# Microbit Robotics Beginner Level 2

# Lesson 1

## Running box

Presented by Advanced Superlogic Team

# Today's Topic

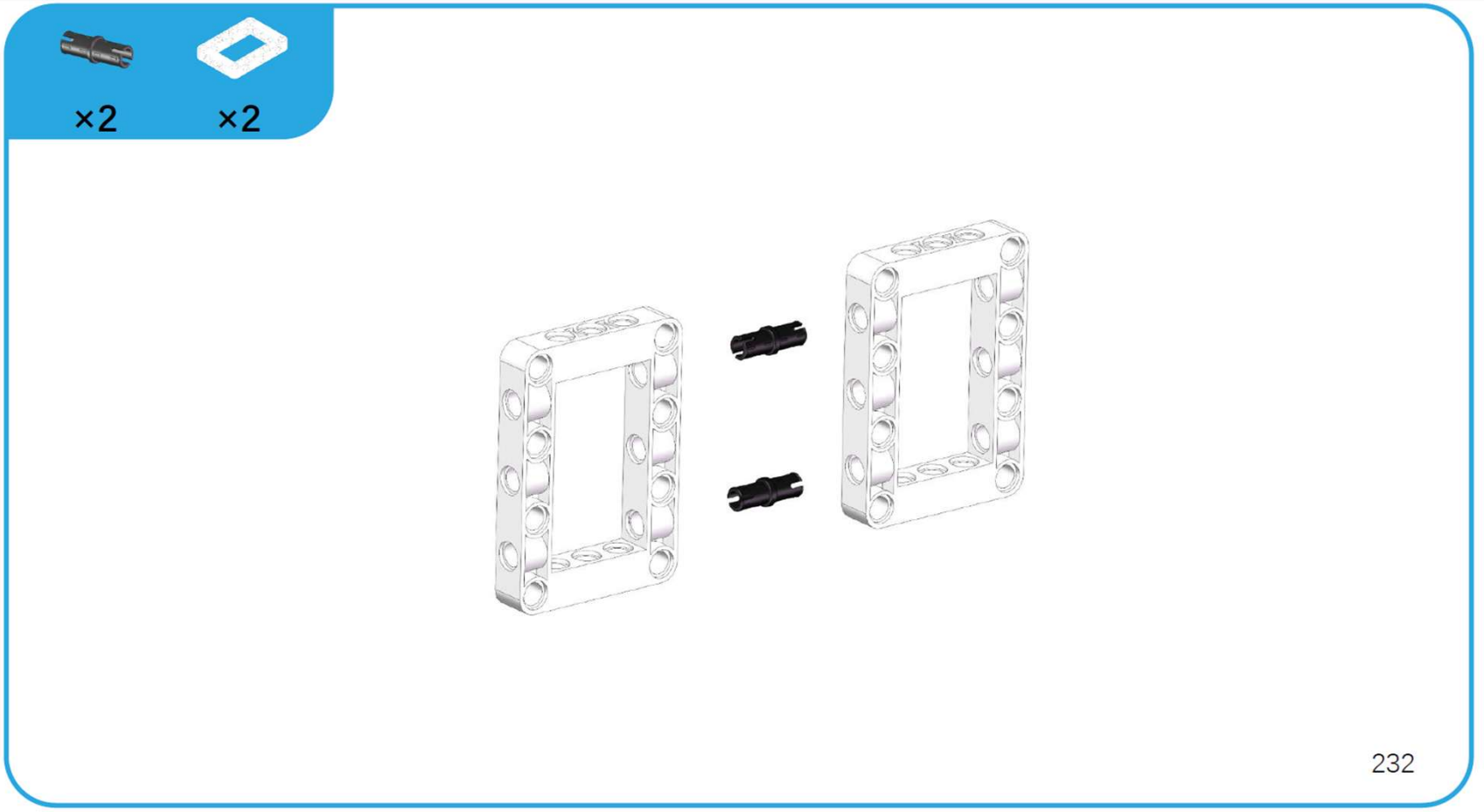
1. Build a Running Box with World of Modules
2. Servo programming
3. Functions programming
4. Running Box programming

# Learning Outcome

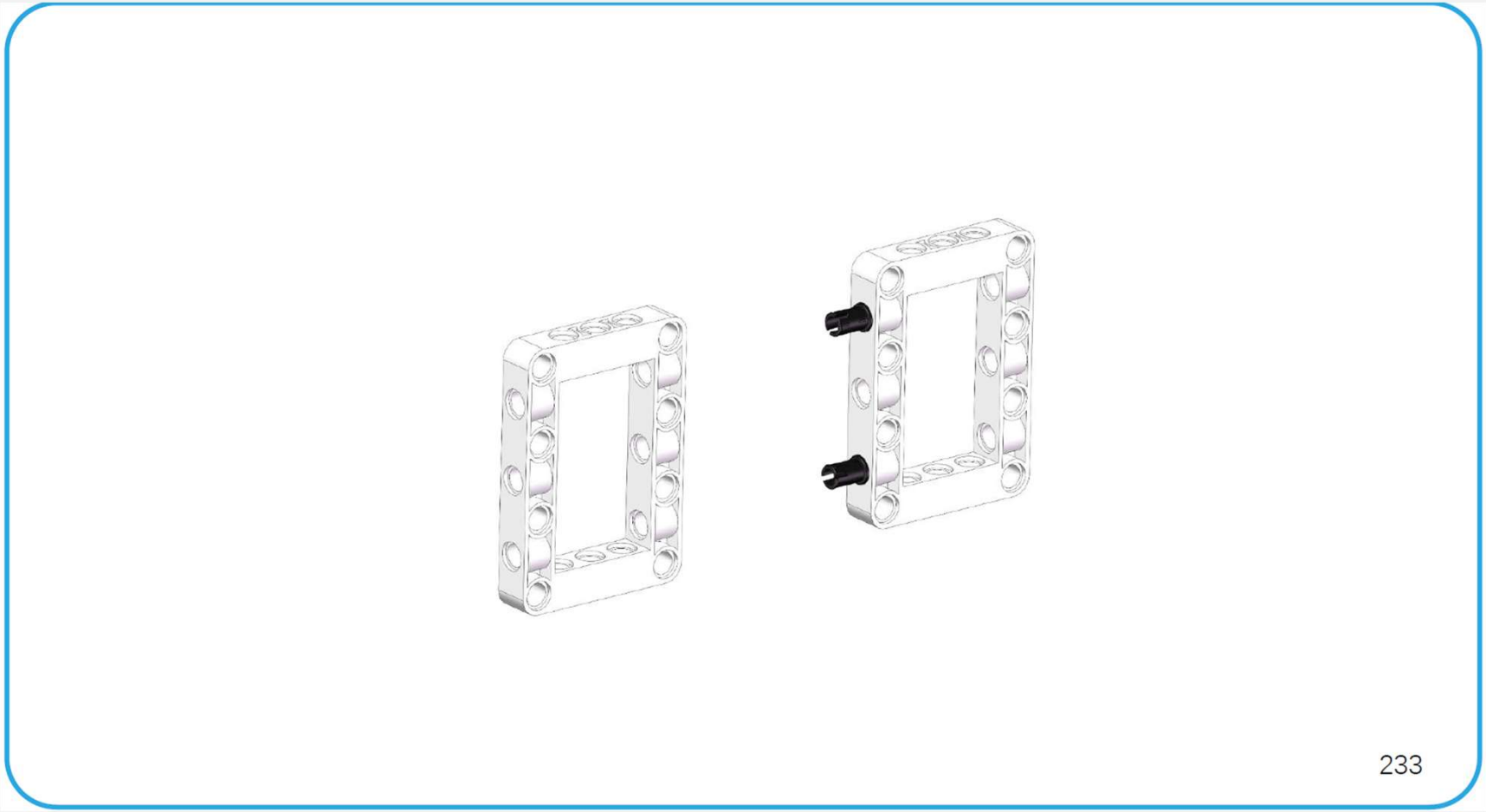
1. Able to build Running Box with instruction manual
2. Understand Servo programming work
3. Understand Functions programming work
4. Able to program Running Box

# Let’s build a Running box

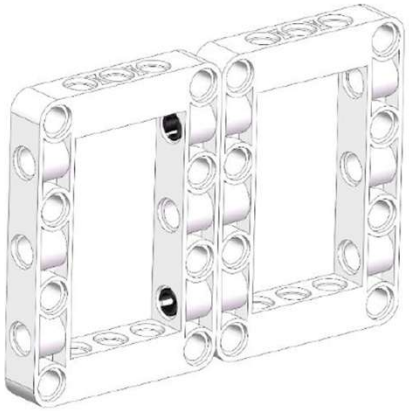
# Step 1



# Step 2

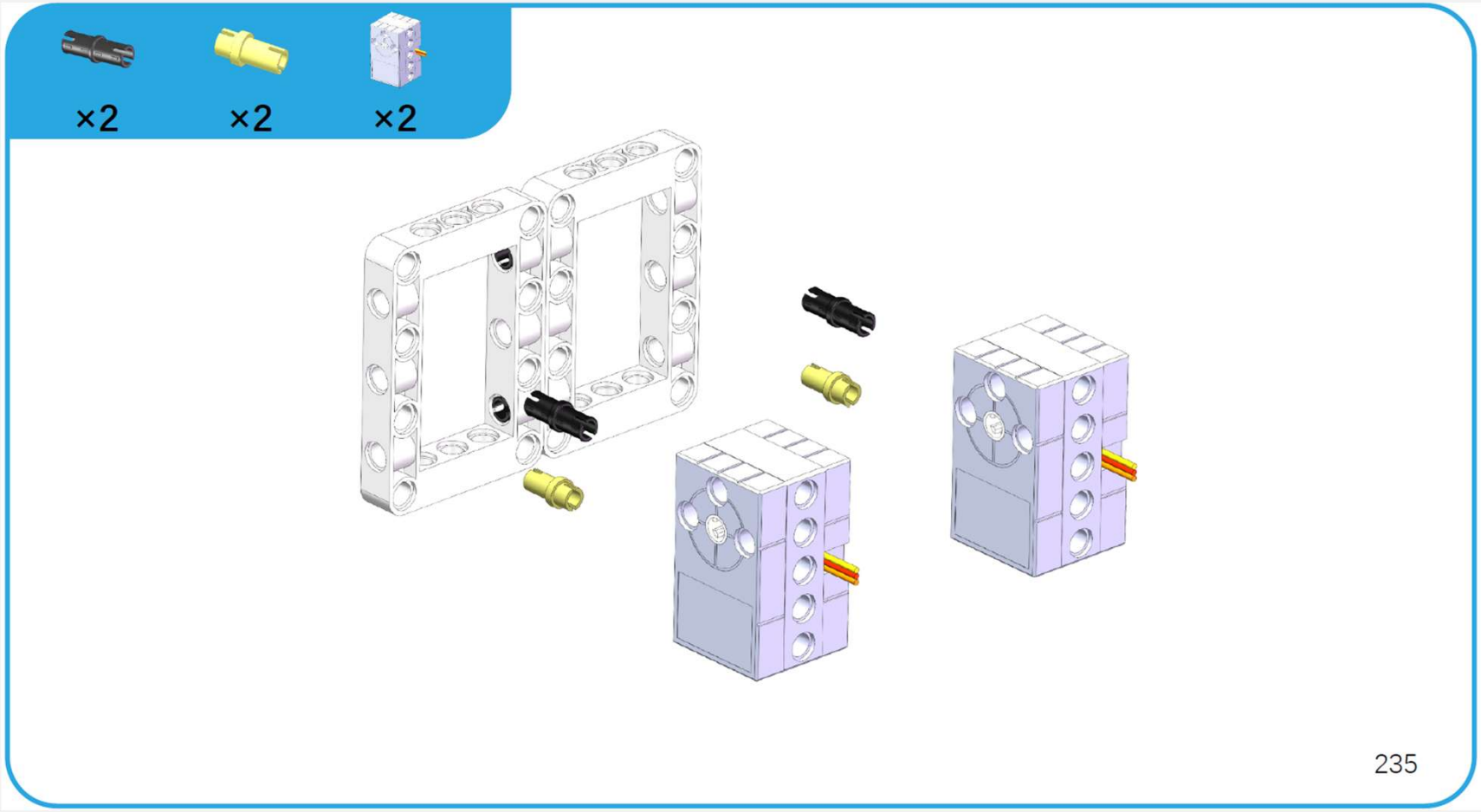


# Step 3



234

# Step 4



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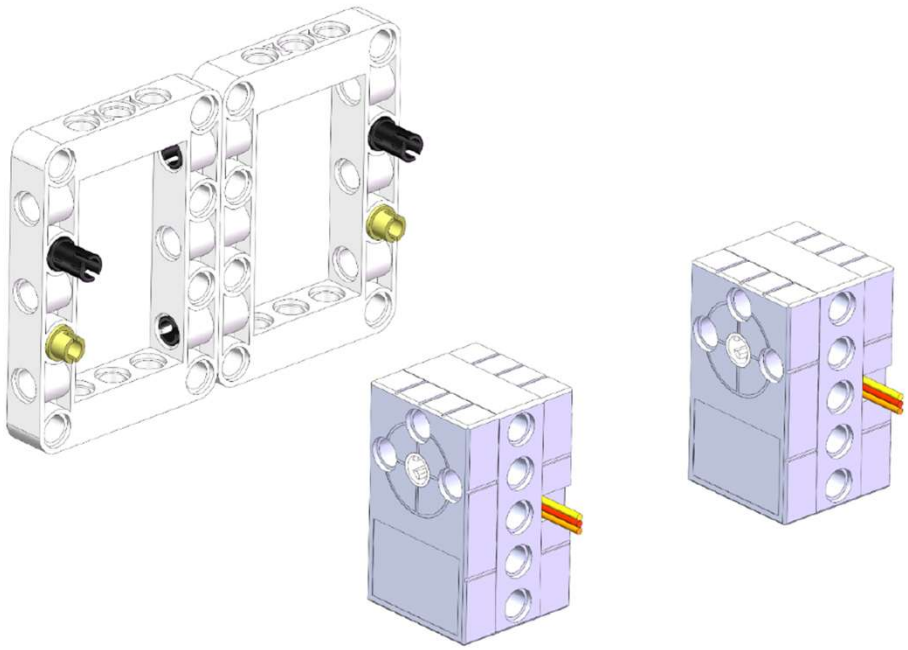

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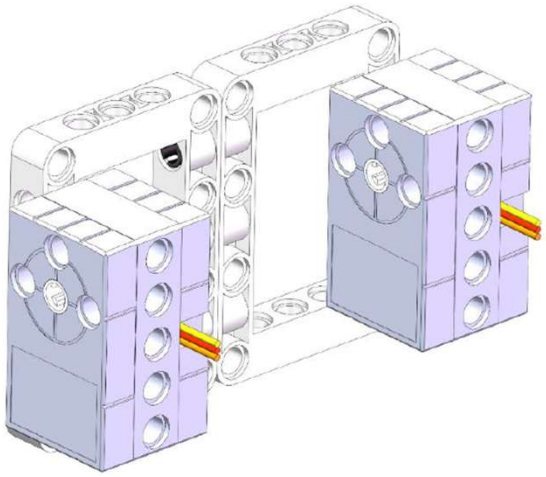

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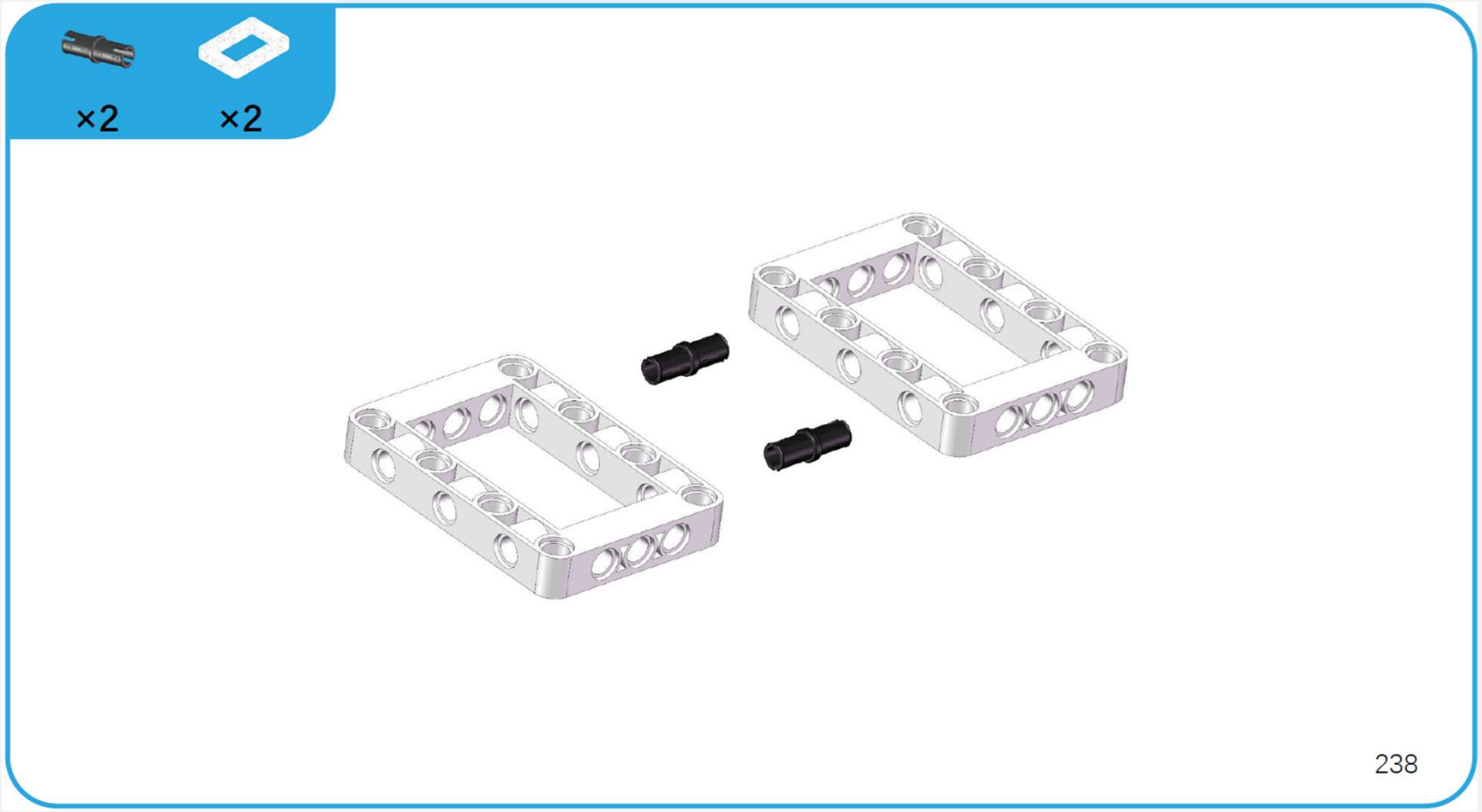

