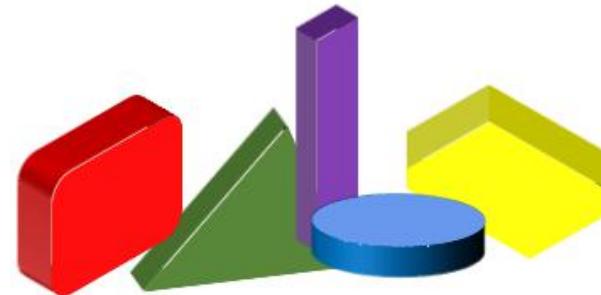
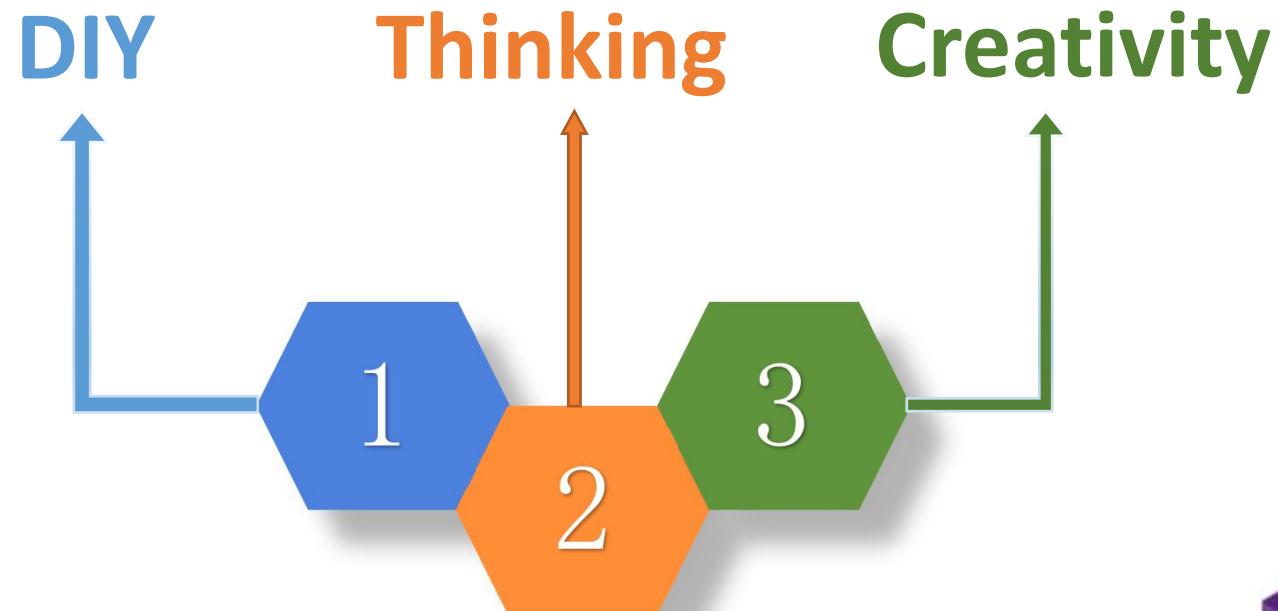


Yahboom Building:bit blocks

No.9 Caterpillar tripod





DIY: This section is mainly to teach you to assemble the caterpillar tripod with building blocks.

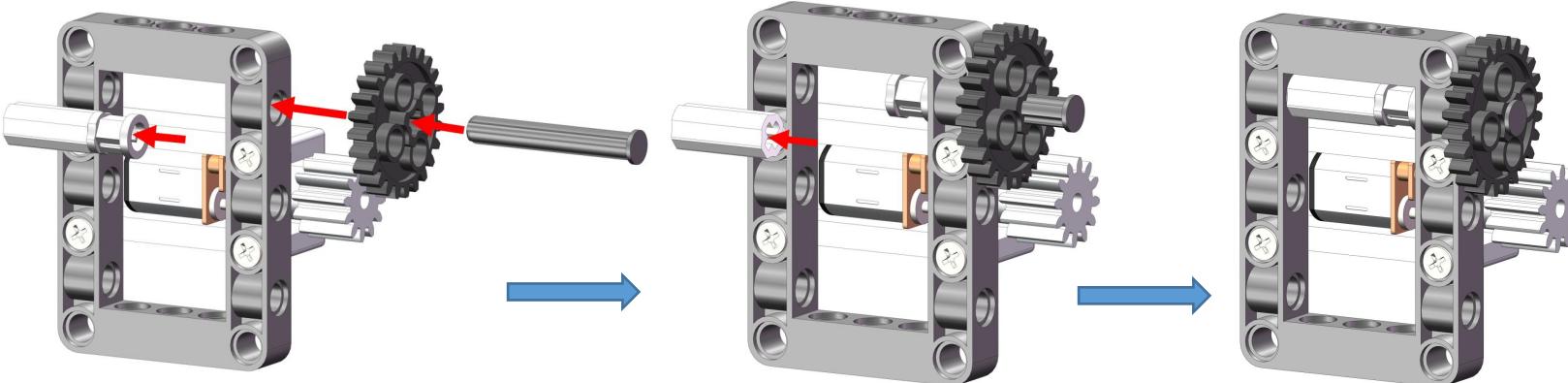
Prepare the following blocks and we will assemble a building block caterpillar tripod.



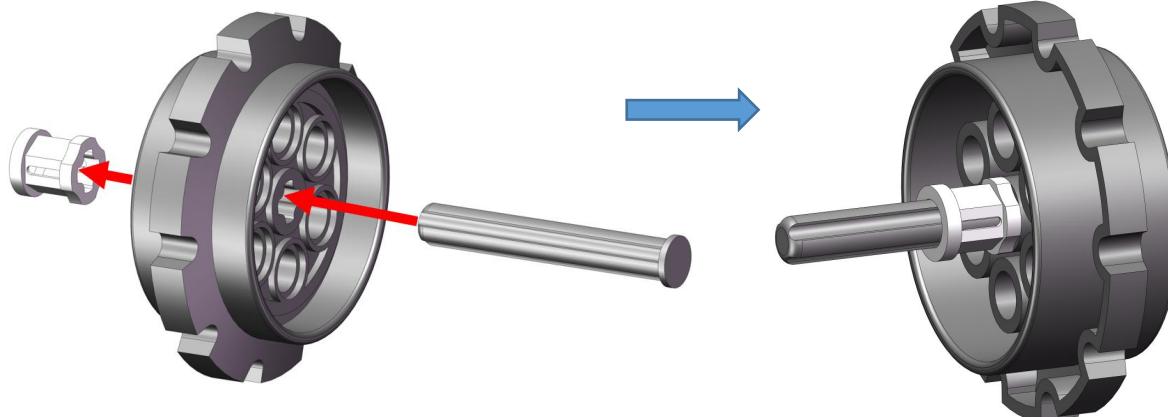
Micro:bit*1	Micro:bit expansion board*1	Motor module*2	5x7 Beam frame*4	3x3 Bolt connector*2
24 toothed wheel*2	Battery*1	Crawler wheel*6	1x2 shaft connector*2	1x4 shaft cutoff*6
Bushing*14	Plastic crawler*68	1x2 Frictional pin*22	1x3 Bolt connector *2	1x3 shaft*9



Step 1: Find a motor module, a 1x4 shaft cut-off, a bushing, a 1x2 shaft connection and a 24-toothed wheel. Pass the shaft cutoff through the 24-toothed wheel, the corresponding hole position of the motor module, and the bushing. And one end of the 1x2 shaft connection.

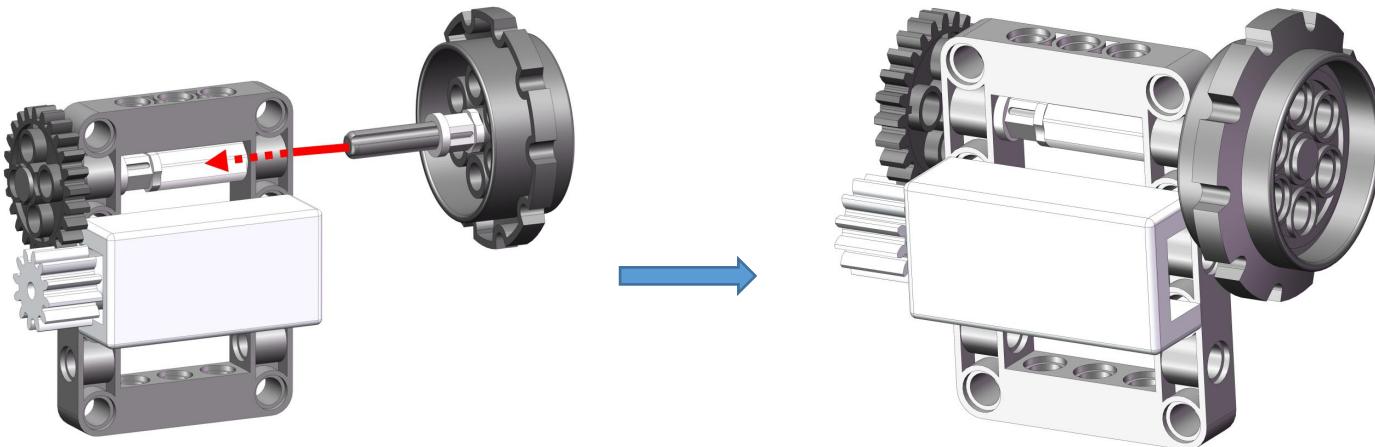


Step 2: Find a 1*4 shaft cutoff, a bushing and a crawler wheel. Pass the 1*4 shaft cutoff through the middle hole of the crawler wheel and bushing.