# Step 8

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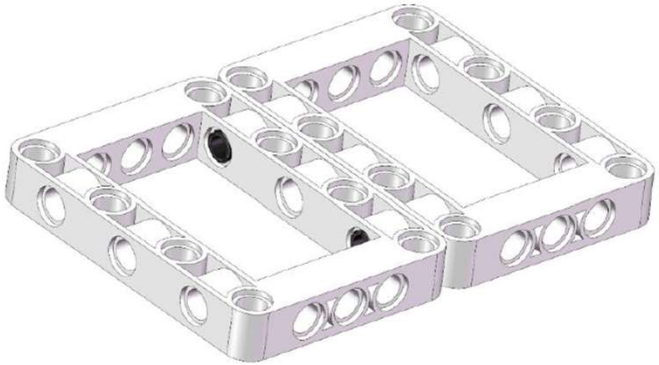
# Step 9

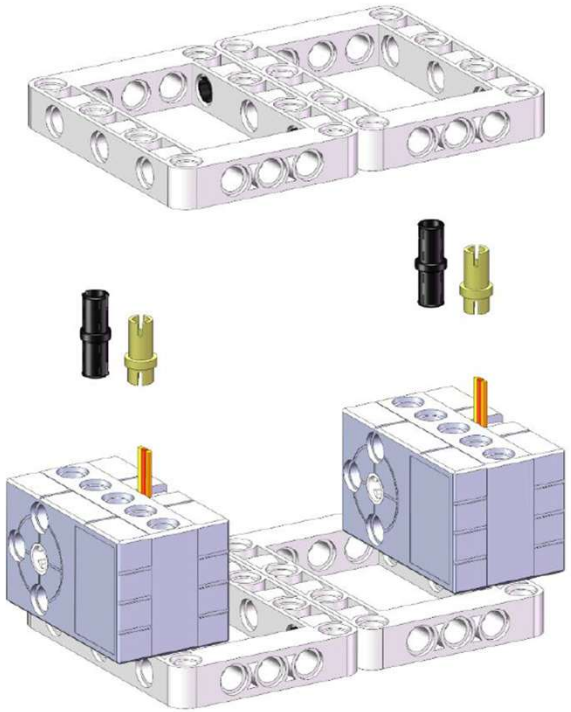


240

# Step 10


×2


×2



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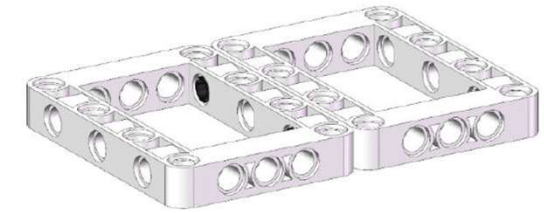

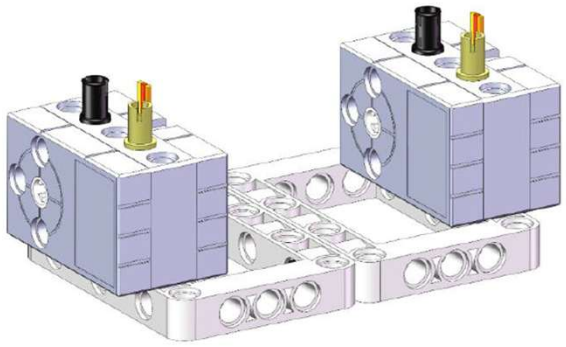

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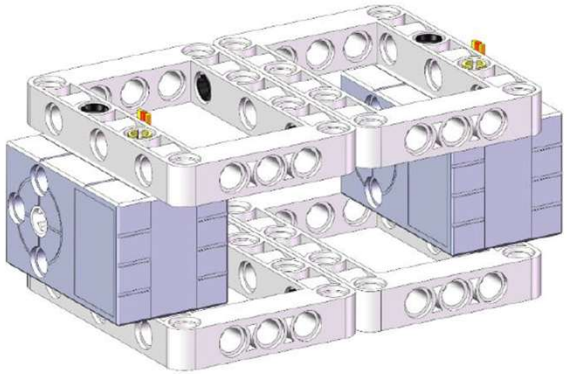

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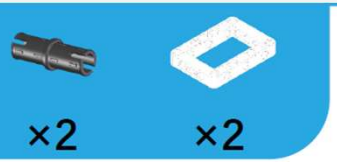


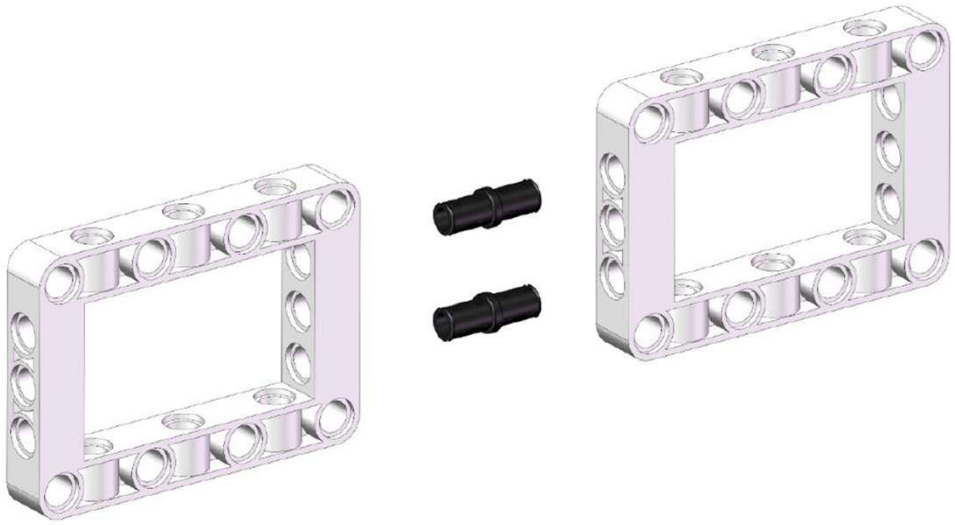

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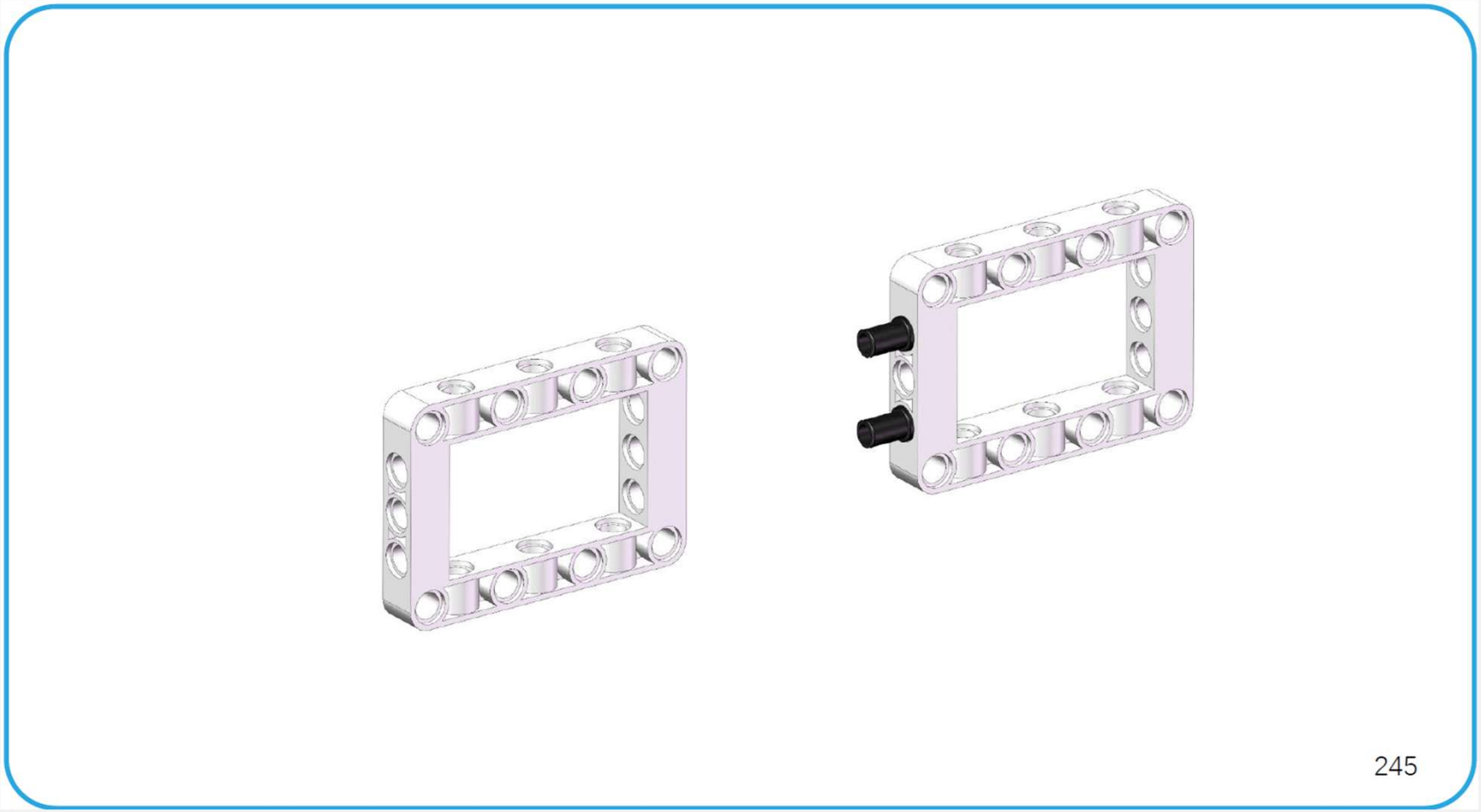

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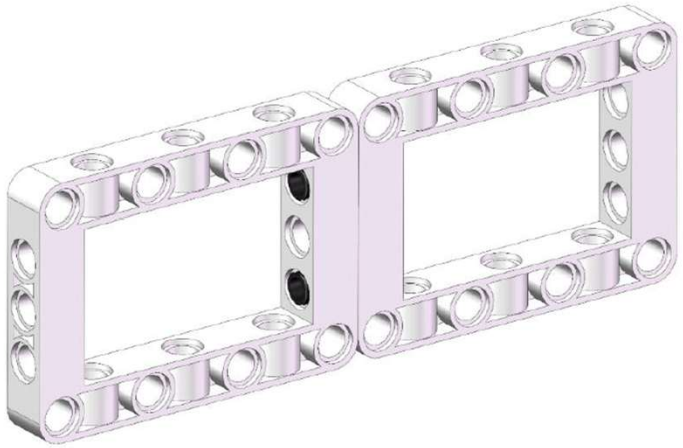

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# Step 16

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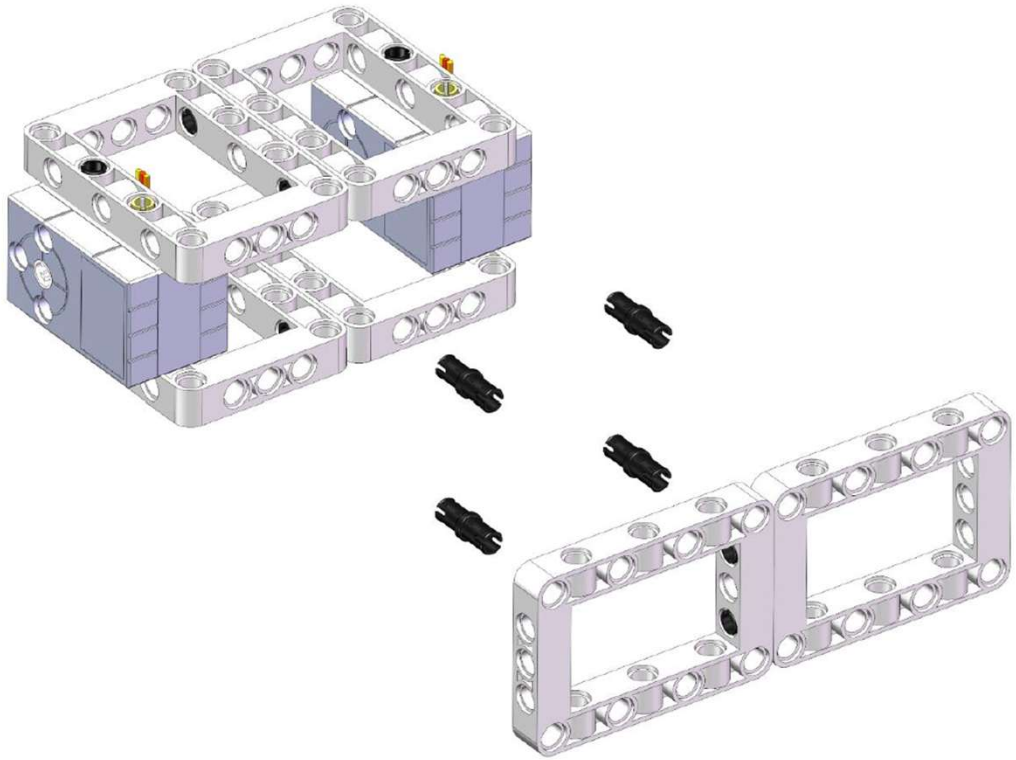

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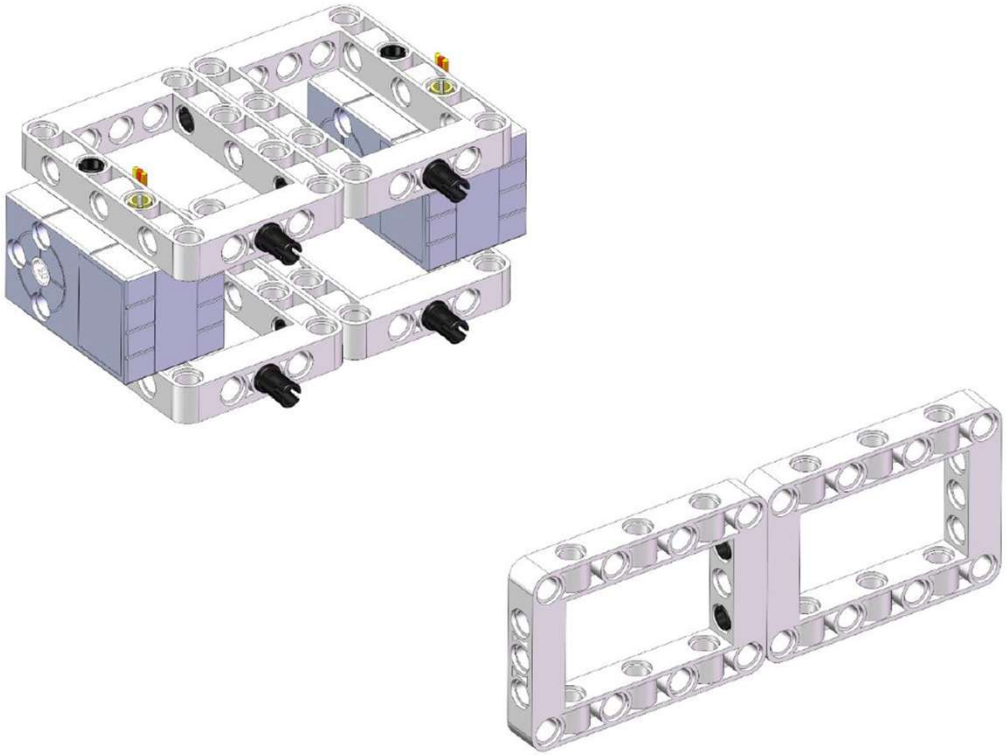

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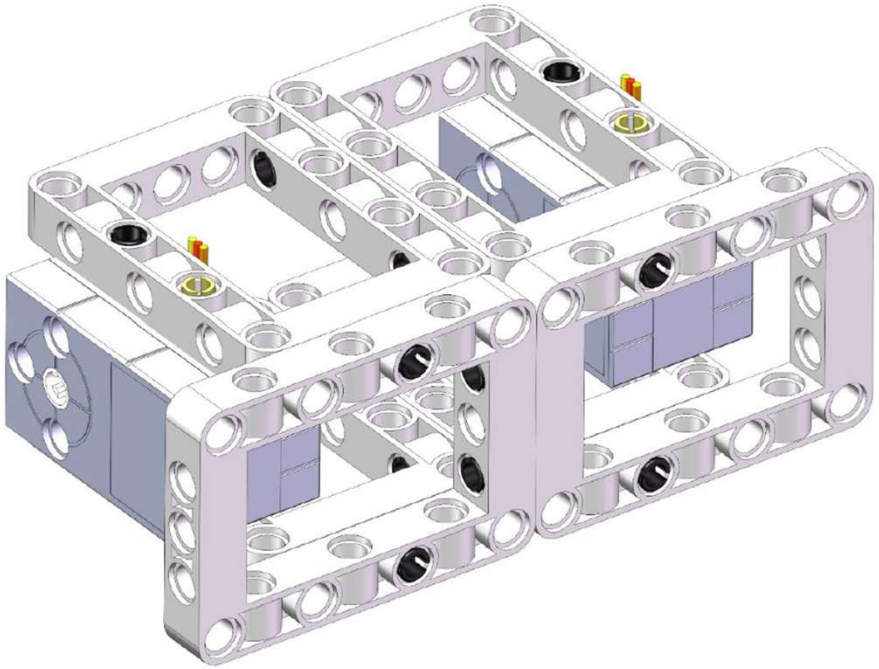