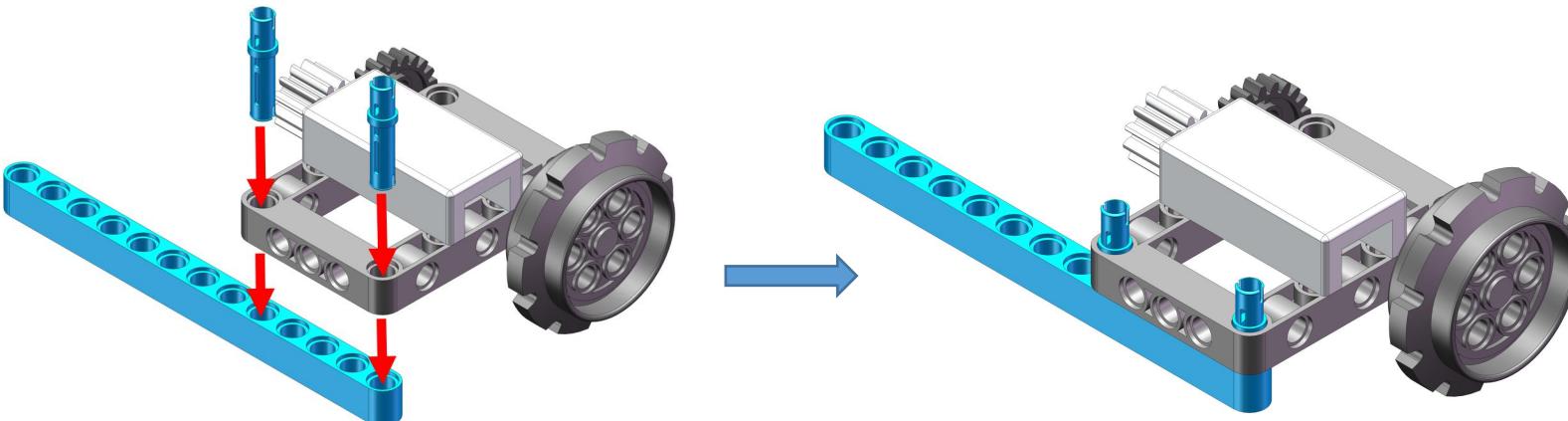


Tip: Two such blocks are needed in the later installation, so we need to repeat the first and second steps to assemble two such blocks again.

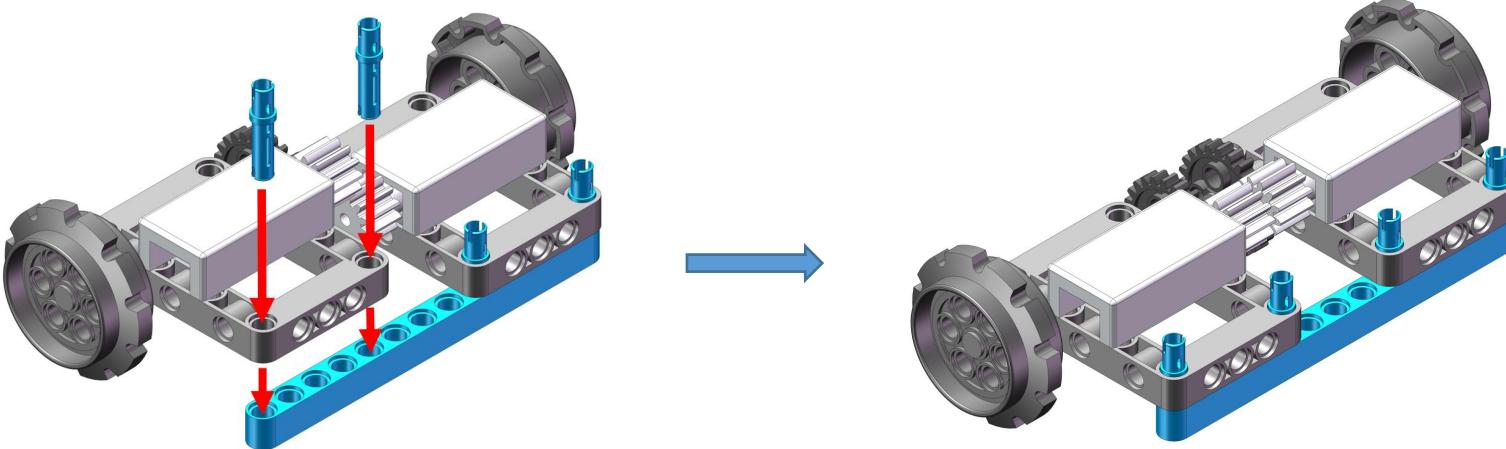
Step 3: Combine the two pieces of building blocks we have assembled in the step1 and step 2.



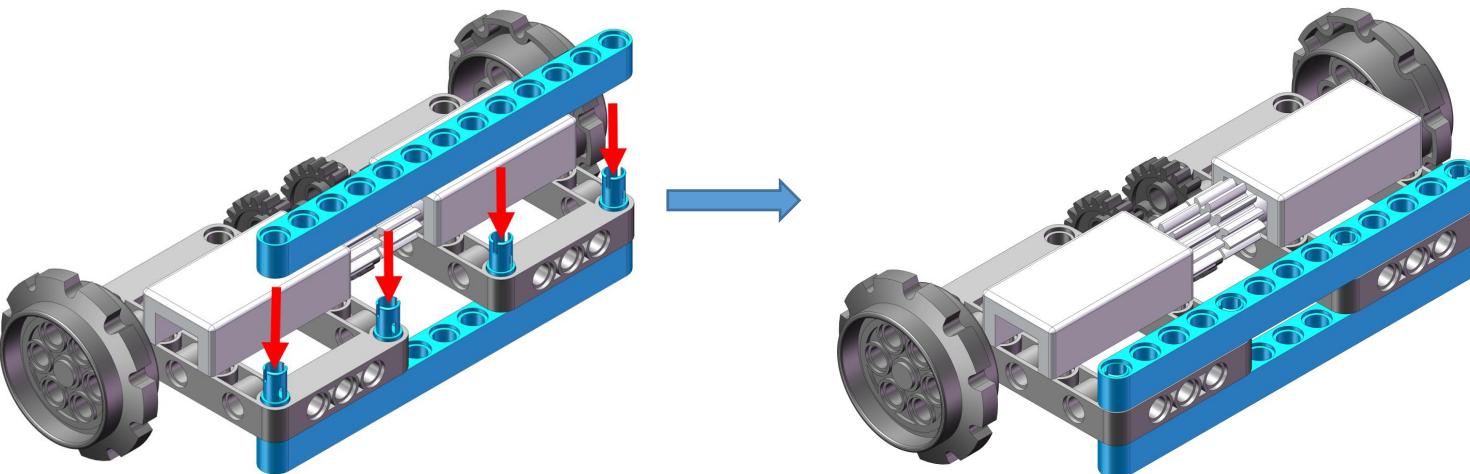
Step 4: Locate the two 1x3 bolts and the 1x13 hole arm. Insert the two 1x3 bolts into the corresponding hole positions of the motor module and the 1st and 5th holes from the right side of the 1x13 hole arm.



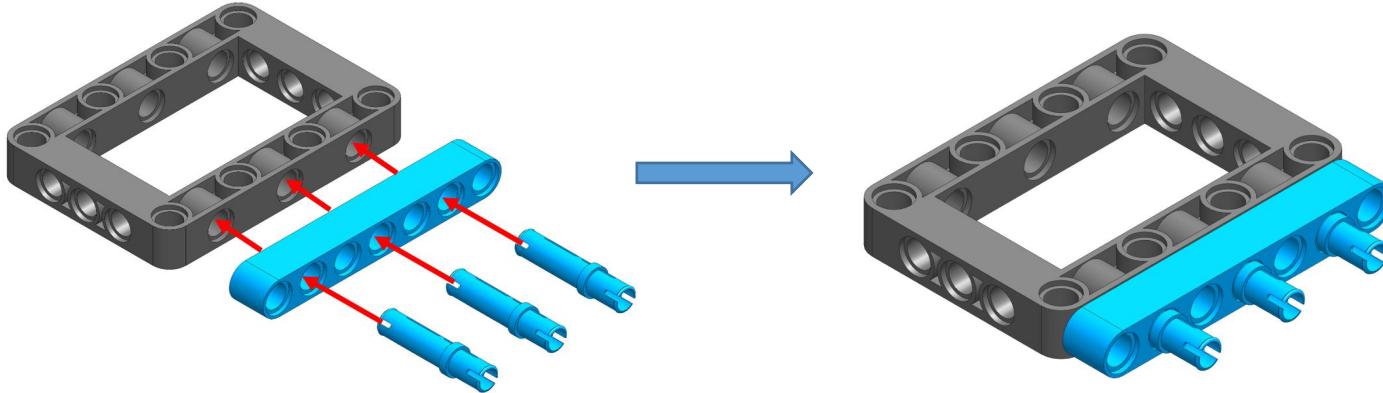
Step 5: Find two 1x3 bolts, insert the two 1x3 bolts into the corresponding hole positions of the motor module and the holes 1st and No. 5th from the left side of the hole arm.



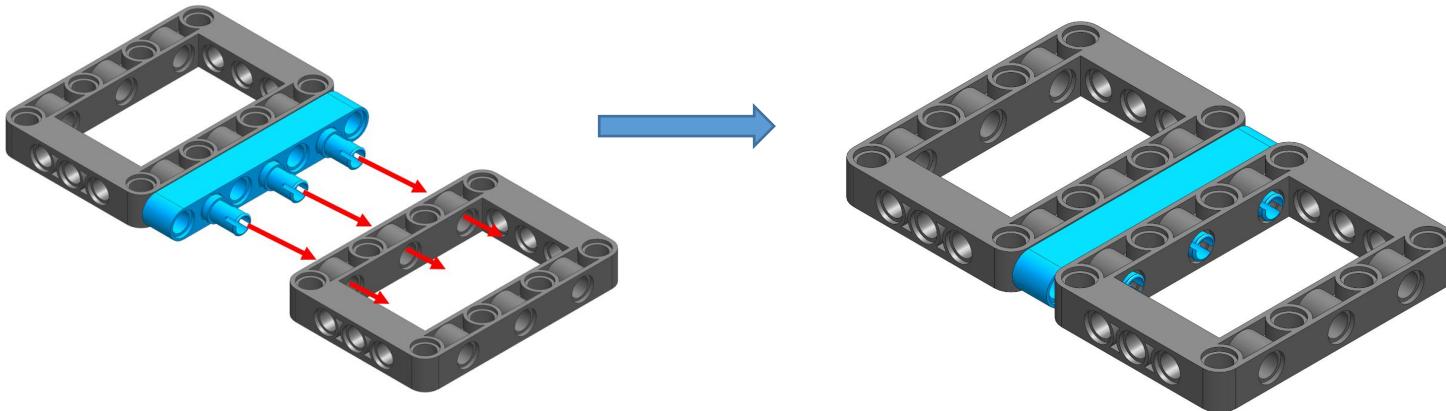
Step 6: Locate a 1x13 hole arm and insert the four 1x3 pins into the holes 1st, 5th, 9th, and 13th of the hole arm.