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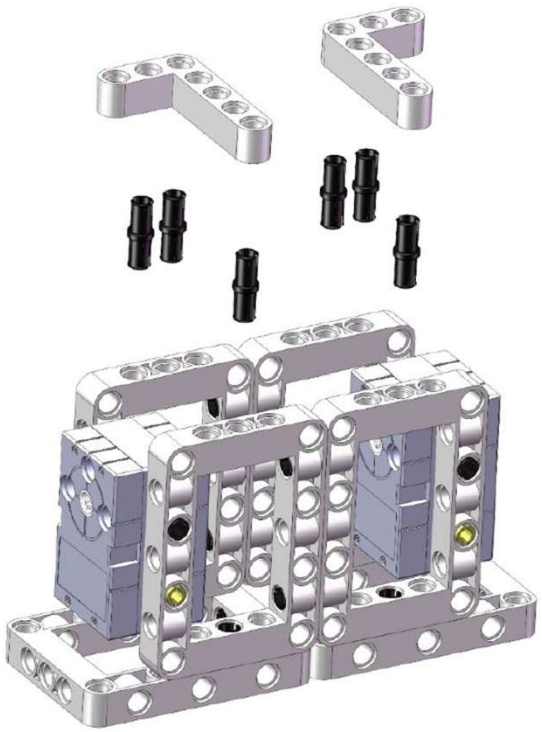

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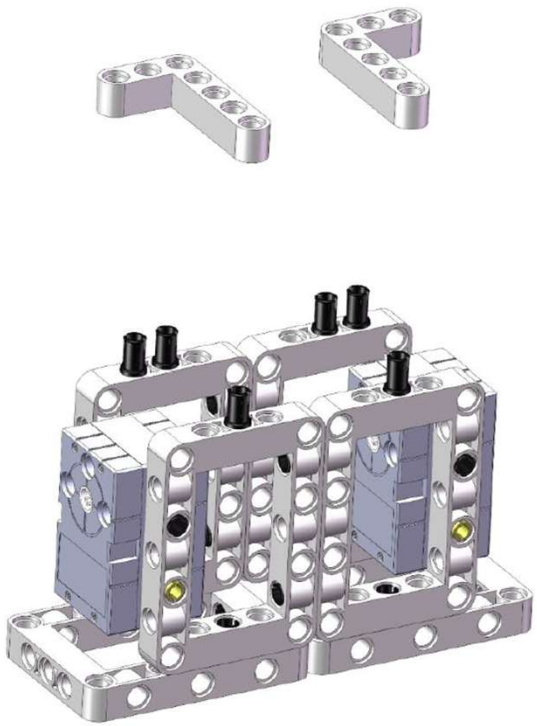

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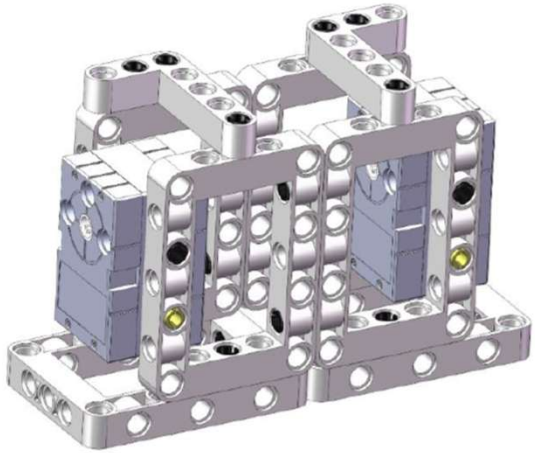

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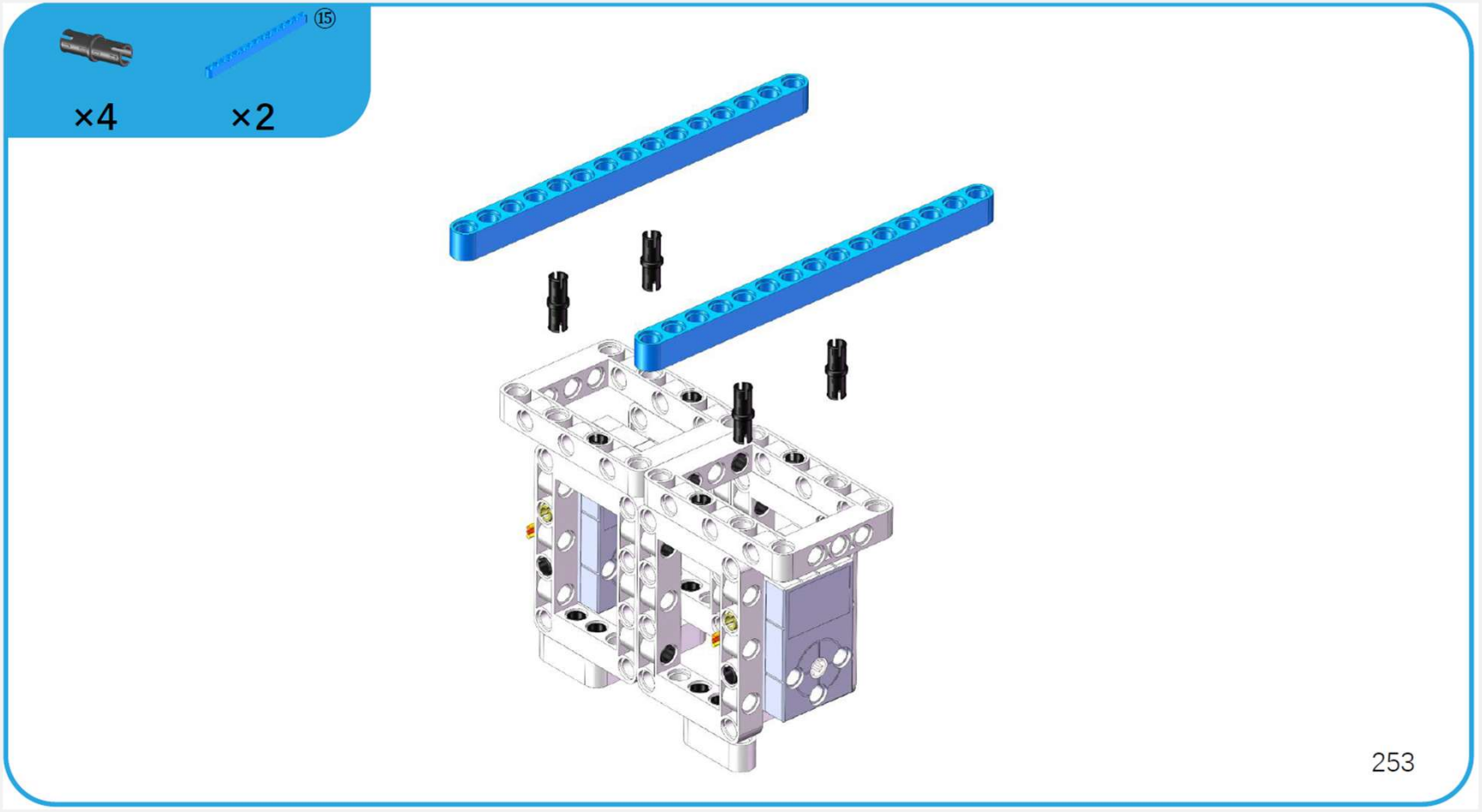

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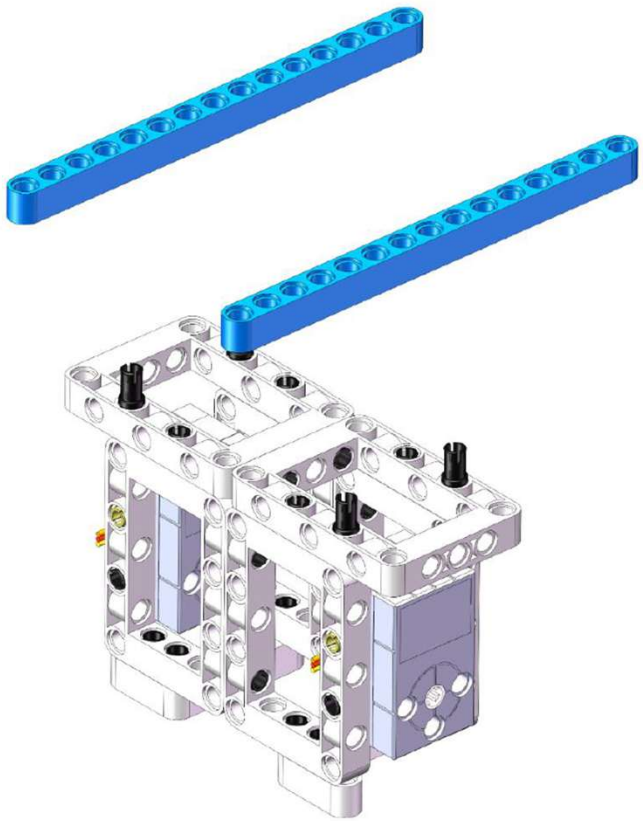

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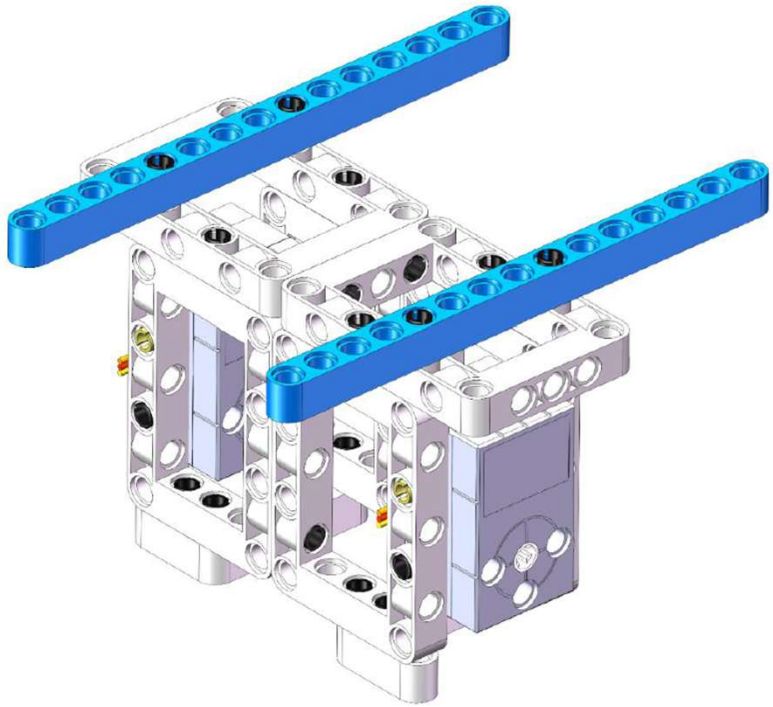

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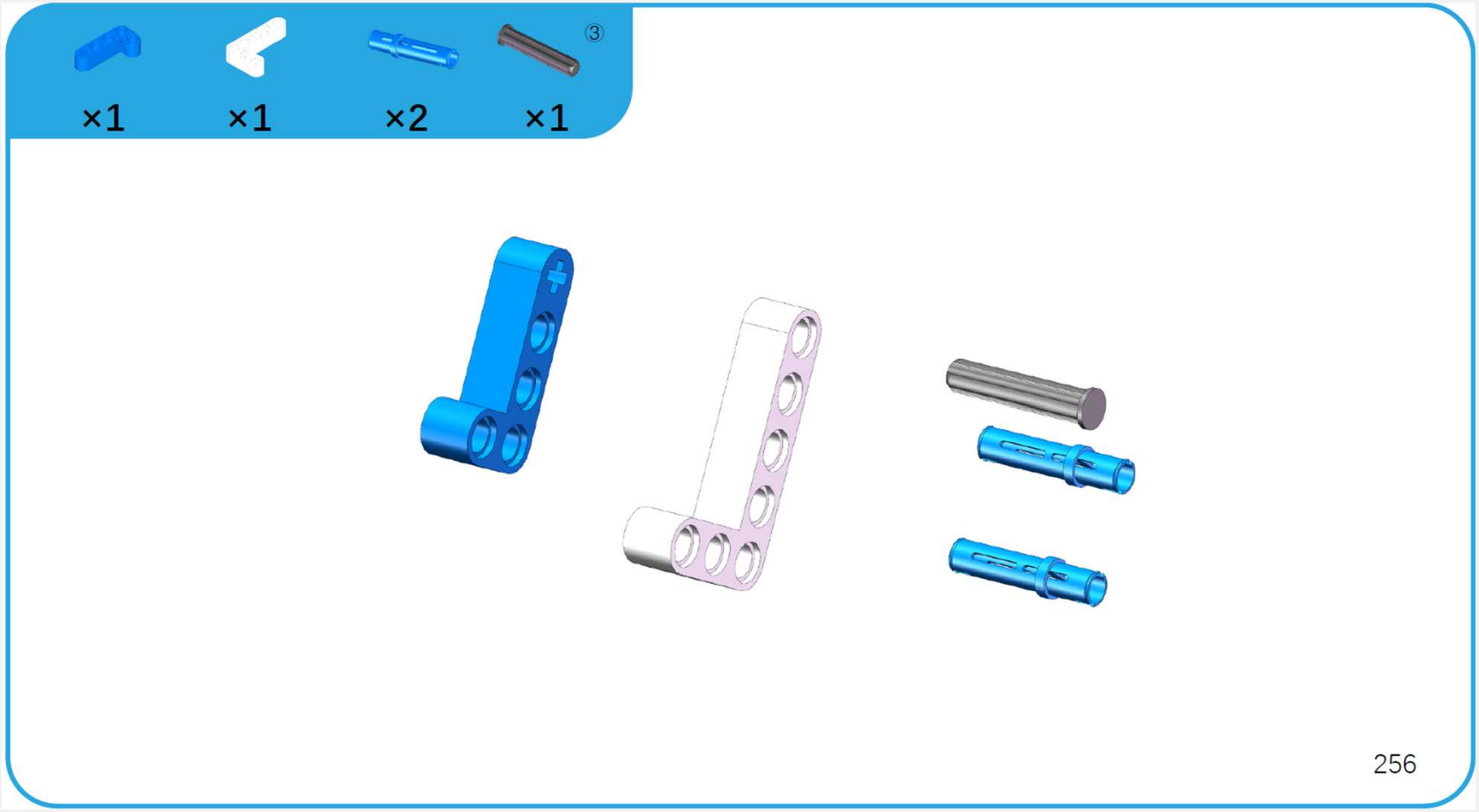

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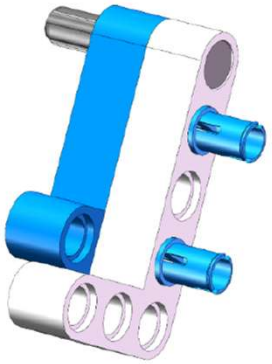

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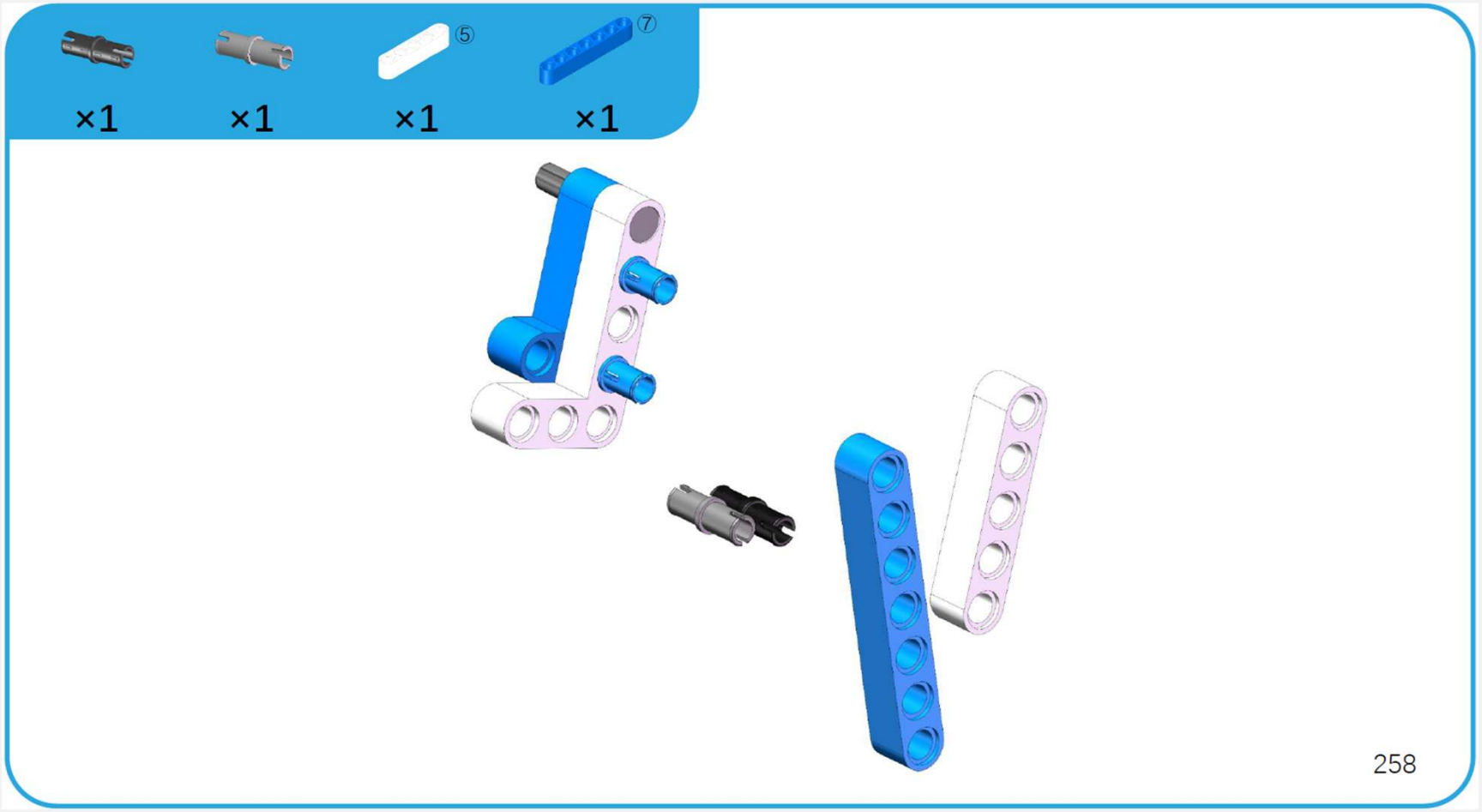