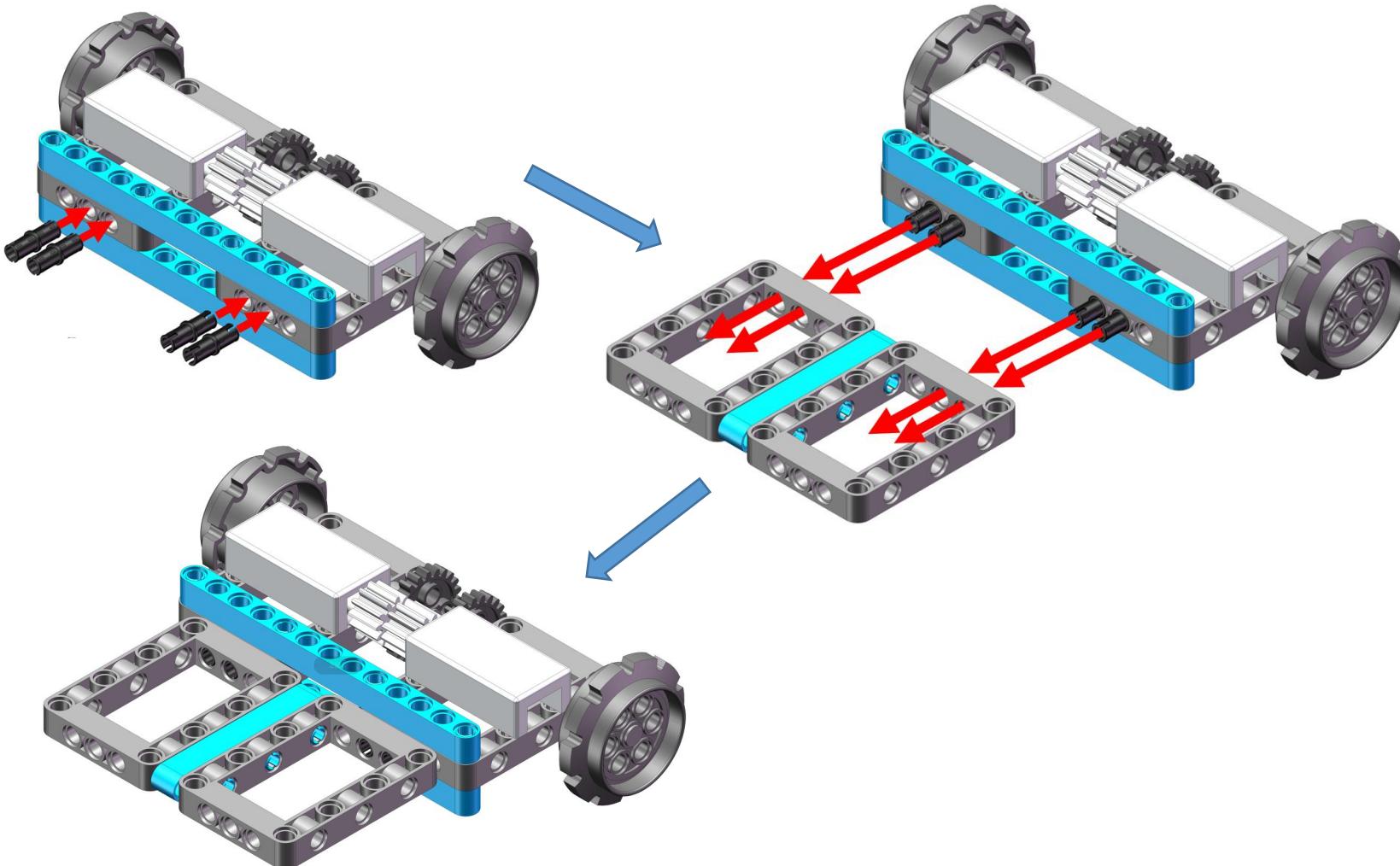
Step 7: Find a 5x7 beam frame, a 1x7 hole arm and three 1x3 bolts. Three 1x3 bolts were passed through holes 2, 4, and 6 of the 1x7 hole arm and passed through the corresponding holes on the side of the beam frame.



Step 8: Locate a 5x7 beam frame and insert the 1x3 bolt from the side into the corresponding hole of the 5x7 beam frame.

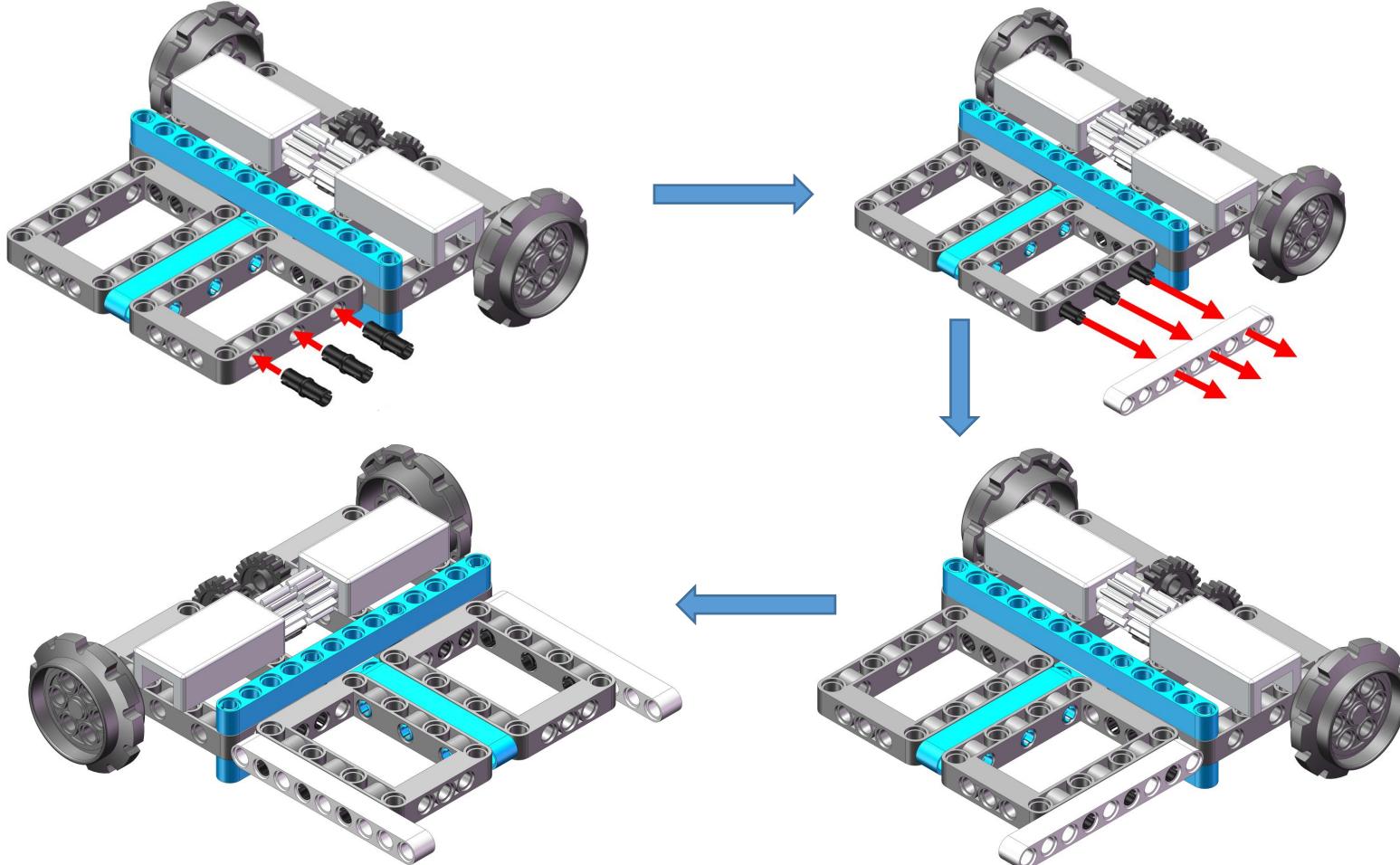


Step 9: Locate the four 1x2 friction pins and insert them into the corresponding holes in the motor module.