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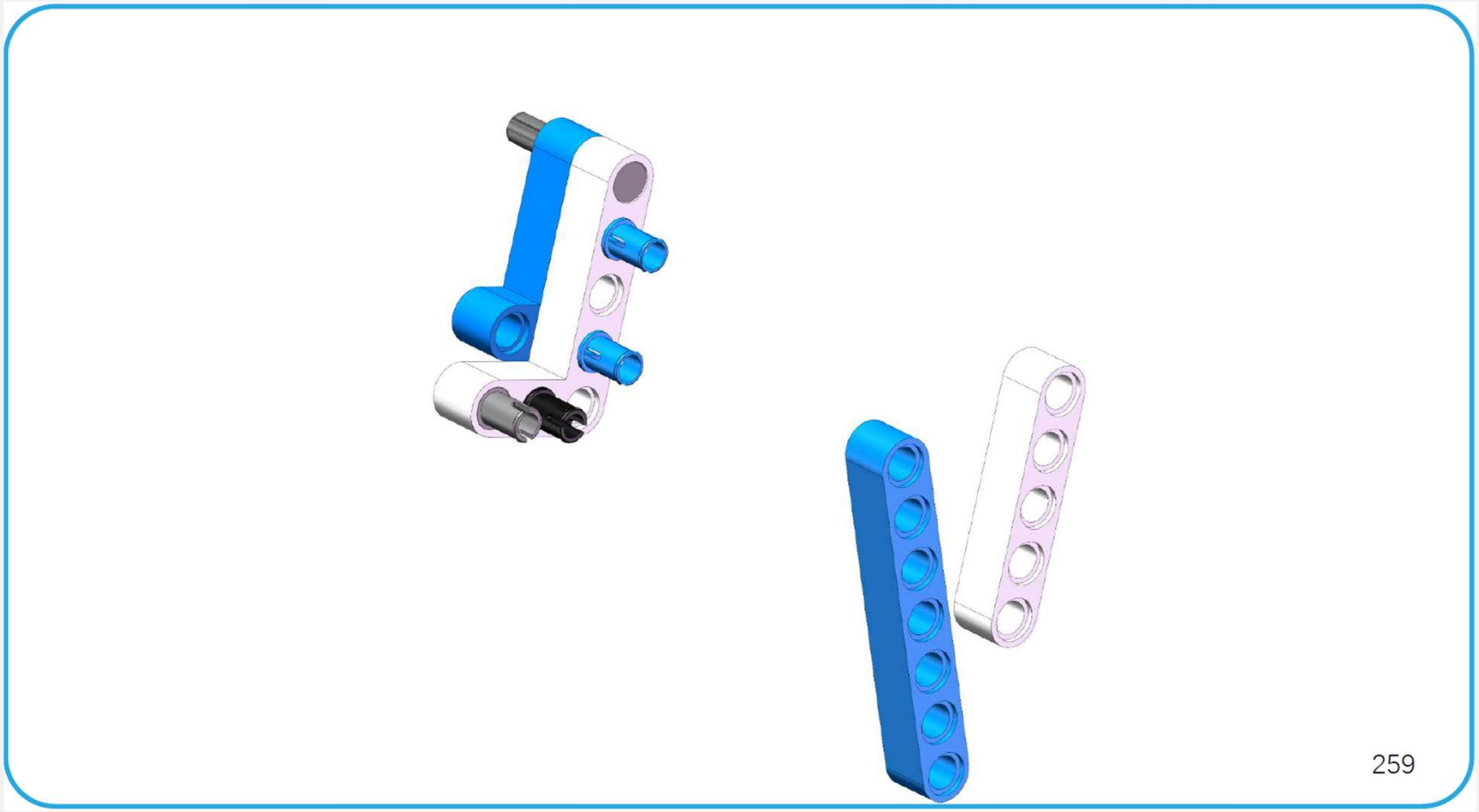

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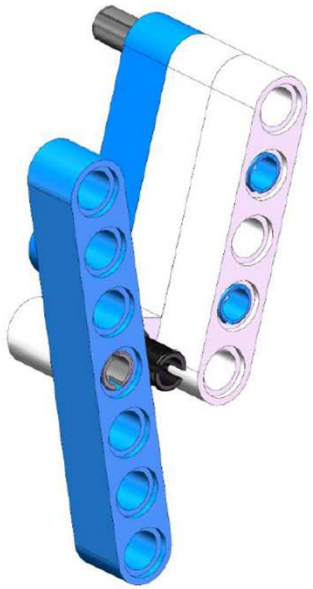

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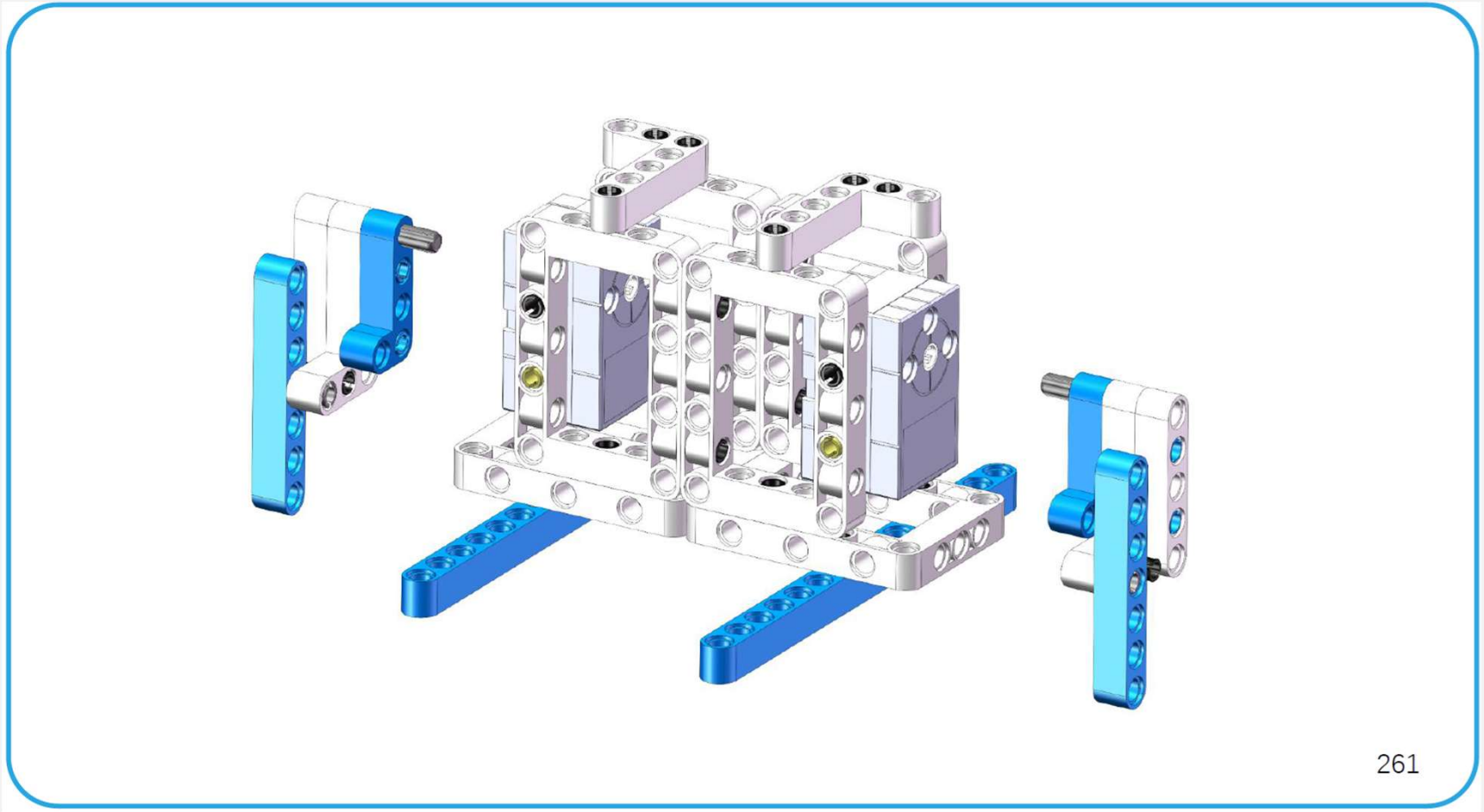

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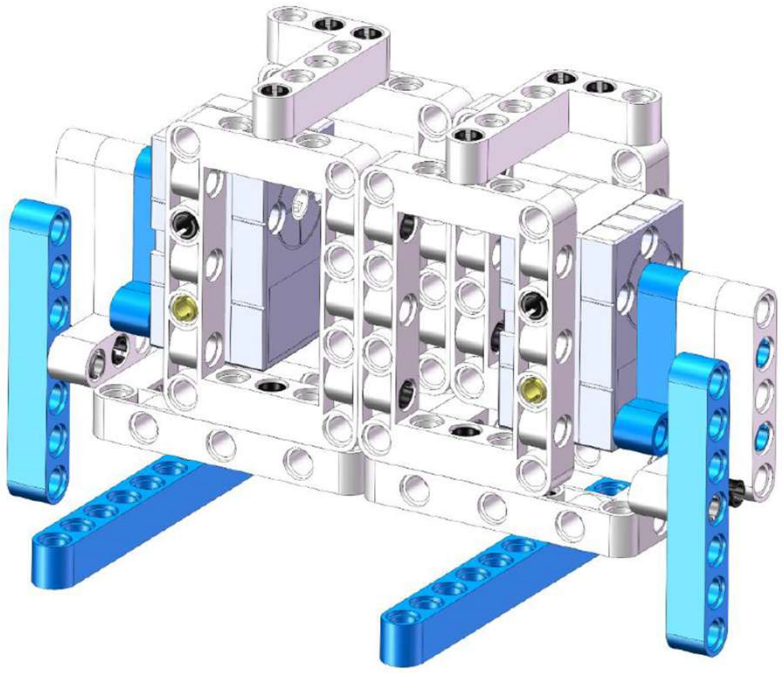

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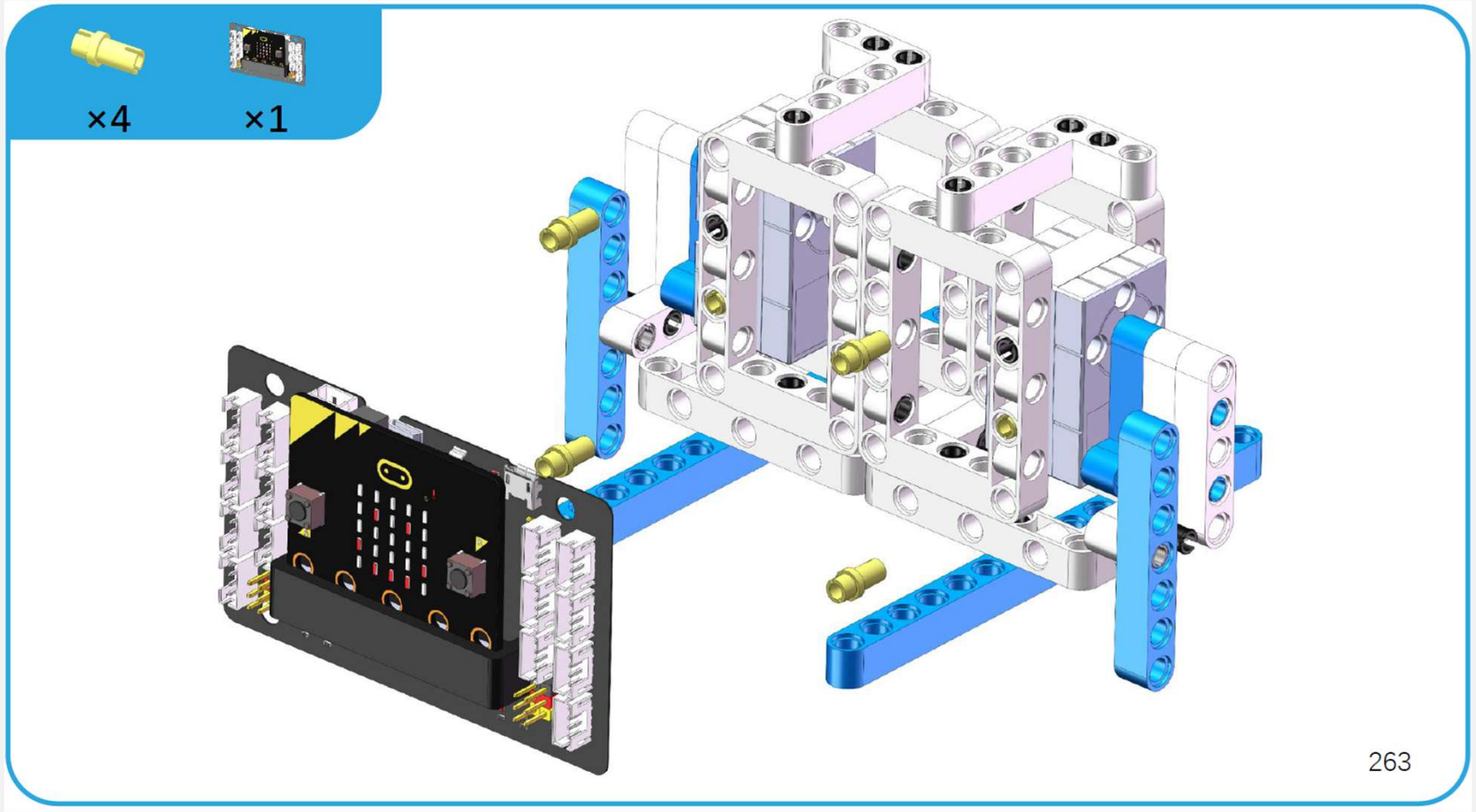

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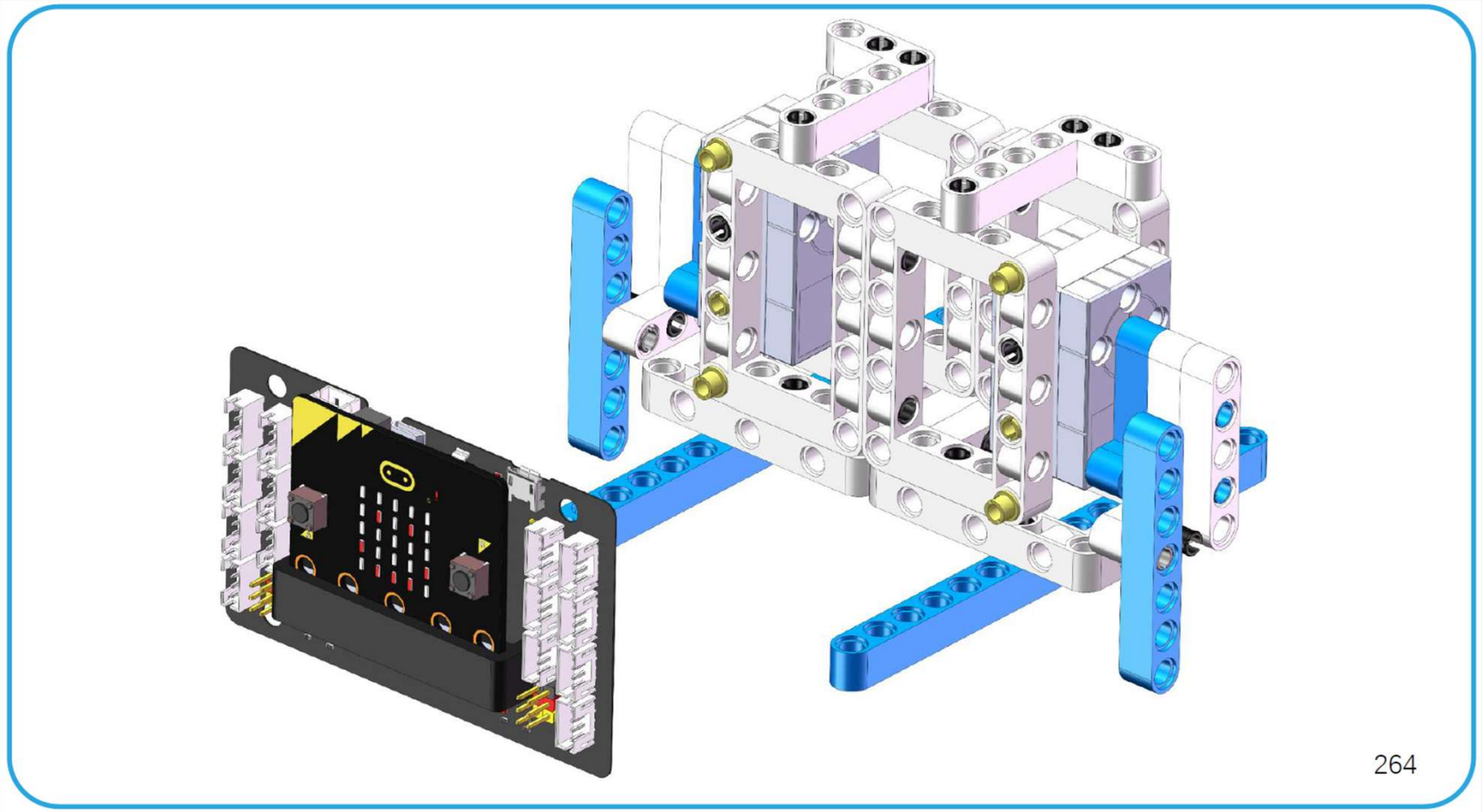