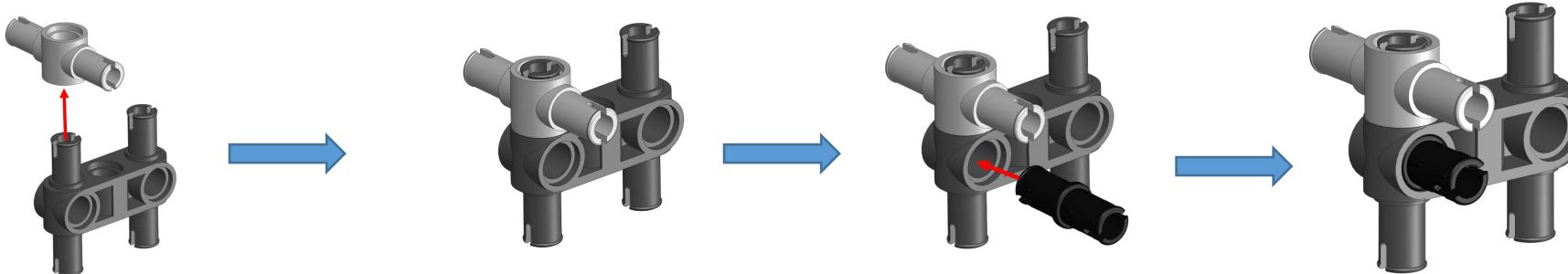




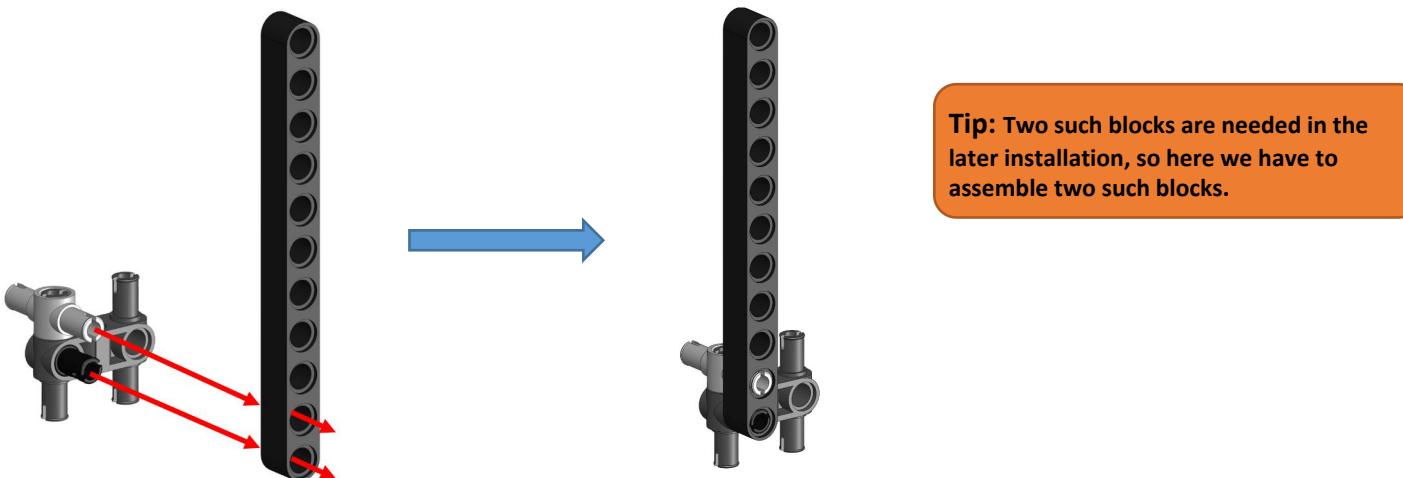
Step 10: Find three 1x2 friction pins and one 1x9 hole arm. First insert the 1x2 friction pin from the side into the corresponding hole of the 5x7 beam frame, then install the 1x9 hole arm onto the three 1x2 friction pins. At the same time, the same method is required for the other side, and the same building blocks are used for installation.



Step 11: Find a 3x3 bolt, a 1x3 bolt connector and a 1x2 friction pin. First insert one of the 3x3 bolt into the 1x3 bolt connector and insert the 1x2 friction pin into the corresponding hole on the side of the 3x3 bolt.



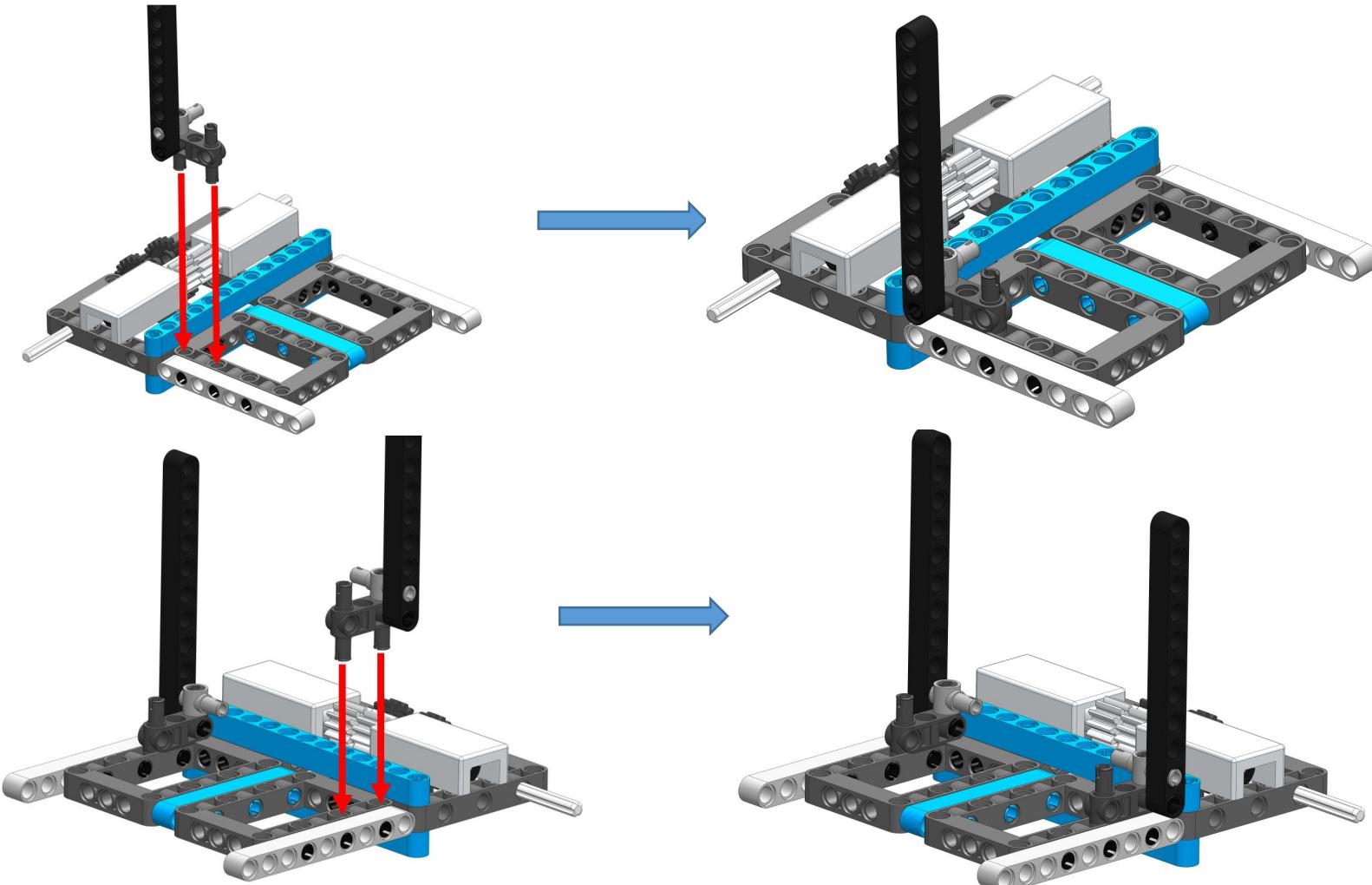
Step 12: Find a 1x11 hole arm. Insert the 1x2 friction pin and 1x3 bolt connector that we assembled in the previous step into the No. 1 and No. 2 holes at the lower end of the 1x11 hole arm.



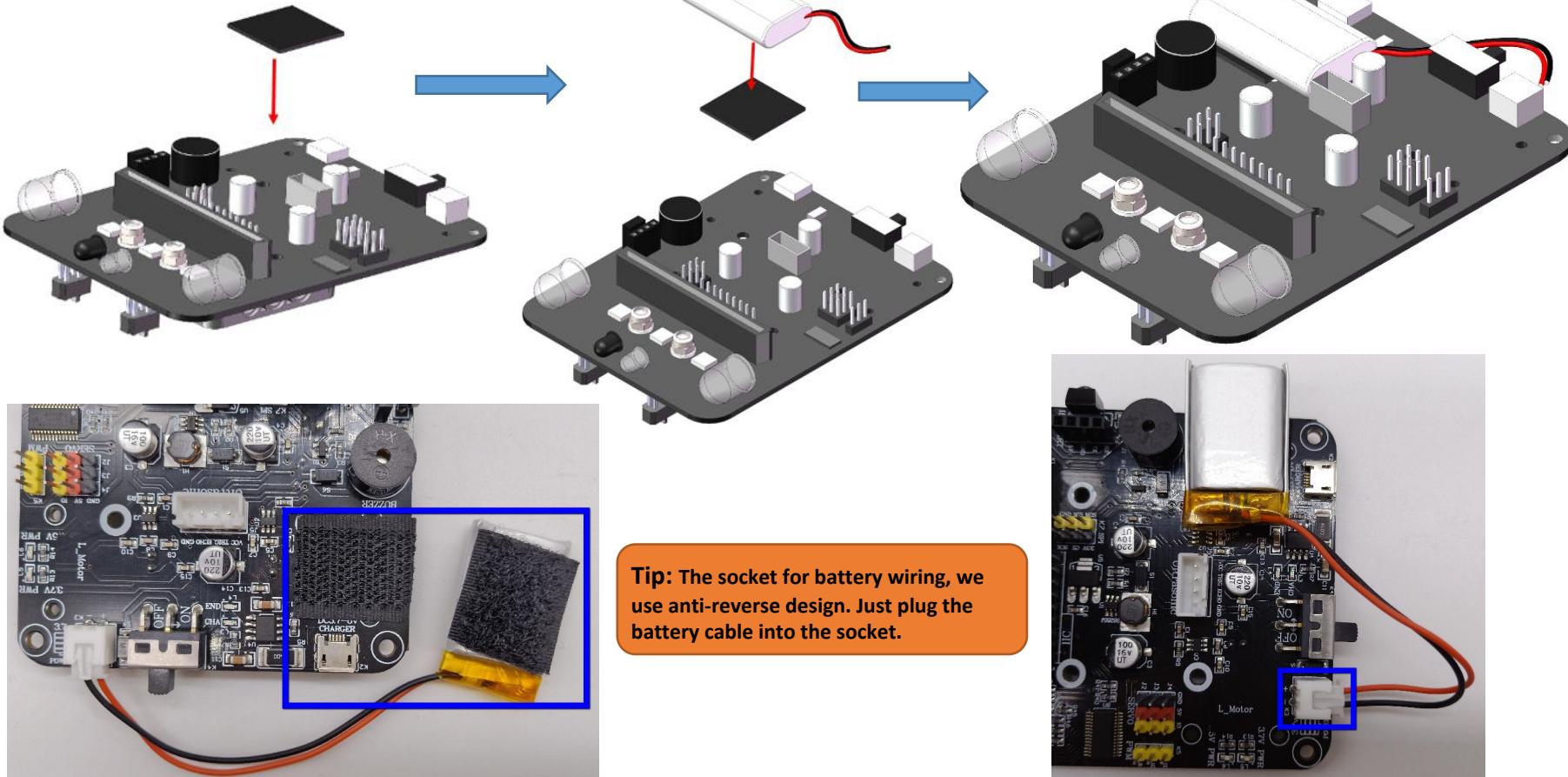
Tip: Two such blocks are needed in the later installation, so here we have to assemble two such blocks.



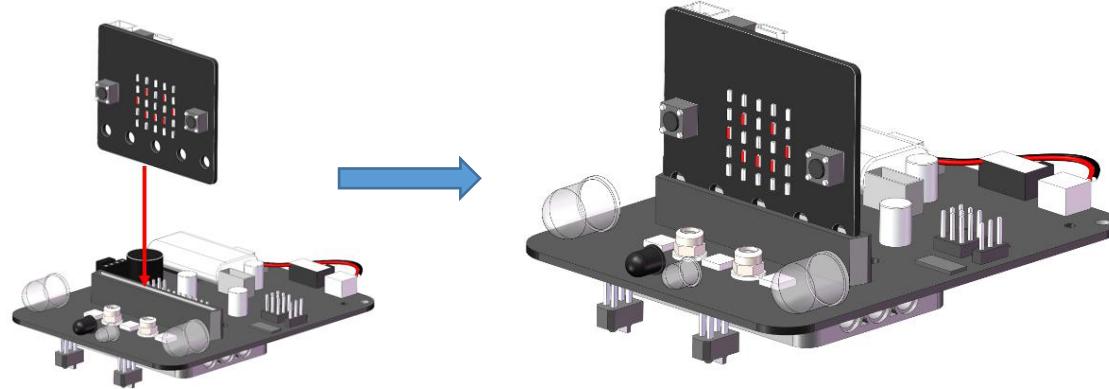
Step 13: Combine the two pieces of building blocks that we have assembled in step 9 and step 12.



Step 14: Find the Velcro and micro:bit expansion board, remove the protective film on the back of the Velcro, and attach the two Velcro stickers to the lower right corner of the micro:bit expansion board and one side of the battery.

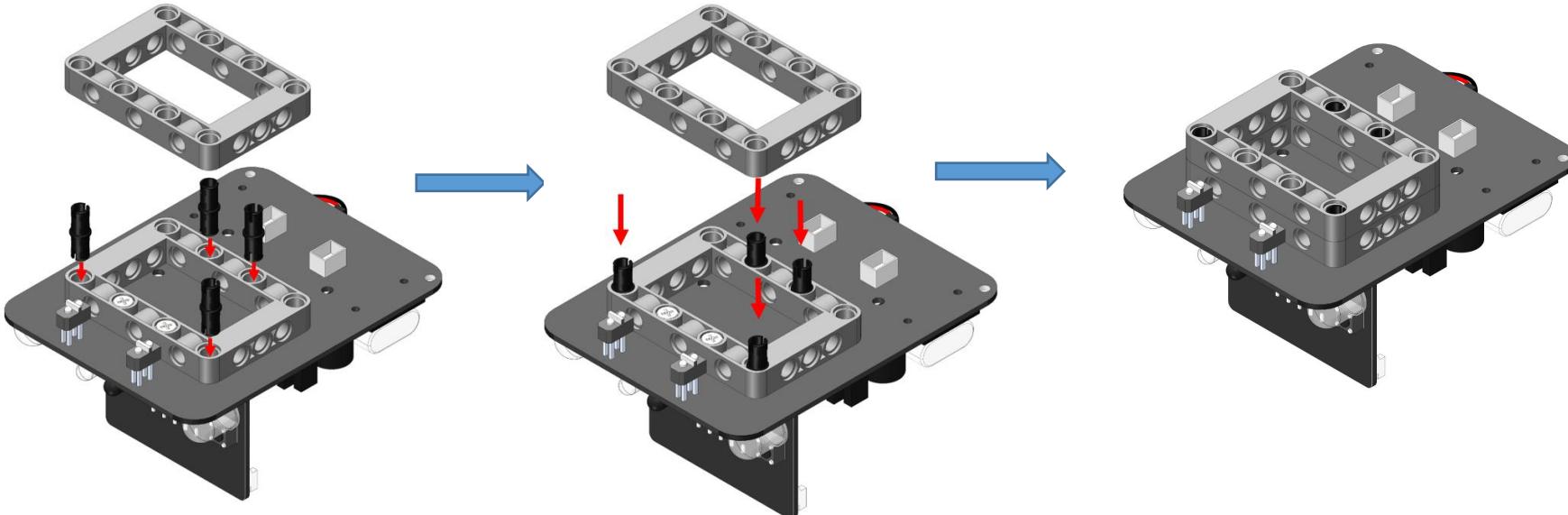


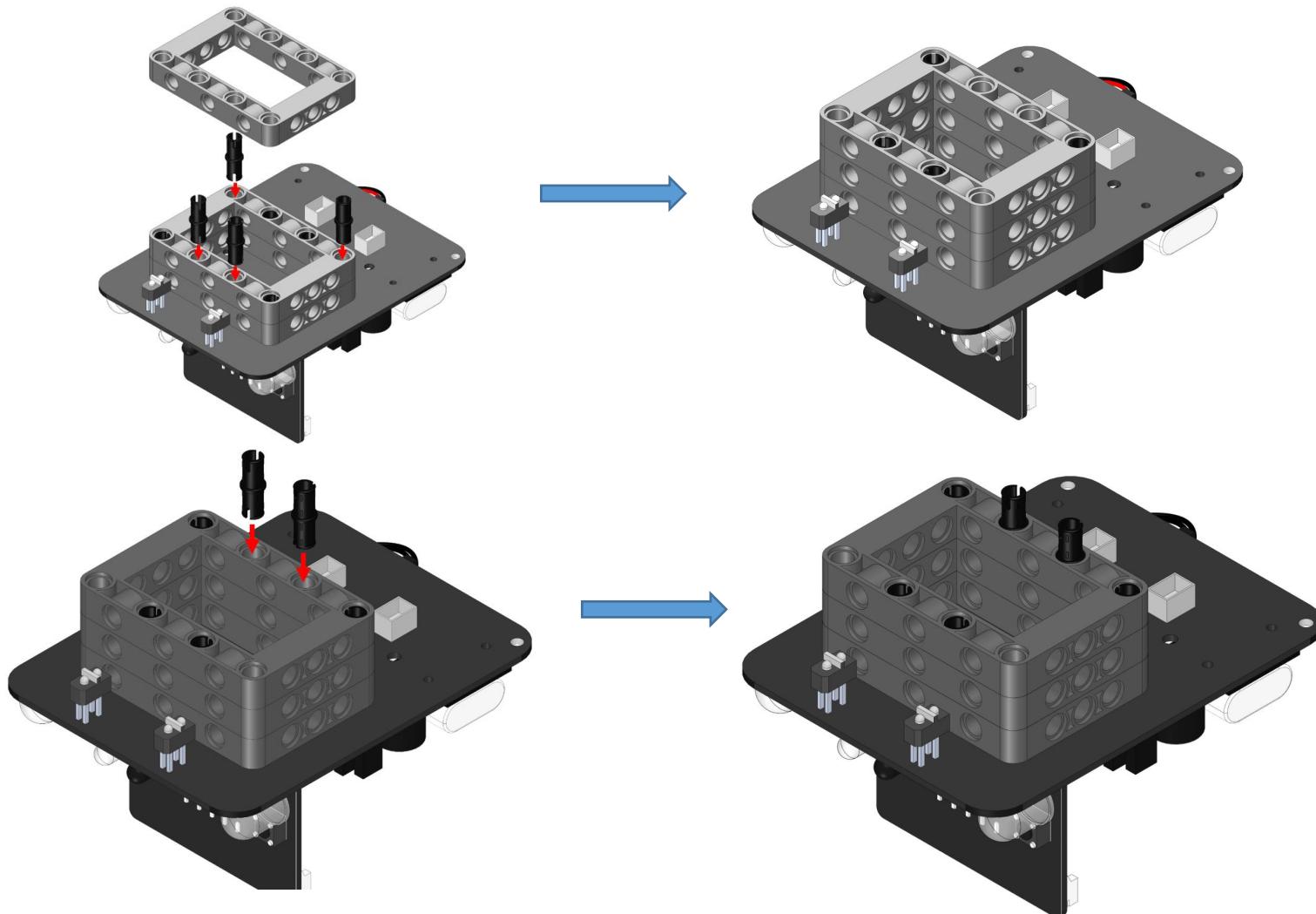
Step 15: Locate the micro:bit motherboard and insert the motherboard into the expansion board correctly.