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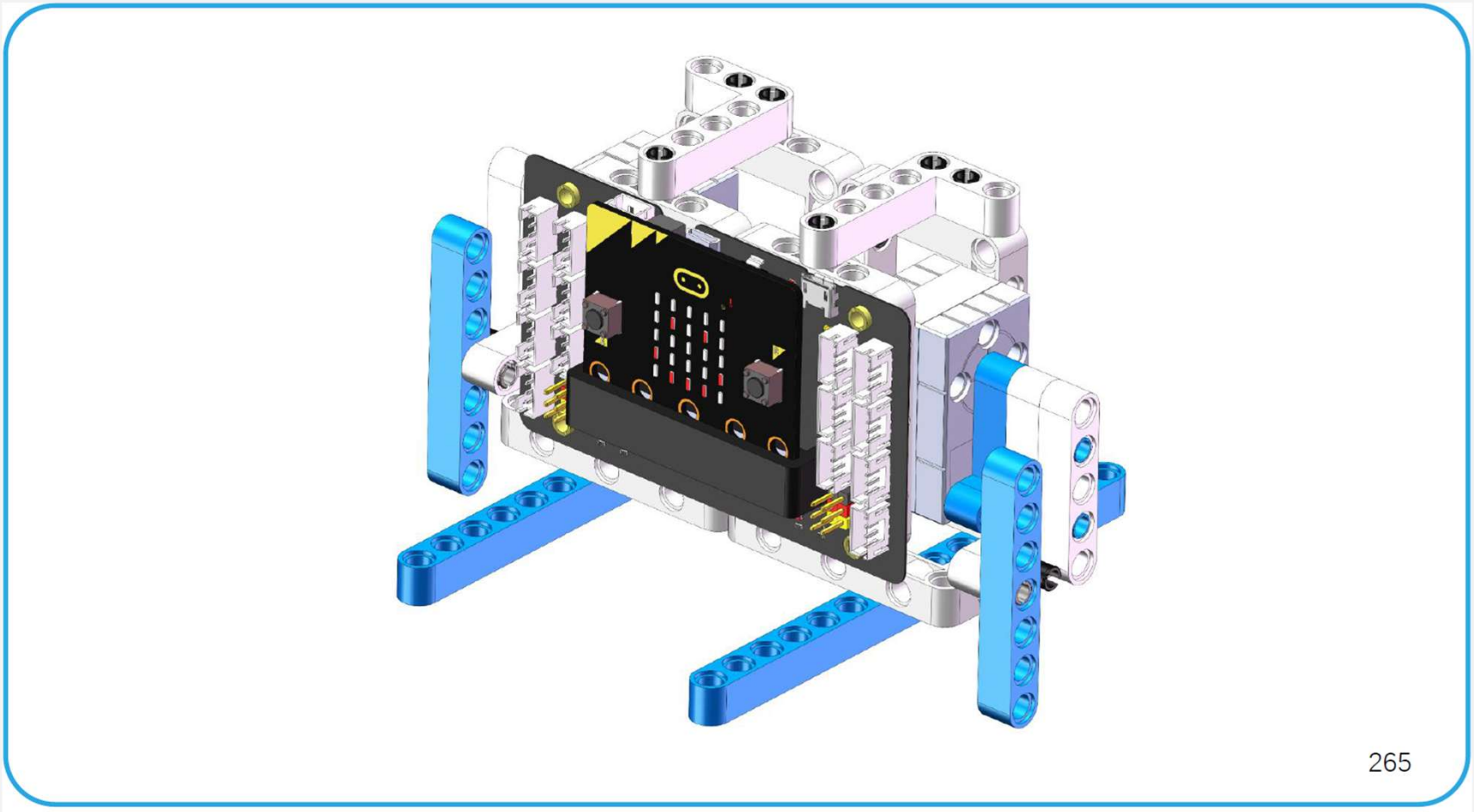
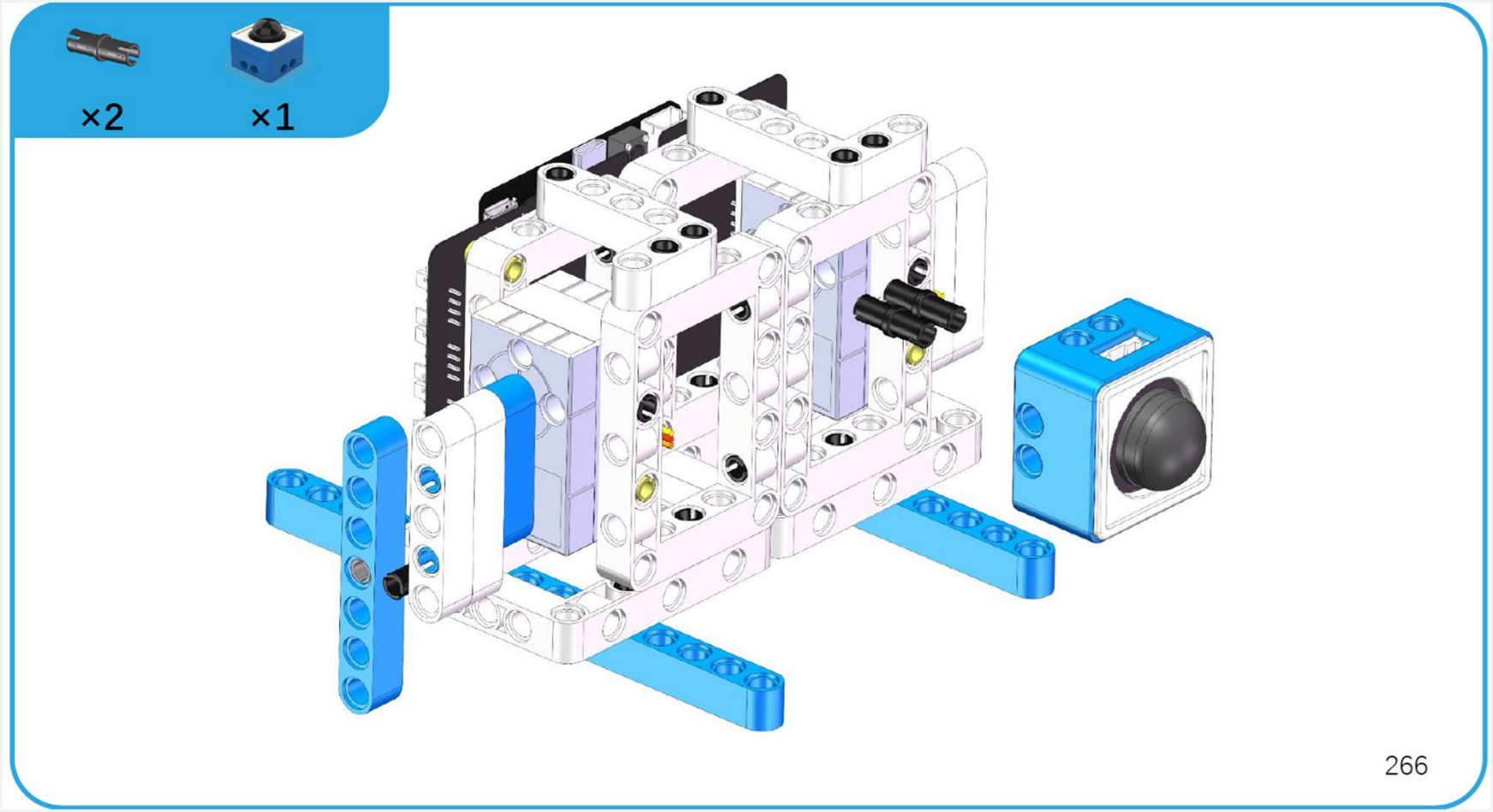


# Step 35



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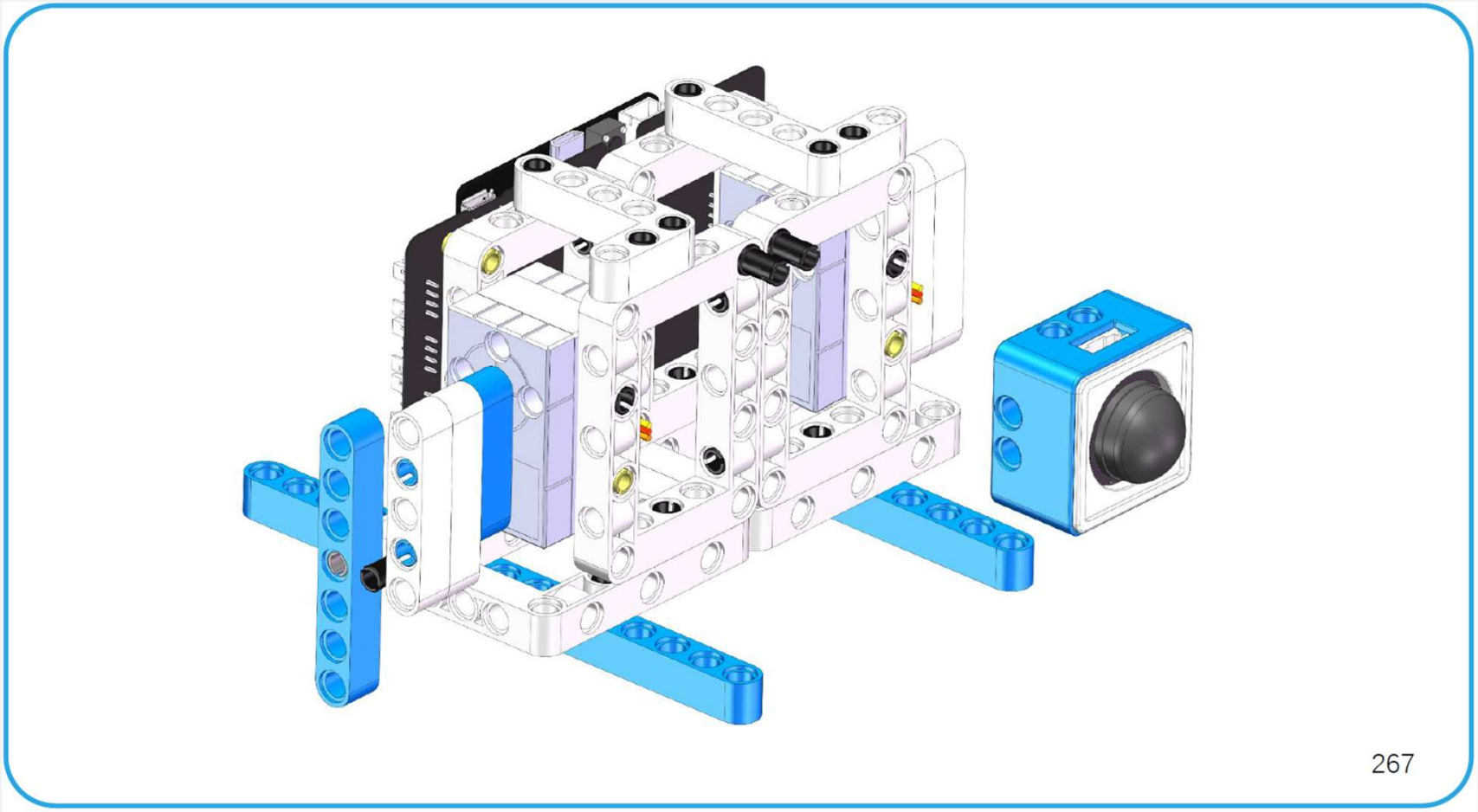

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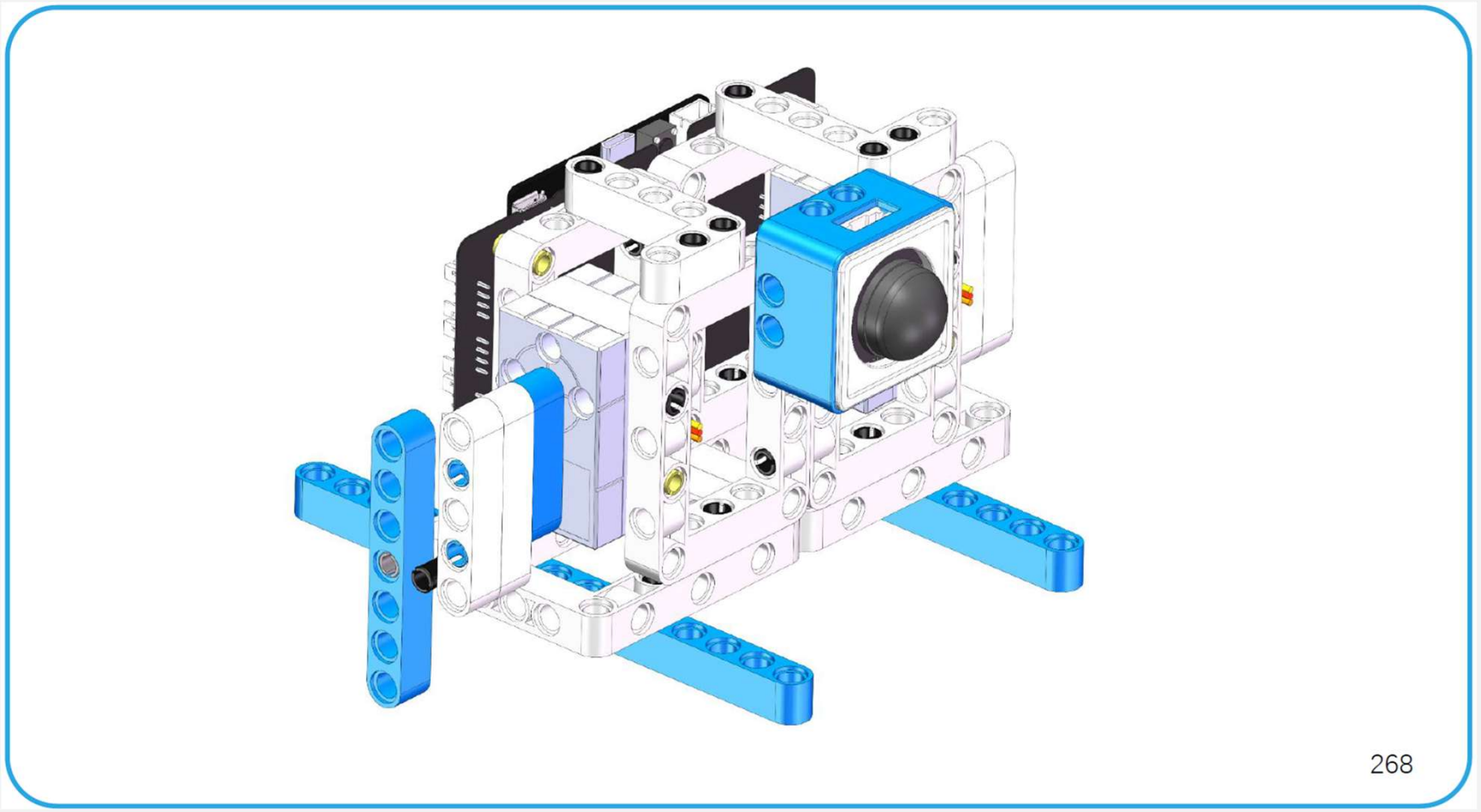

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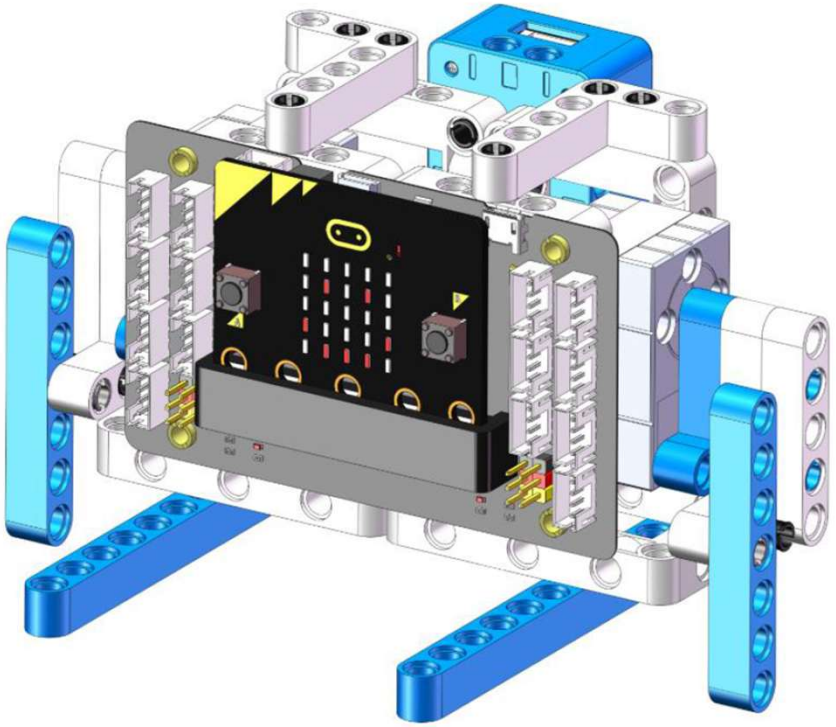

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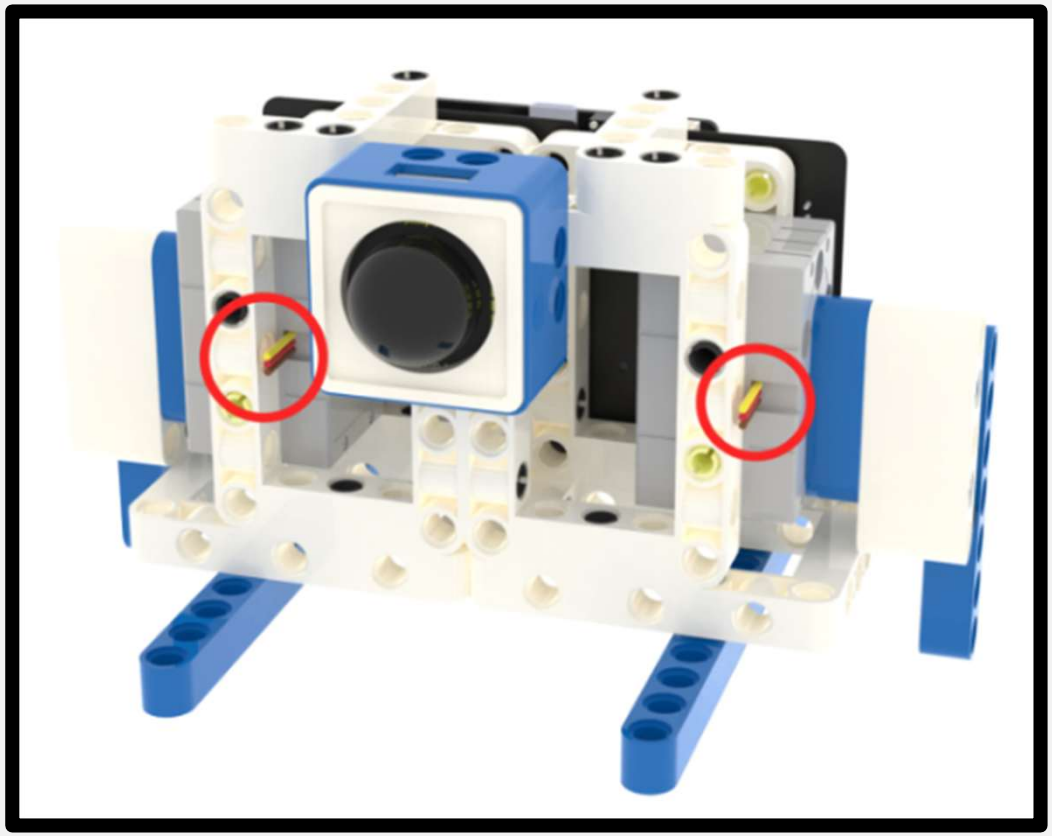
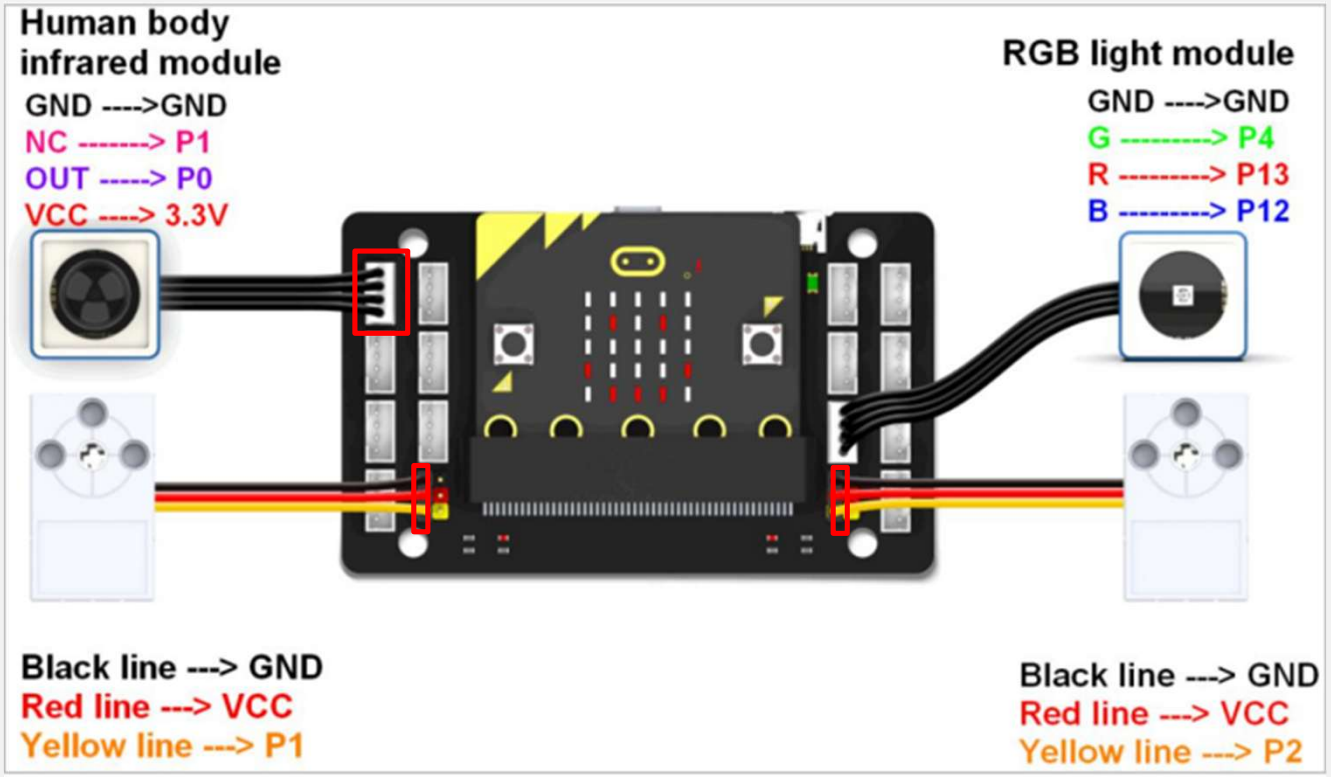
**After the assembly is completed, please check the wiring of the servo as shown below.**



# Wire Connection

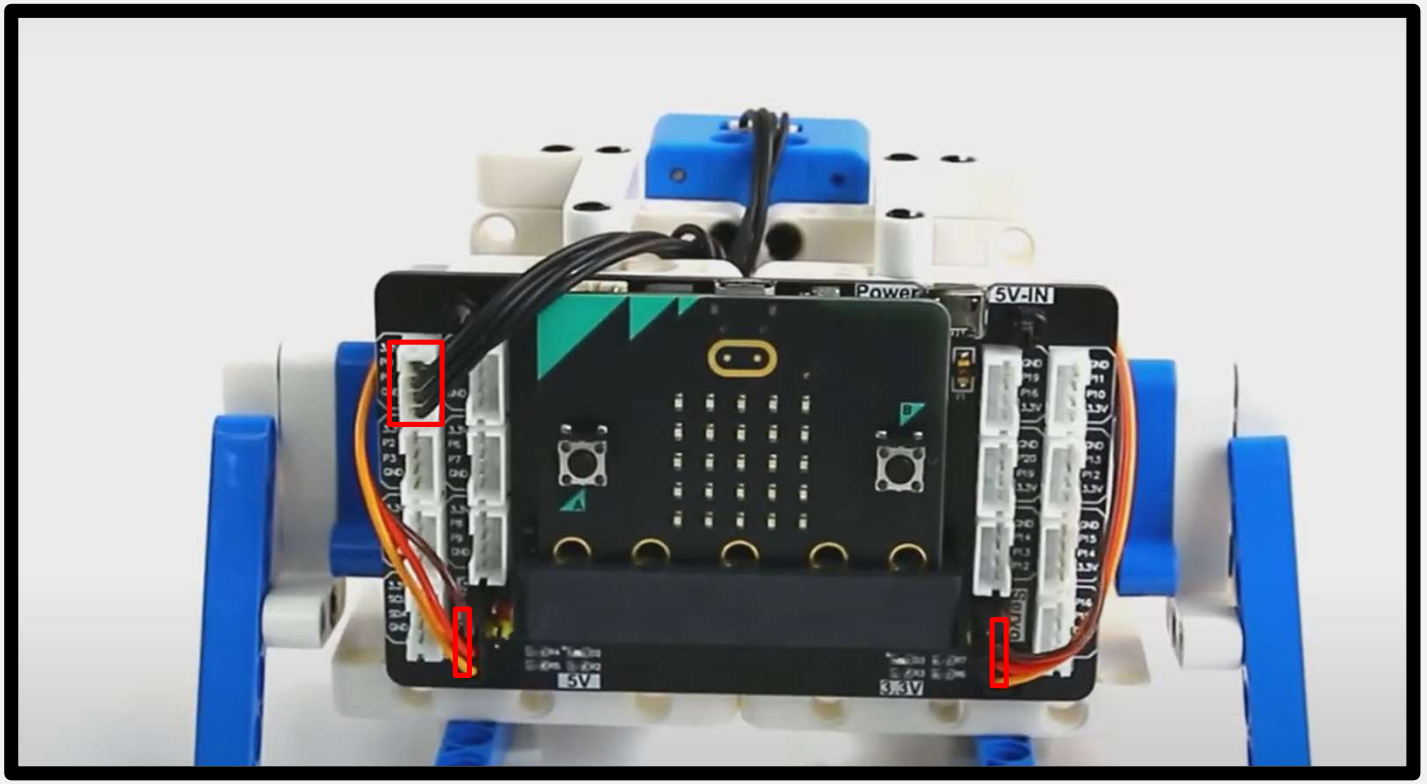
# Connect the modules




*RGB is not needed

Let's connect the module like this.

# Connect the modules



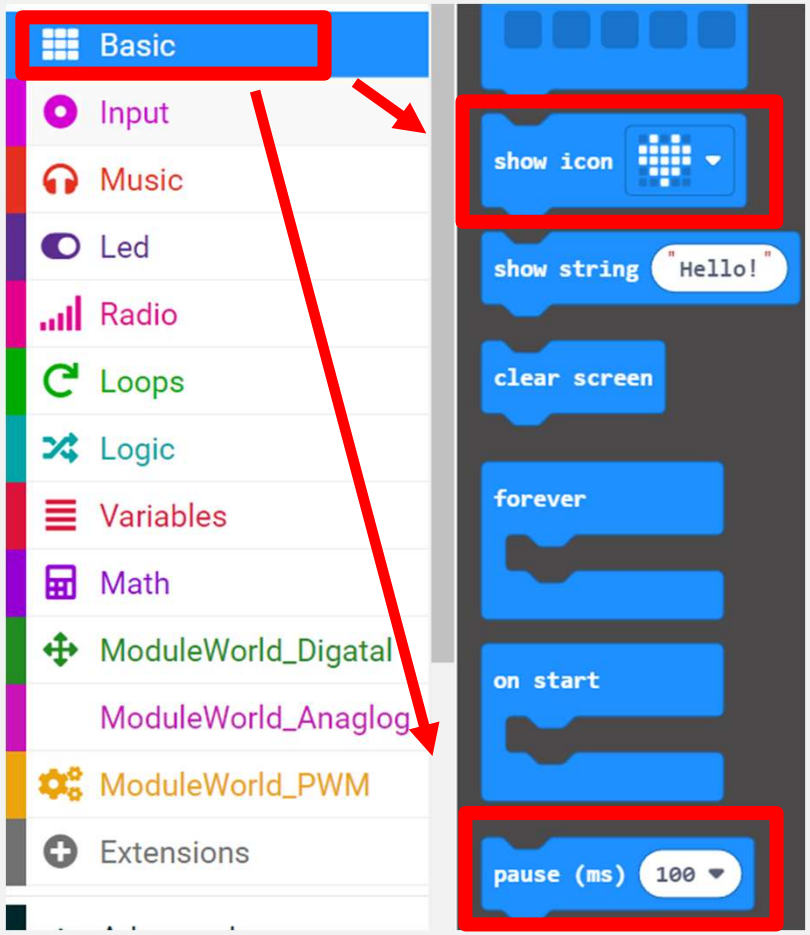

Let's connect the module like this.

# MakeCode Programming

https://github.com/YahboomTechnology/Module-World.

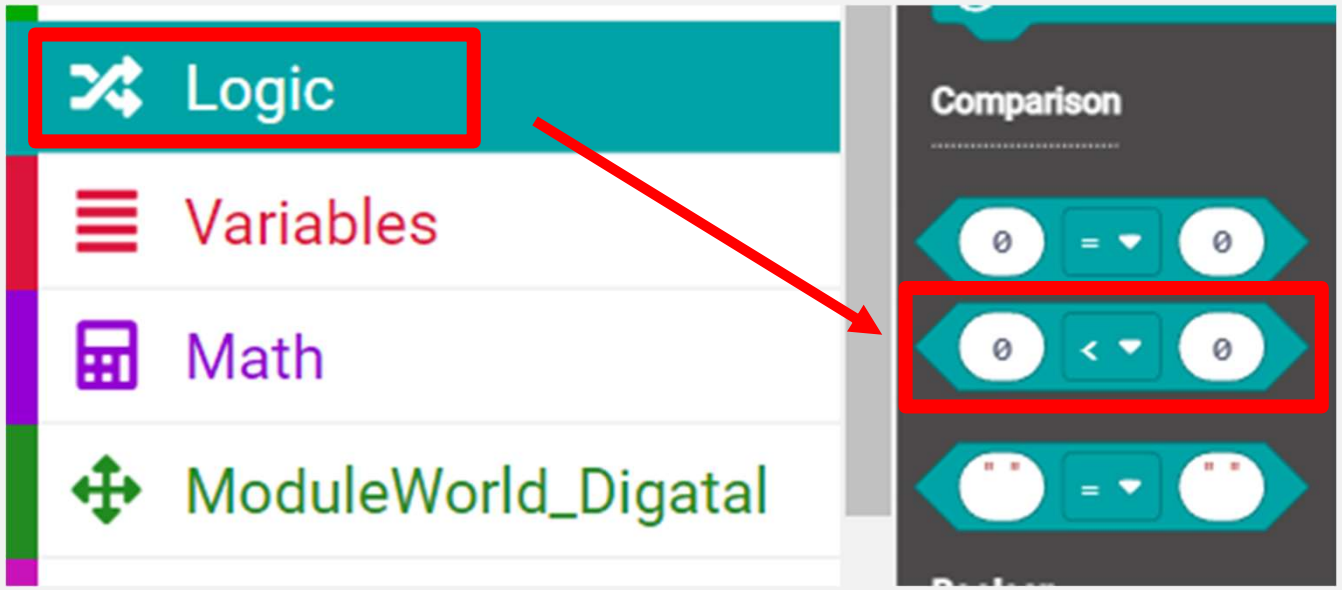
**Or search YahboomTechnology/Module-World in the extension block**