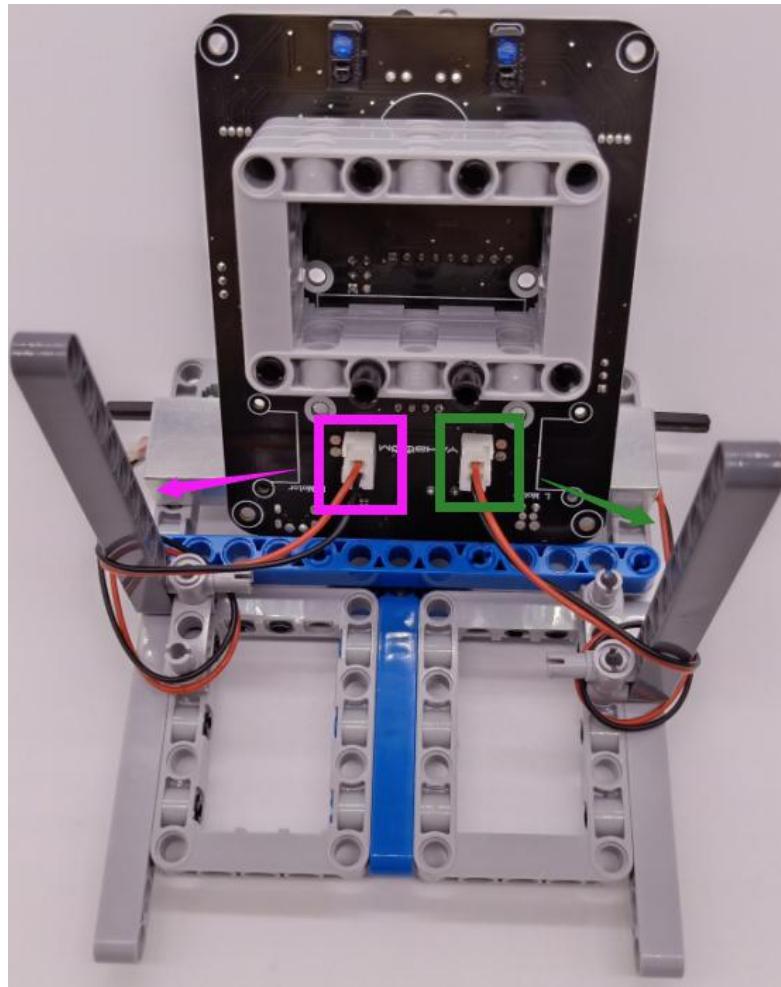
Tip: The micro:bit board is equivalent to the "brain" of the car, so be sure to remember to install it properly.

Step 16: Find ten 1x2 friction pins and two 5x7 beam frames and assemble them with the micro:bit expansion board.





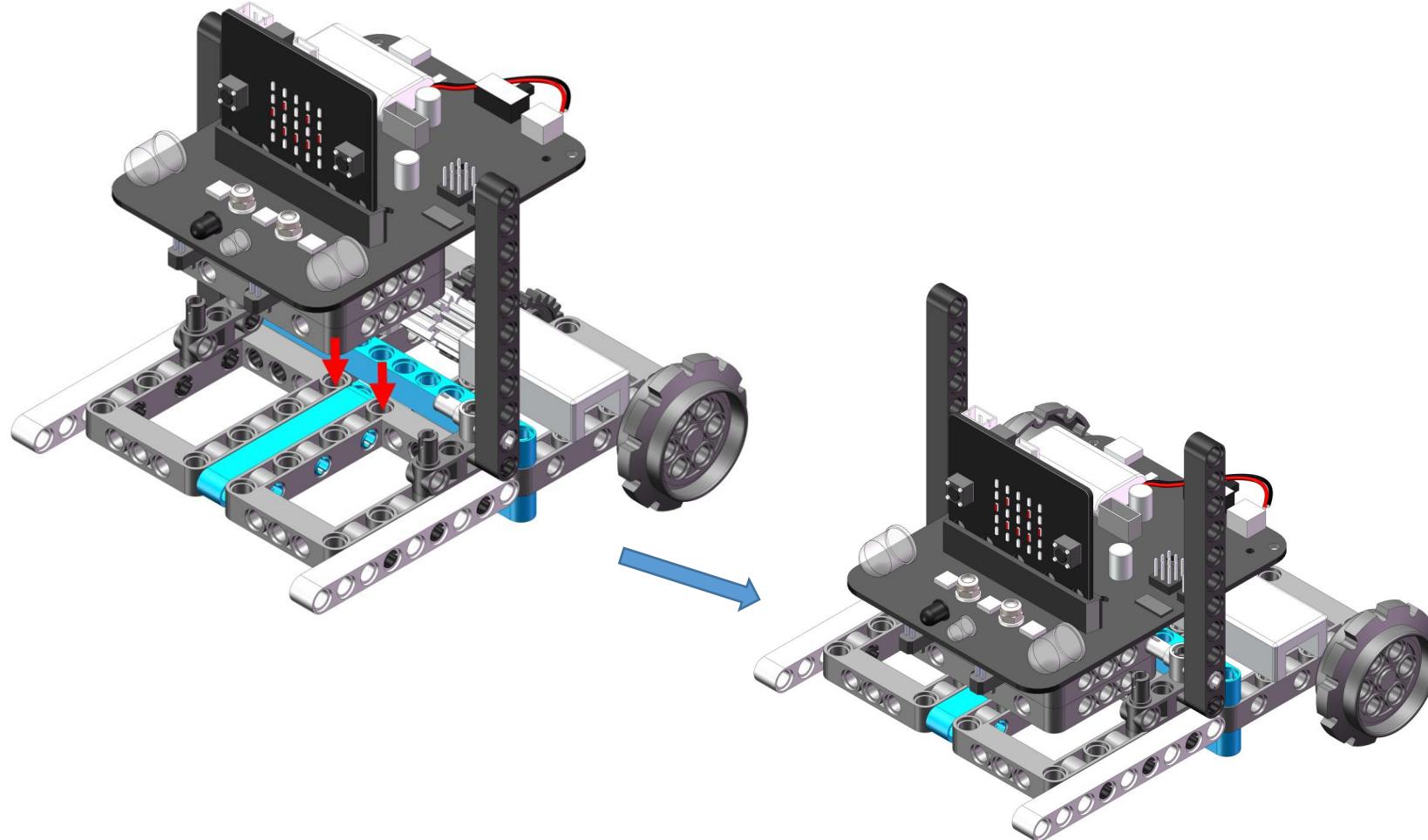
Step 17: Wire the motor as shown below.



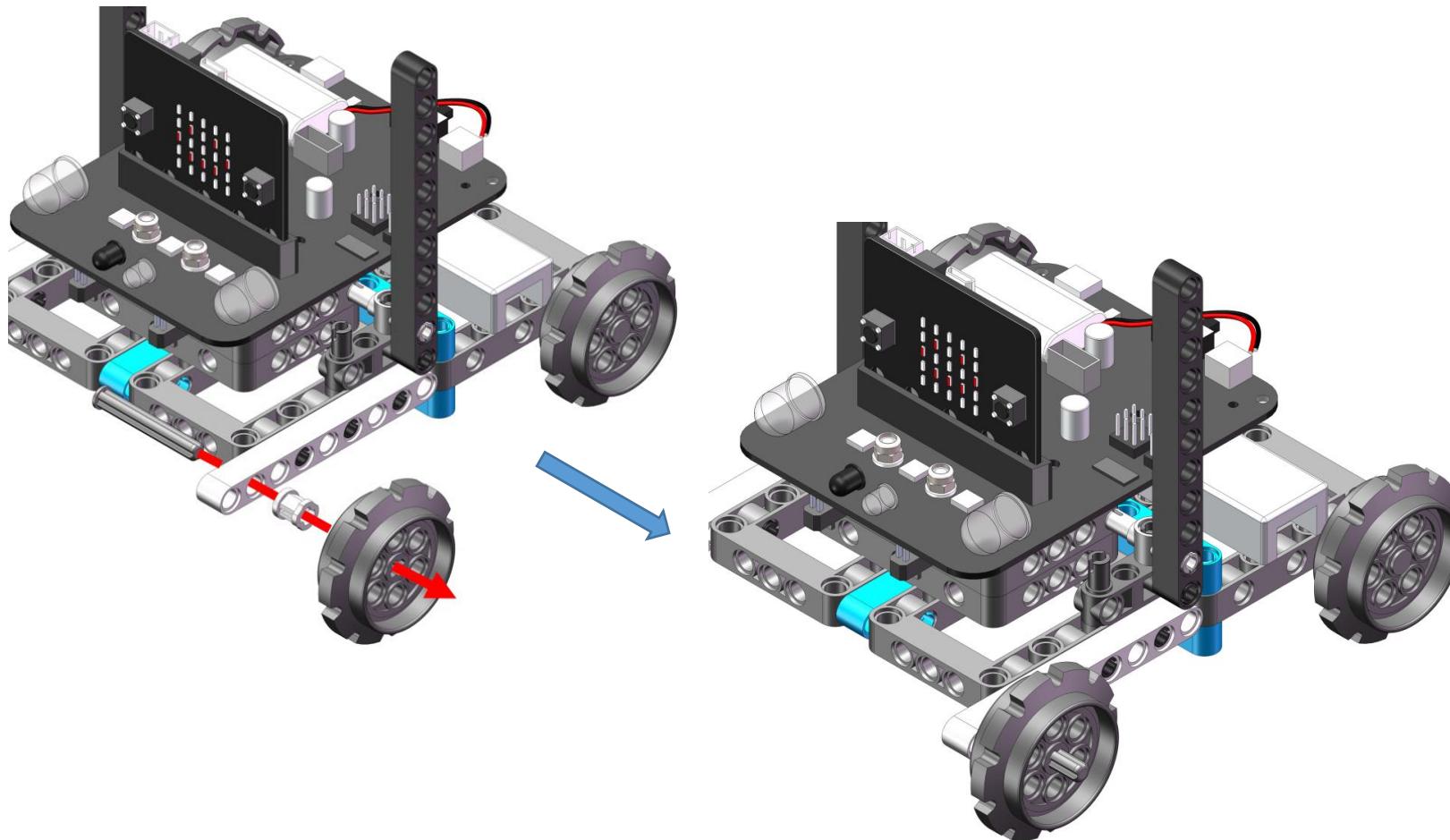
Tip: In order to prevent the motor wire from winding around the wheel, the car can't drive normally. We can wind the motor wire around the 1x11 hole arm.