# Coding – Basic

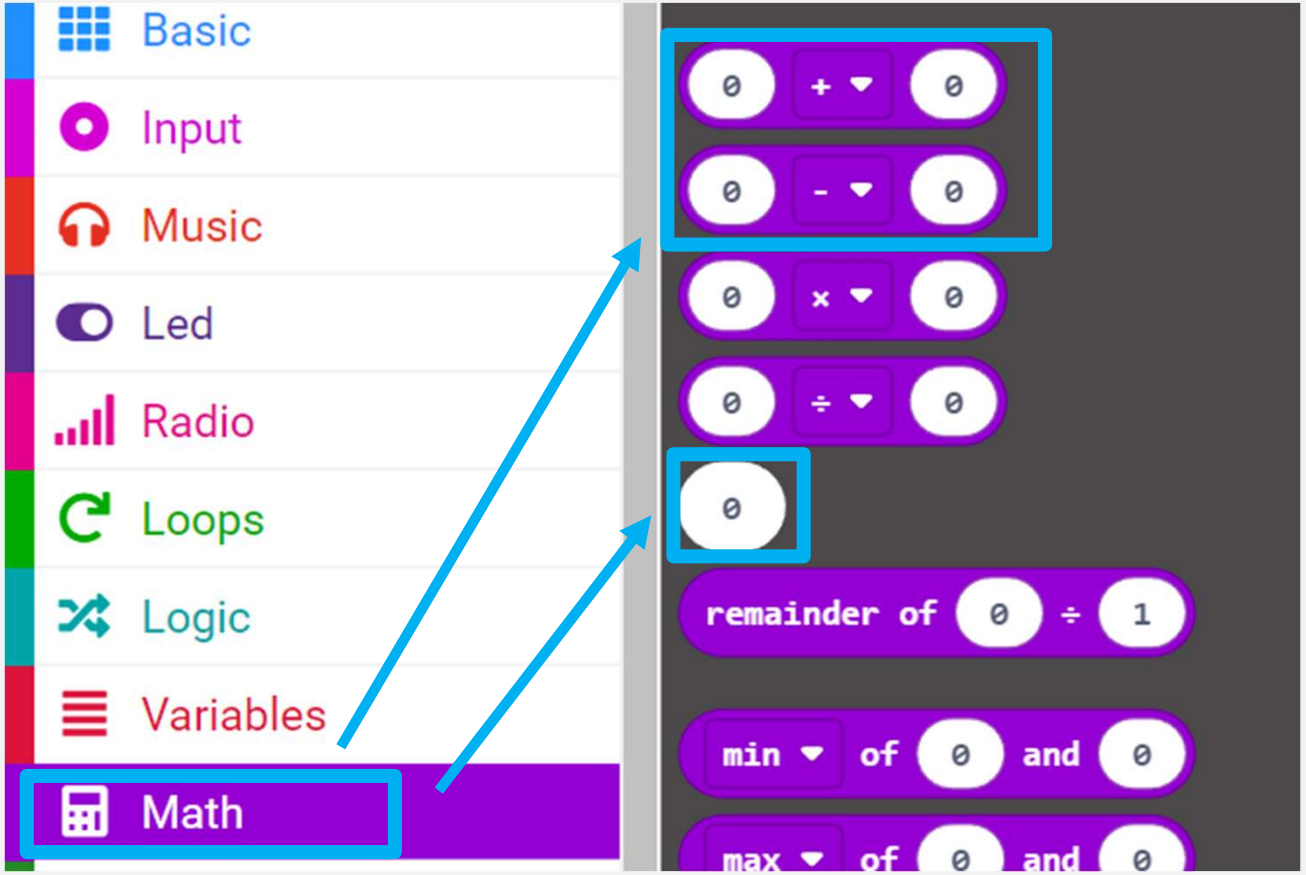


# Coding – Loops

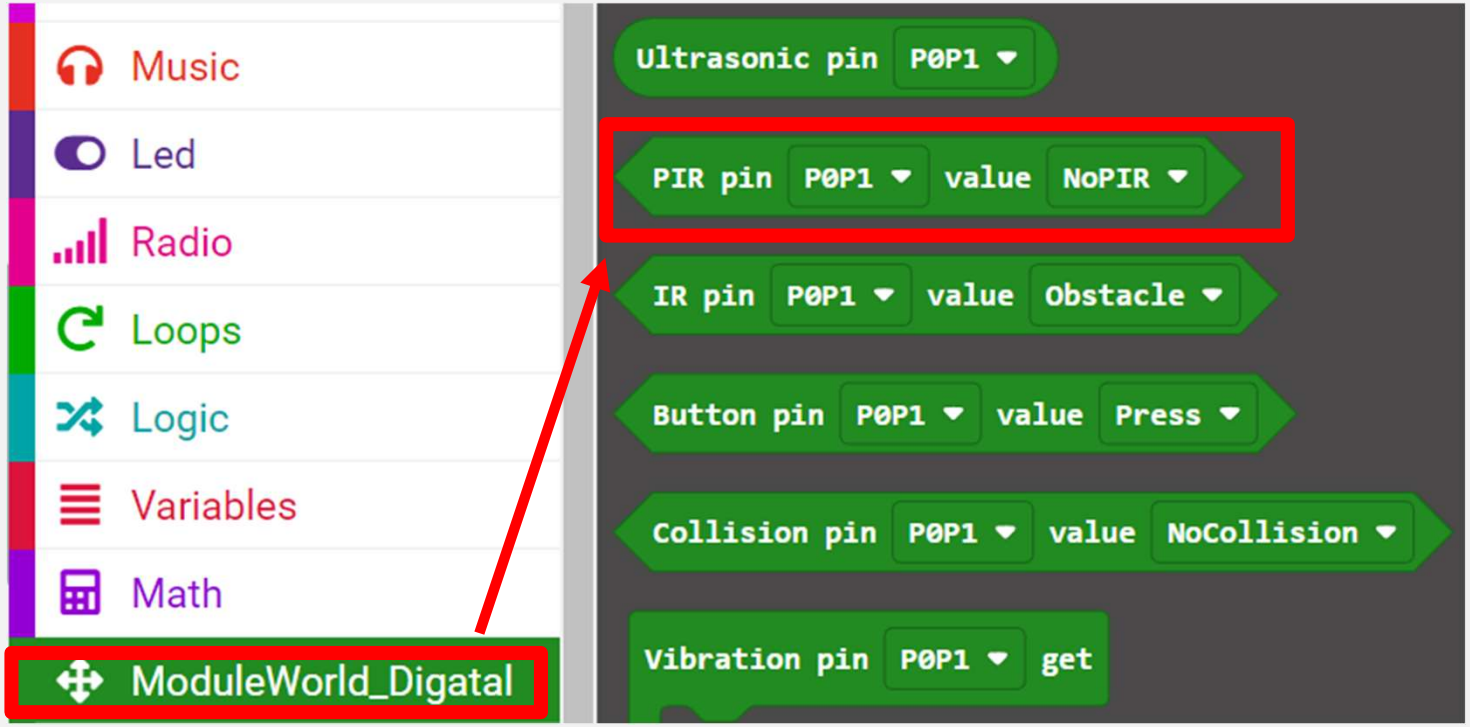
# Coding – Logic



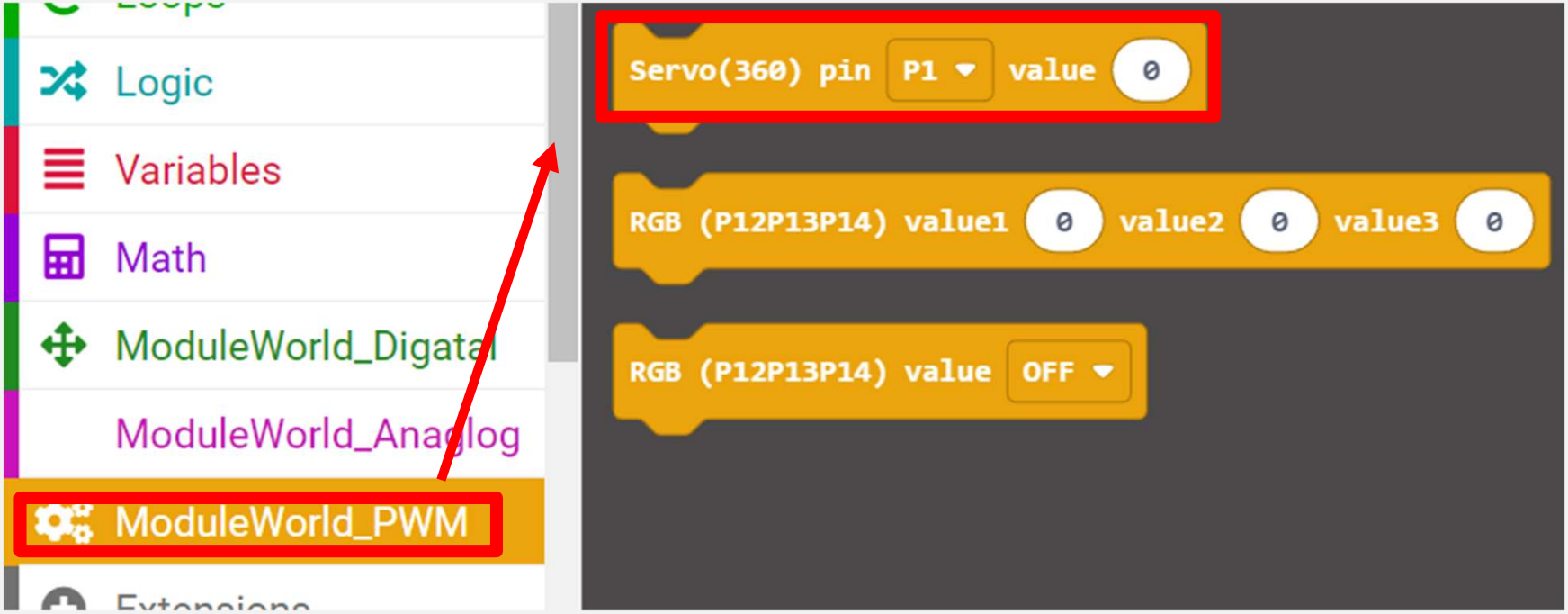
# Coding – Math



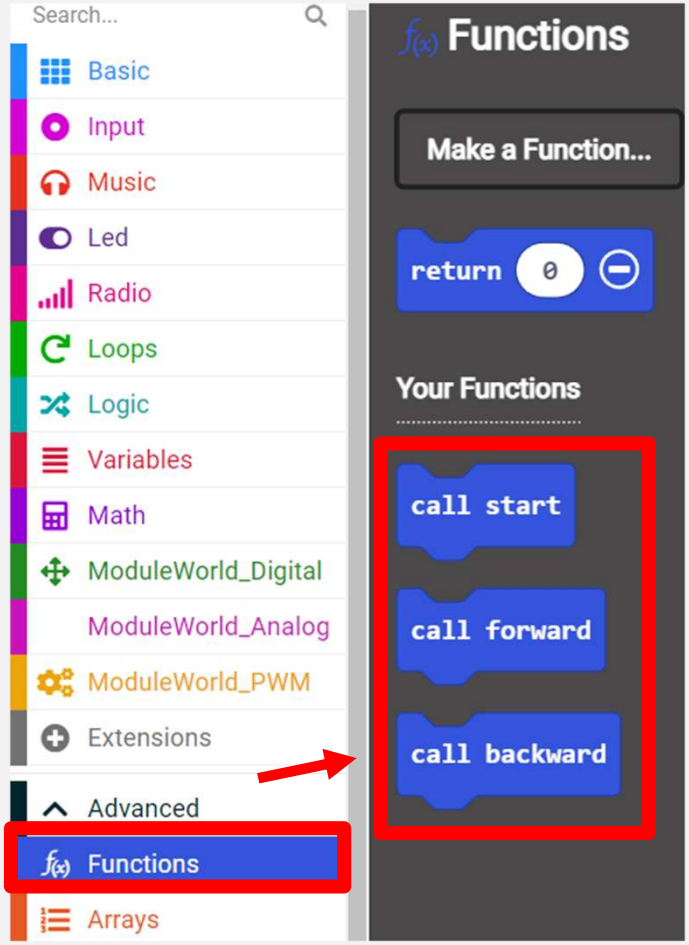
# Coding – ModuleWorld_Digatal



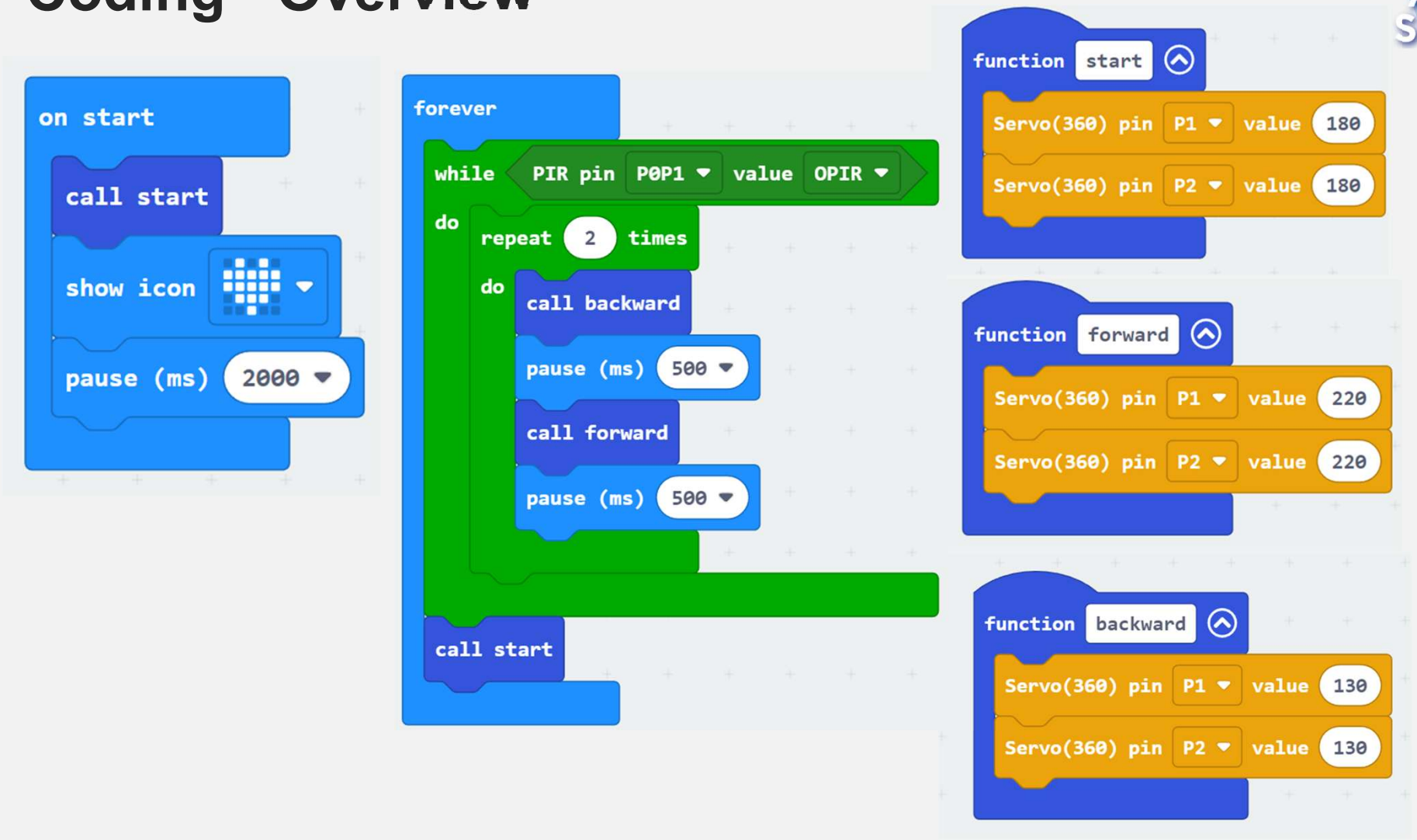
# Coding – ModuleWorld_PWM



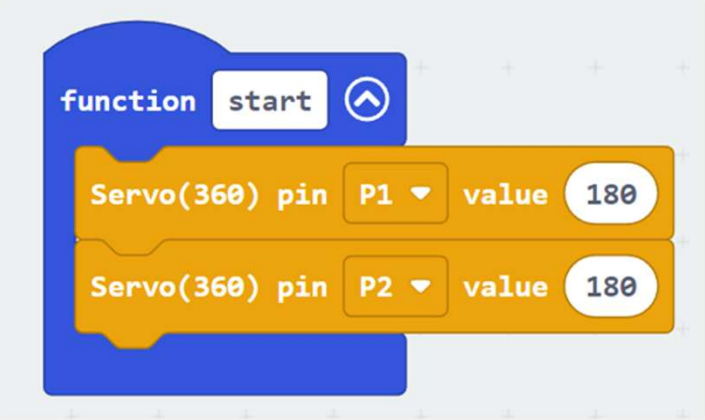
# Coding – Advanced > Functions

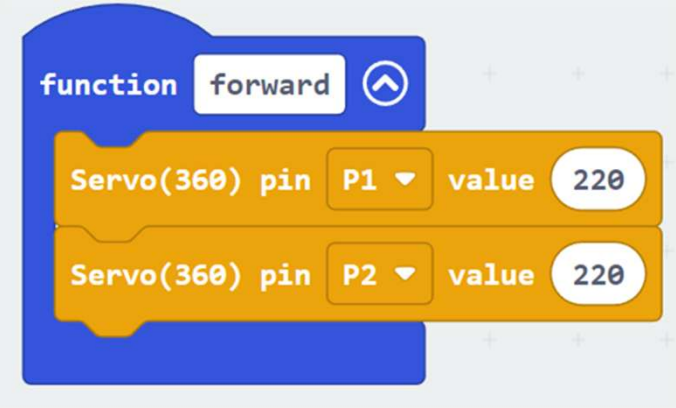


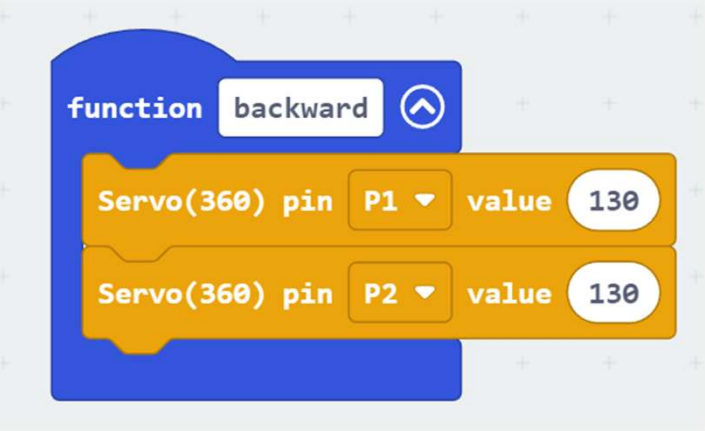
# Coding - Overview



# Coding – Functions

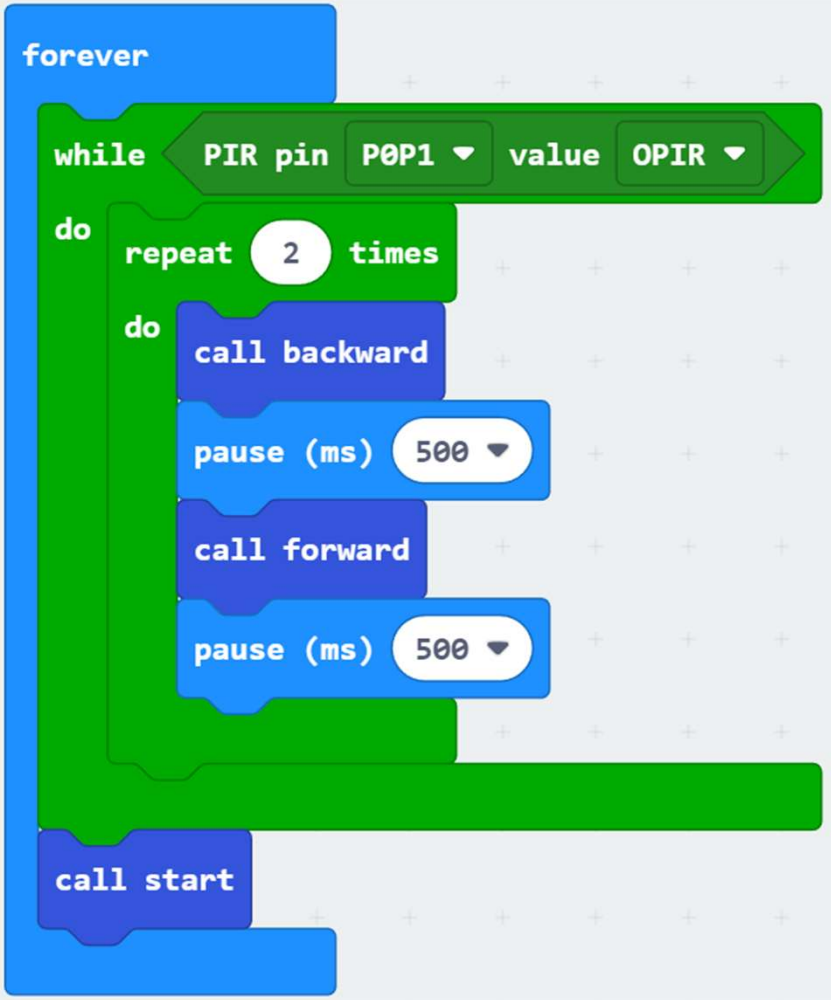


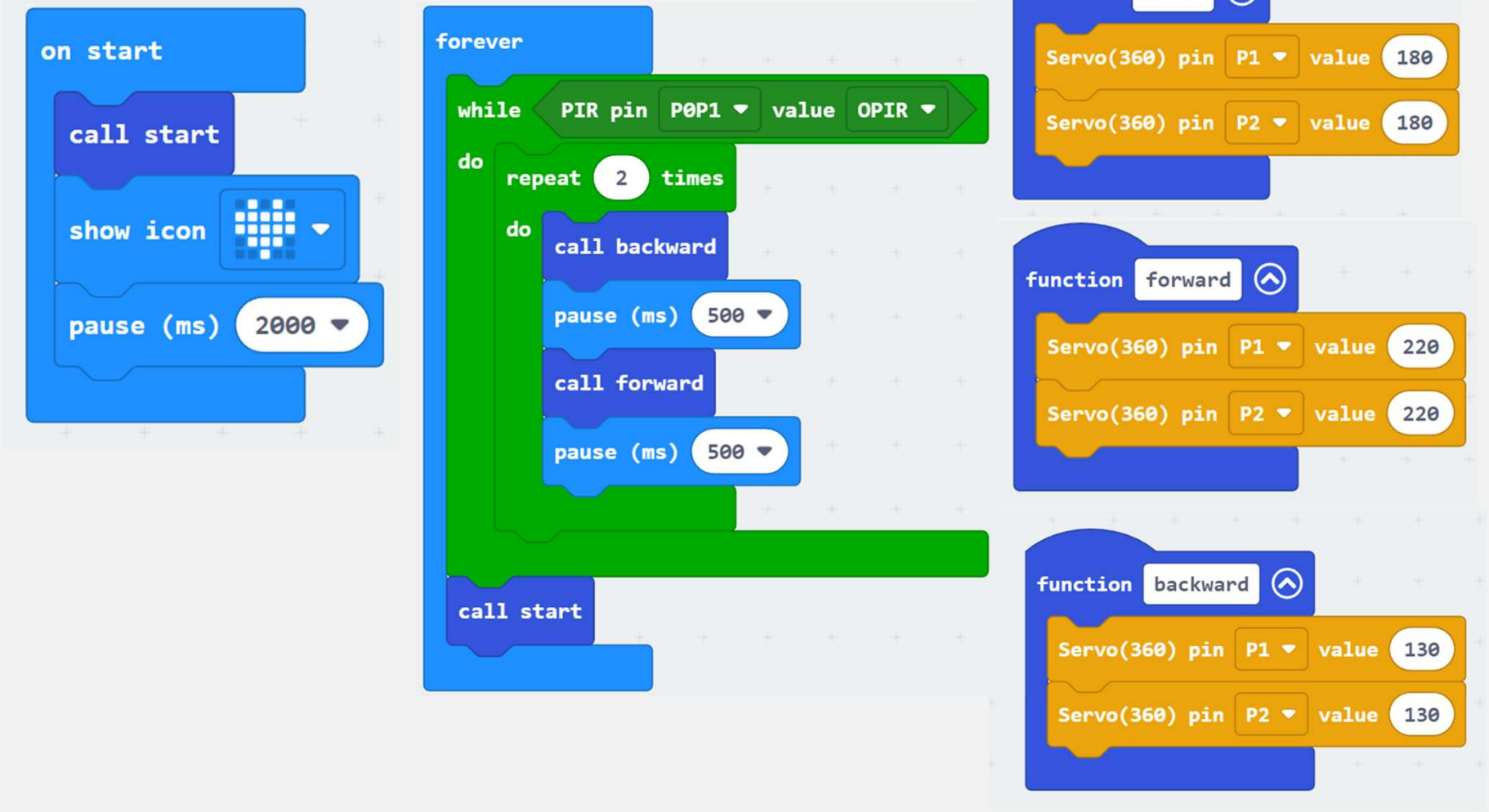



# Coding – On start

# Coding – forever

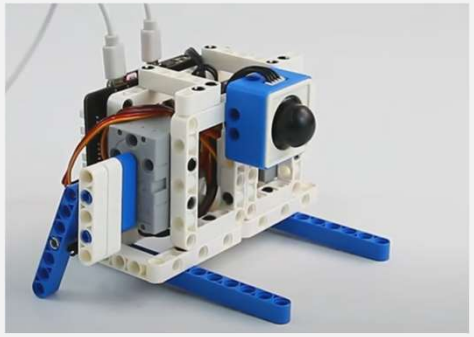


# Coding - Overview

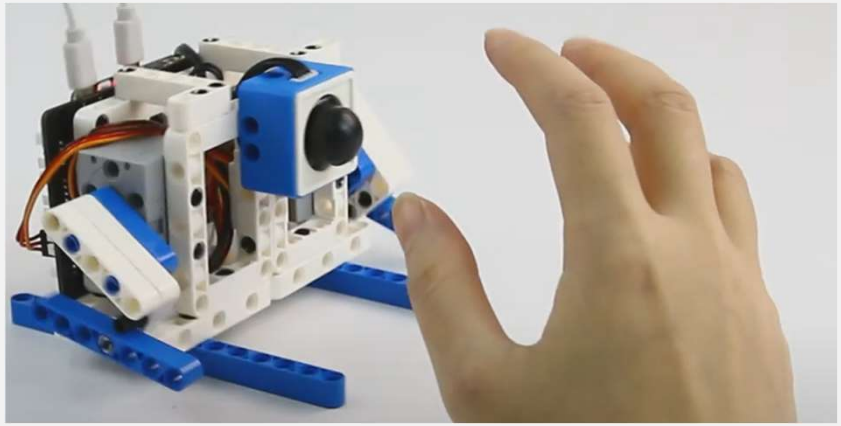


# Phenomenon

After the program is downloaded successfully.
We can see a love heart displayed on the Micro:bit board, indicating that it is still being initialized, and the human infrared module cannot be triggered at this time.



When the human body infrared module detects that there is a human body moving, the escape box will swing its arms and move forward slowly.



# CHALLENGE

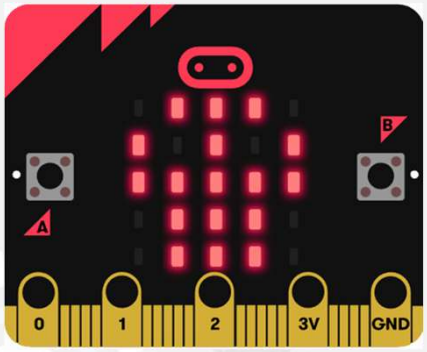
# for : Lesson 1

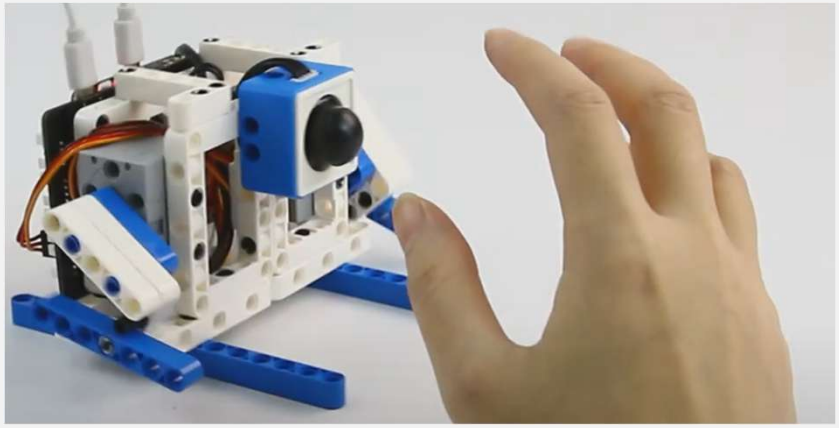
# L1 – Challenge

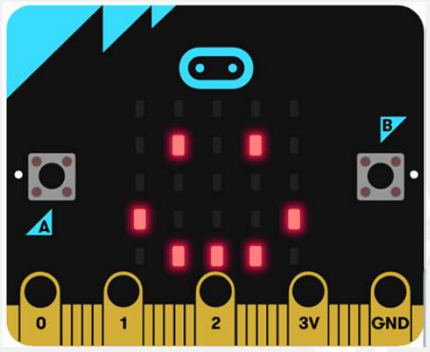
After the program is downloaded successfully.

When it detect movements, the dot matrix will switch to an alarm pattern and the escape box will swing its arms and move forward slowly.

If there is no movement, shows a smile pattern, it means that the module is in normal working condition

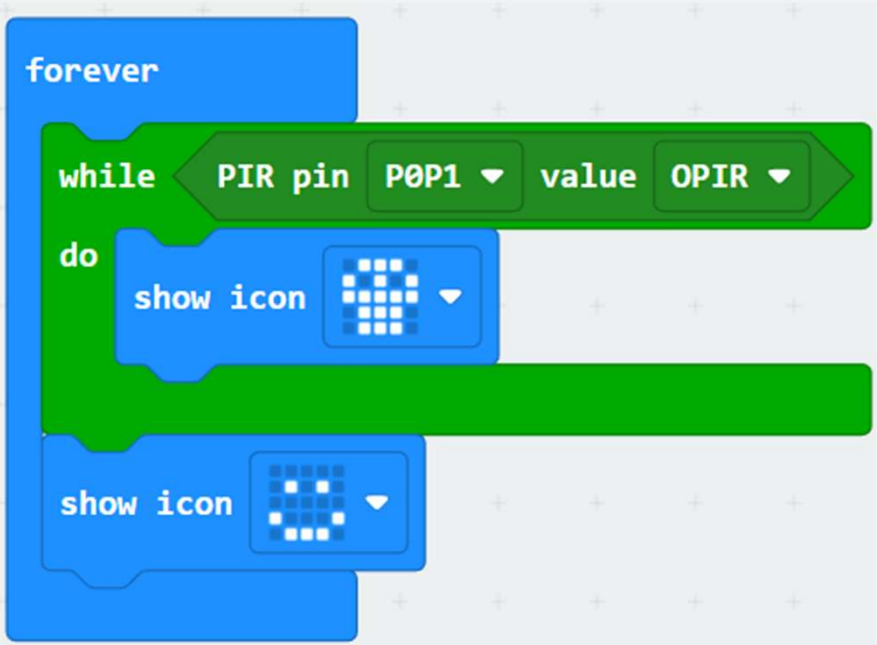




Example

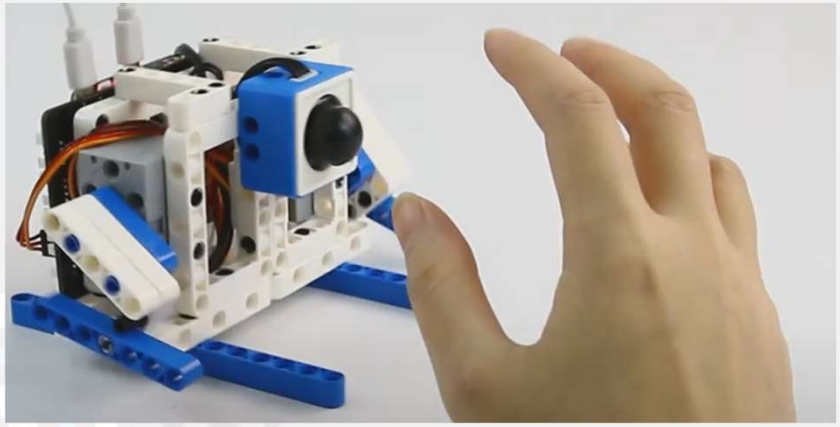
# Coding – forever

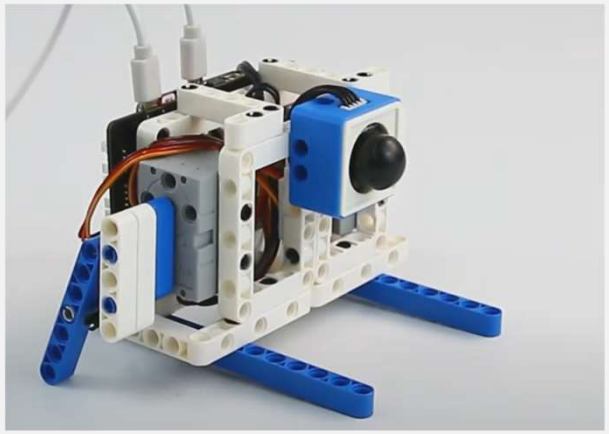


# L1 – Challenge 2

After the program is downloaded successfully.

When it detect movements, instead moving forward, the escape box will swing its arms and move backward slowly.

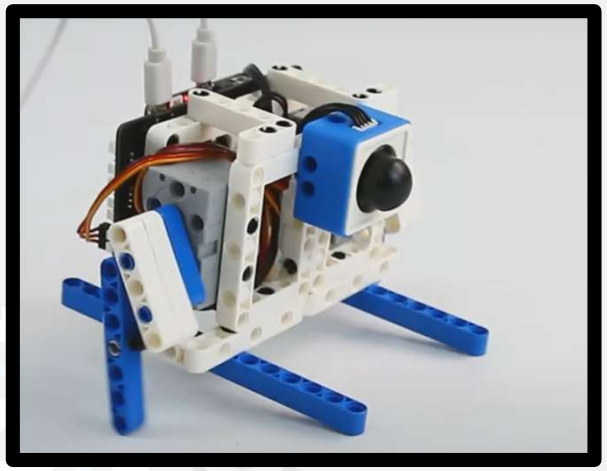


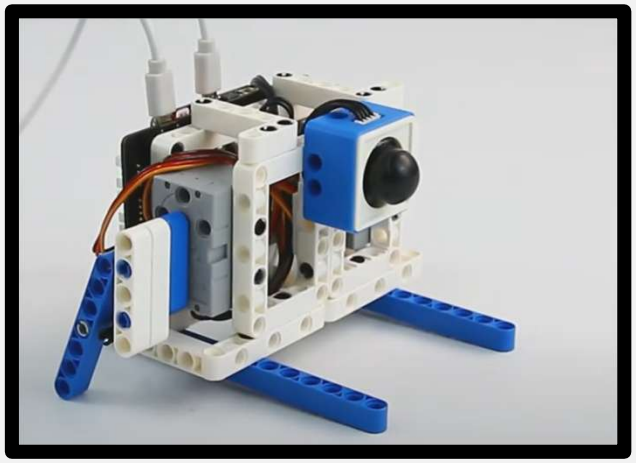


# L1 – Challenge 3

After the program is downloaded successfully.

When it detect movements, buzzer will also play an alarm sound:
- The volume of the sound will rise at first
- The volume of the sound will fall at last

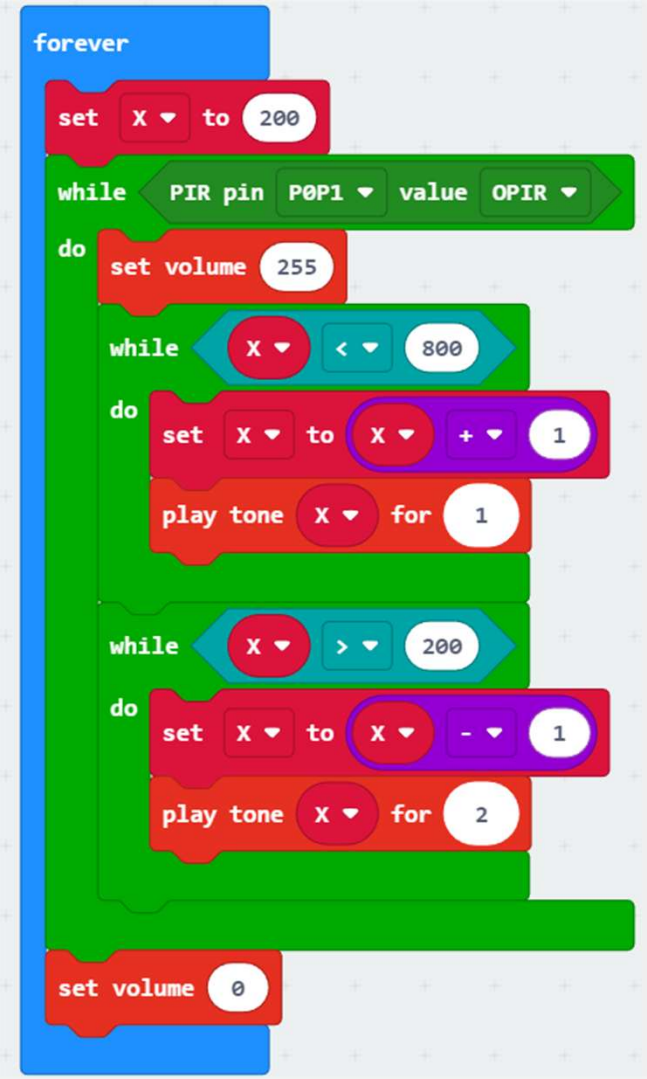




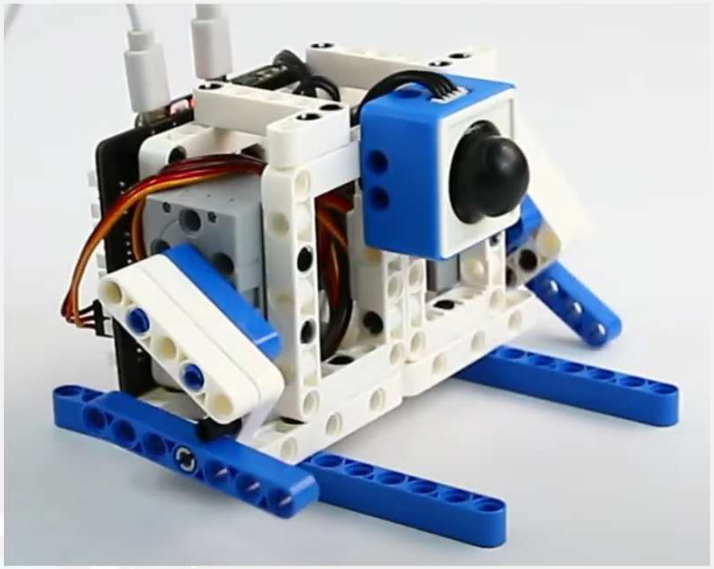
Example

# Coding – forever

the buzzer will play the alarm sound

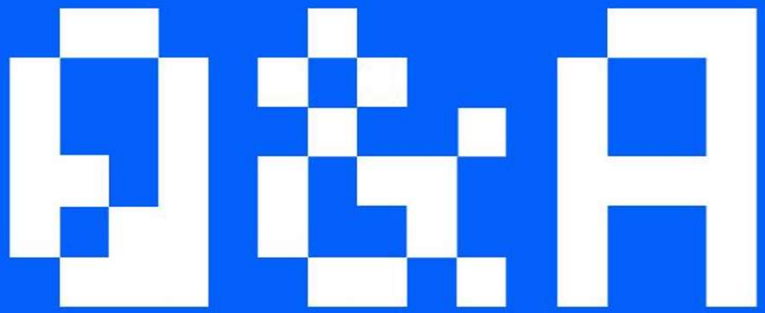


# L8 - Mission



After the program is downloaded successfully.

When it detect movements, the running box will swing its arms and move forward/backward , but if there is an obstacle, it will stop.



Any Questions?

# Thank you :)