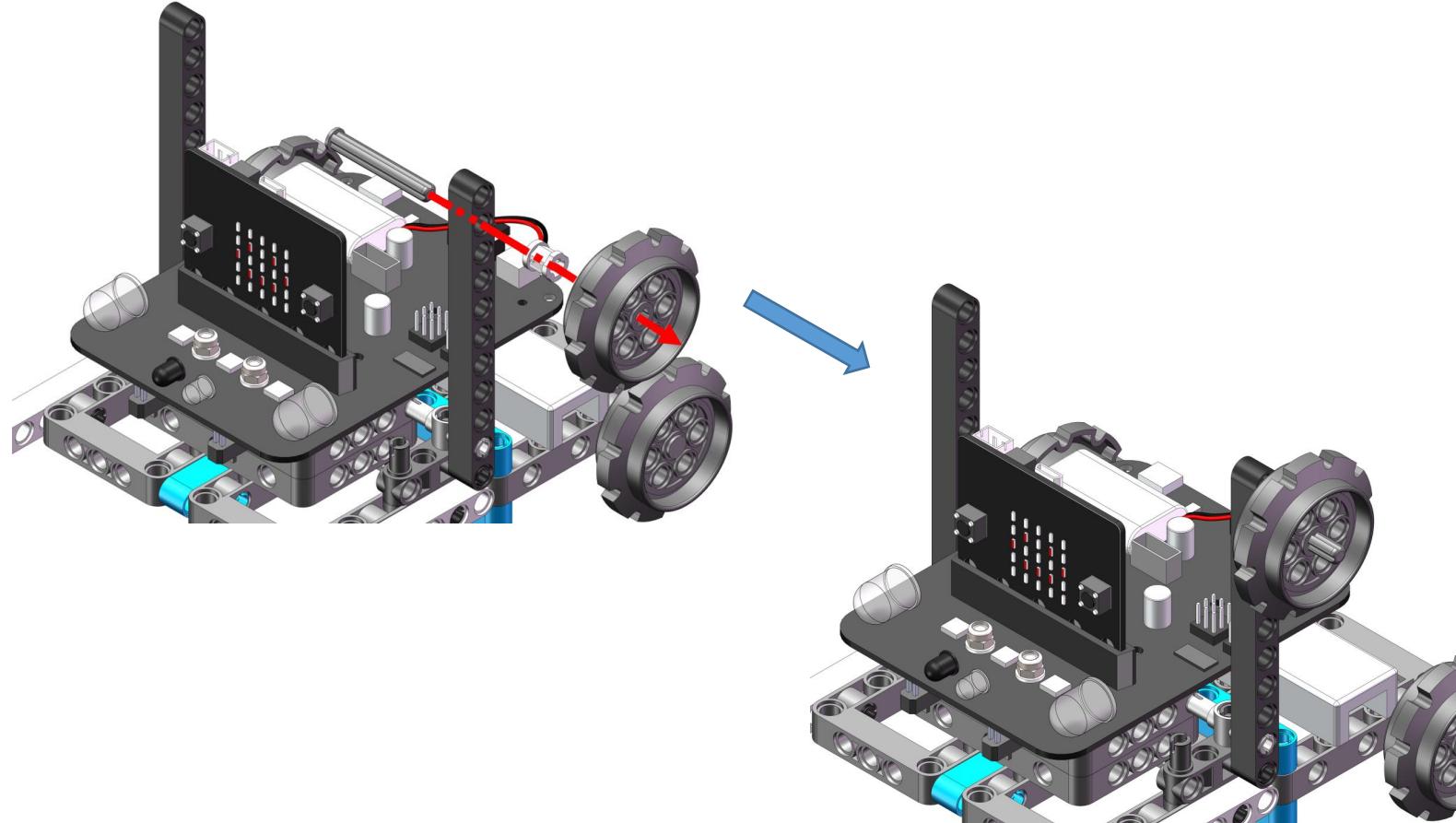
Step 18: Combine the two pieces of building blocks that we have assembled in step 13 and step 16.



Step 19: Find a bushing, a crawler wheel and a 1x4 shaft cutoff. Pass the 1x4 shaft cutoff through the 2nd hole on the left side of the 1x9 hole arm on the side of the car, the bushing and the center of the crawler wheel.

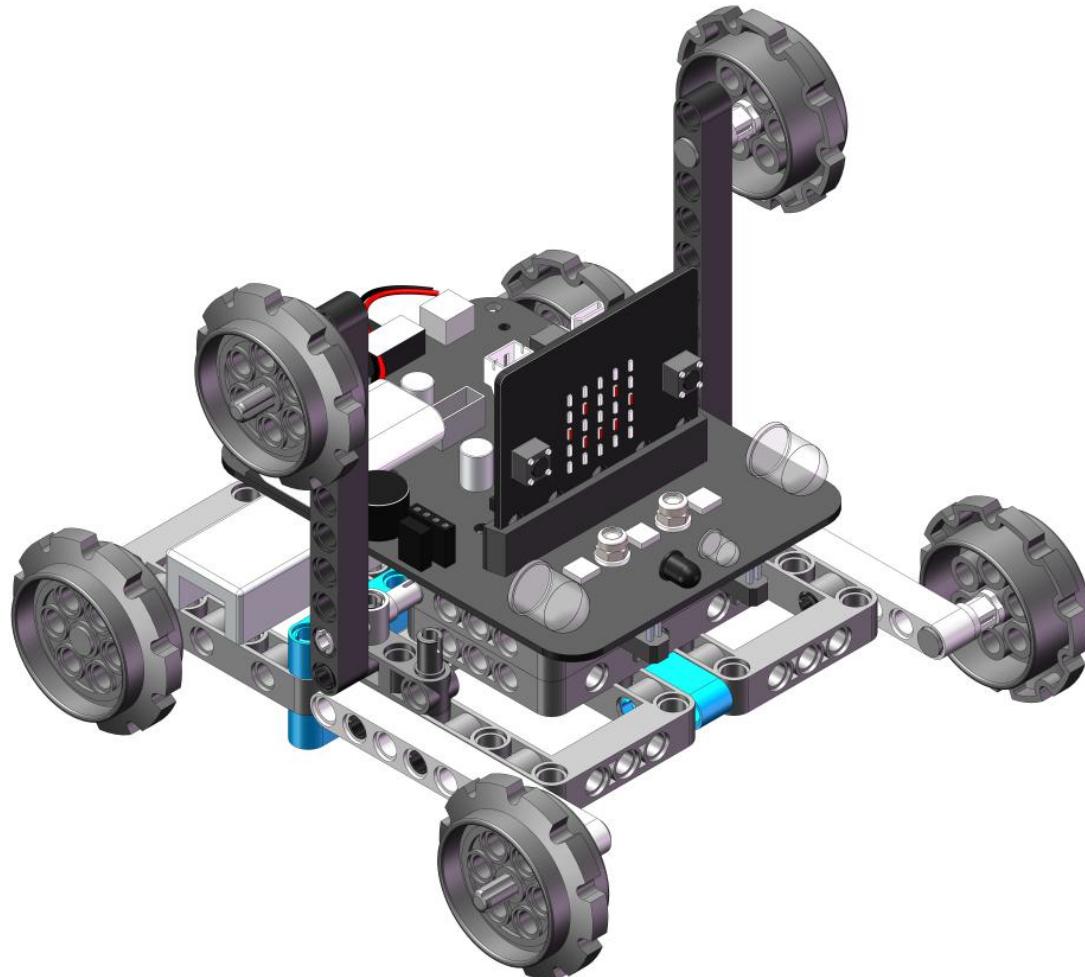


Step 20: Find a bushing, a crawler wheel and a 1x4 shaft cutoff. Pass the 1x4 shaft cutoff through the 1x11 hole arm on the car from the 2nd hole above, the bushing and the center of the crawler wheel.



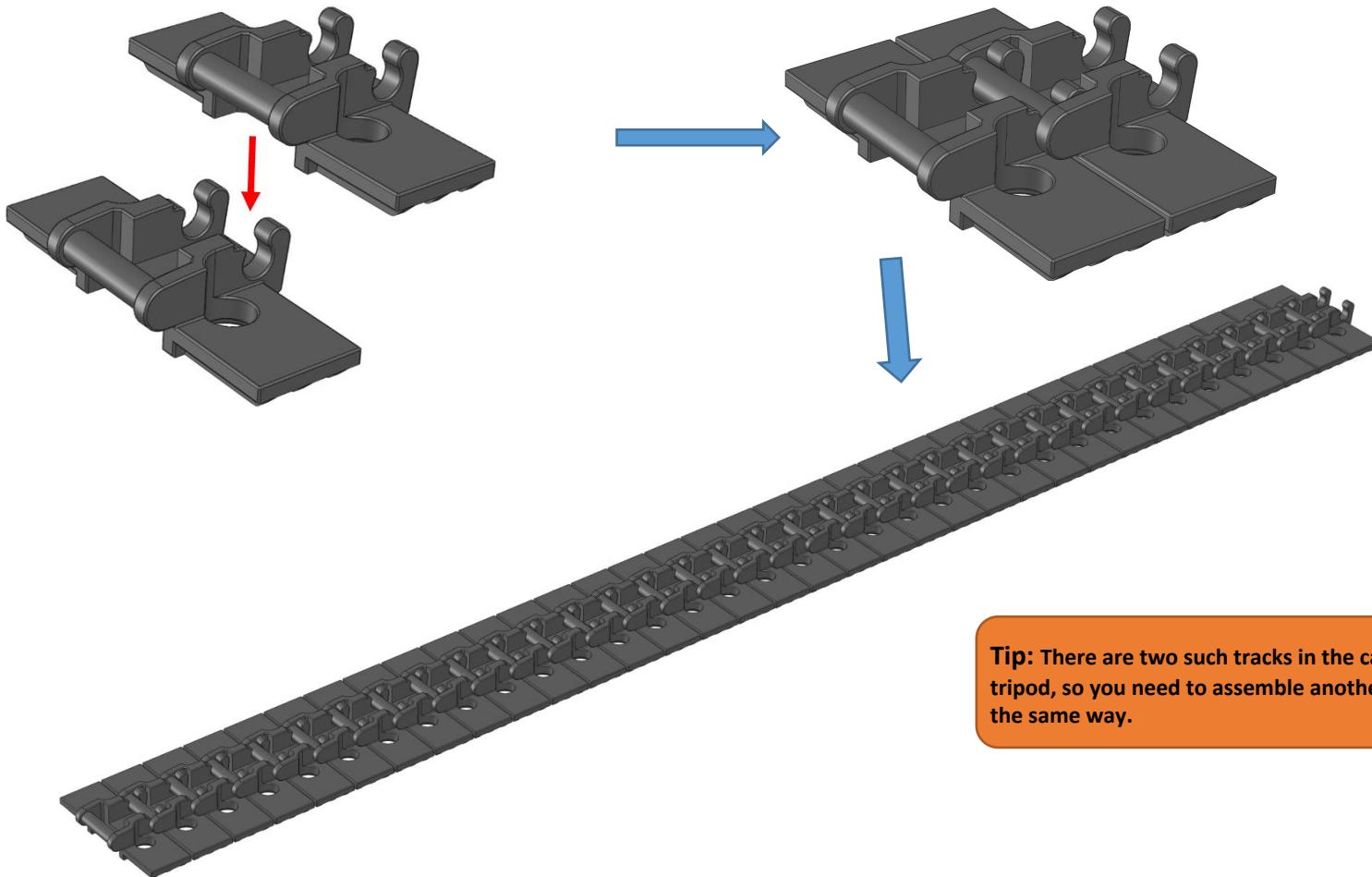


Step 21: Install the two track rollers on the other side of the frame with the same steps and the same blocks as the previous two steps.
After the installation is completed, the following figure is shown.



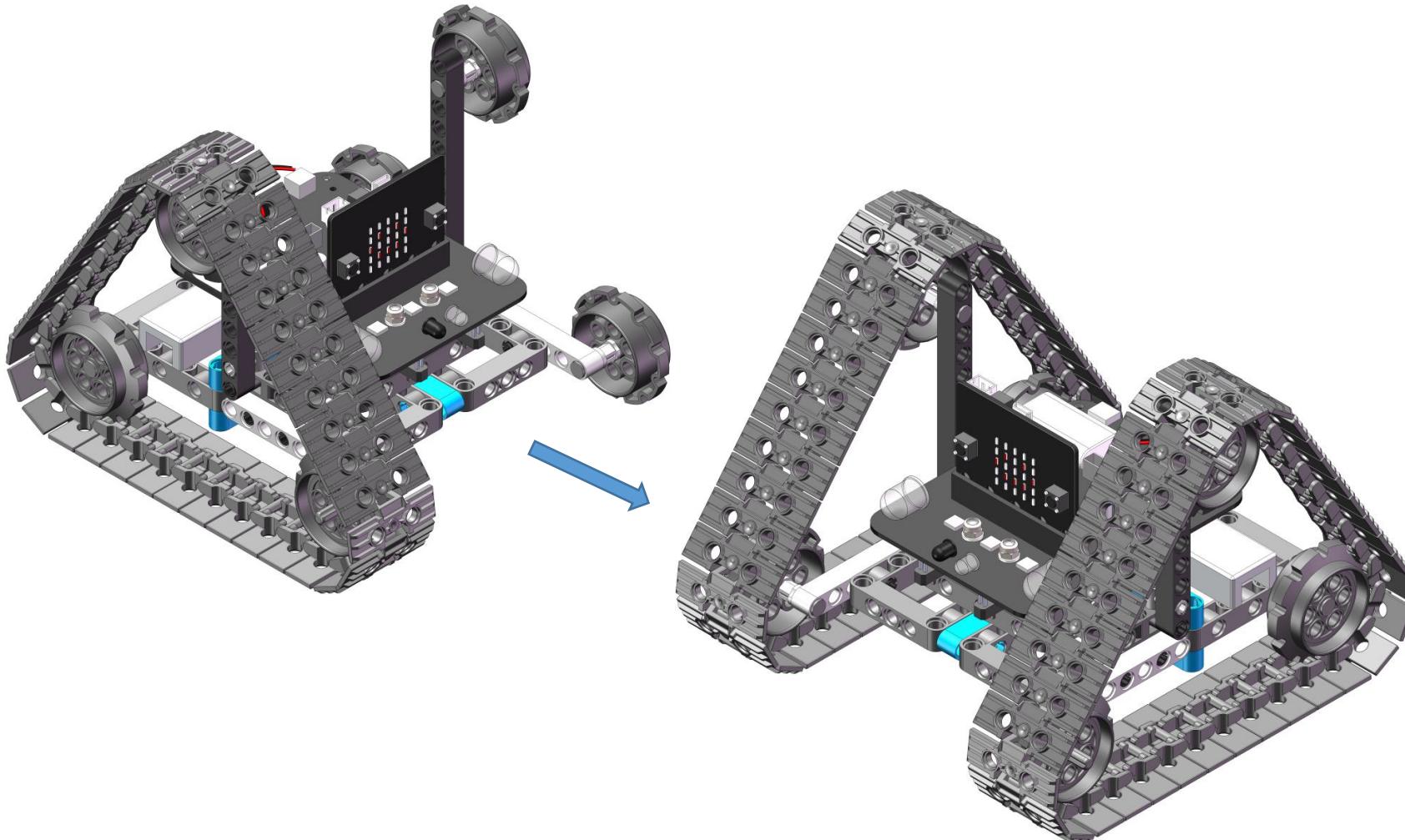


Step 22: Find the plastic track. Each is spliced together in sequence to form a track. Each track requires 34 plastic tracks to be spliced together.



Tip: There are two such tracks in the caterpillar tripod, so you need to assemble another track in the same way.

Step 23: Install the tracks on both sides.



Thinking: This session is mainly to teach you how to use graphical programming to control the building block caterpillar tripod.

Preparation

- USB cable *1
- Caterpillar tripod *1

Blocks

Block	Instruction
	The code inside is executed after booting.
	The car's motion state selection: forward, back, turn left , turn right , rotate left, rotate right and stop.

Block	Instruction
	Display the pattern on the micro:bit dot matrix.

Programming

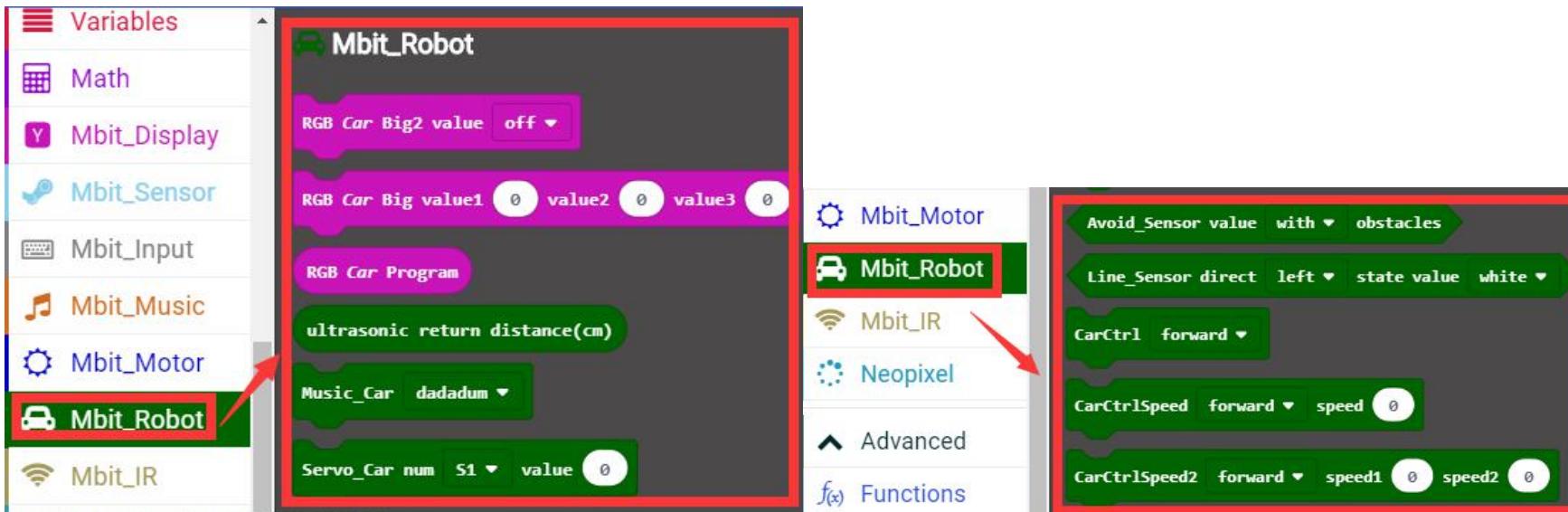
The program for this course is shown below. After downloading the program, open the power switch of the caterpillar tripod, it will automatically keep moving forward and display a smile on the dot matrix.



This experimental program file has been provided, you can download and use it directly according to the steps in “Instruction” .

Program path: Building bit starter kit\2. Experimental course\1.Caterpillar tripod\2.Caterpillar tripod advance\Caterpillar-tripod-advance.hex

We have packaged the blocks as shown in the two figures below for this caterpillar tripod.



If you see these blocks, you can definitely think of more gameplay, so don't hesitate to try it bravely.
Drag these blocks and play with our building block caterpillar tripod!!!



On our official website, we also provides other tutorial: [Caterpillar tripod Infrared obstacle avoidance](#), [Caterpillar tripod bit handle remote control](#), [Caterpillar tripod Infrared remote control](#).
Official website learning website: www.yahboom.net/study/Building_bit