MRT
(Beginner Level)

3.2

my robot time

MRT3 Series

- MRT3 curriculum is developing for helping students(age 6 - 13+), through robotics, learn essential STEM (science, technology, engineering, and math) concepts.
- Step by step and systematic building instructions for MRT3 educational robot kits.

2 Beginner Level

1 Foundation Level

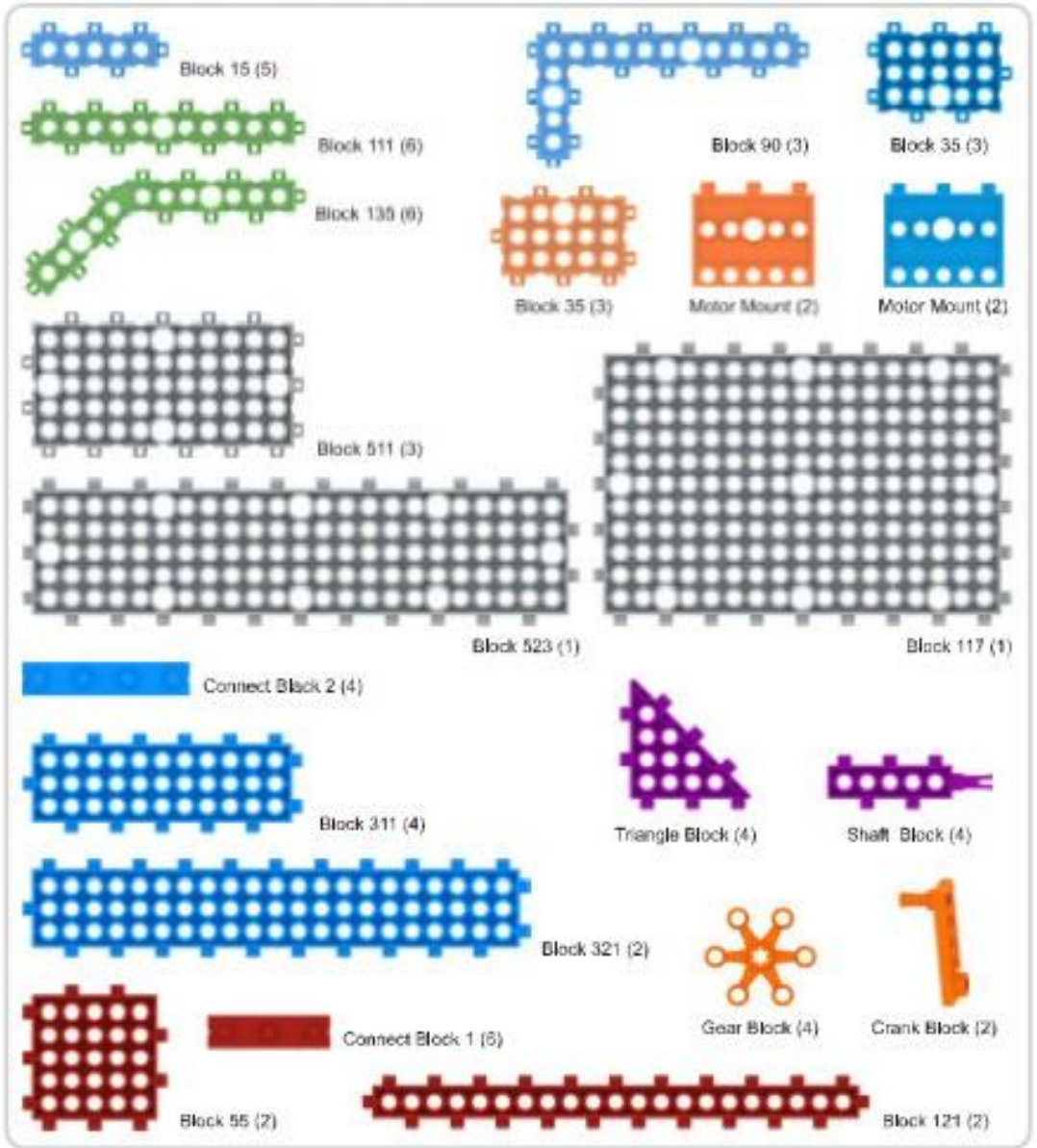
3 Intermediate Level

4 Advanced Level

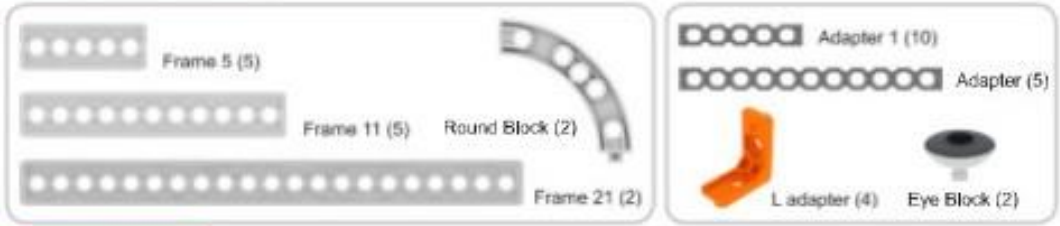
Part list

Block

※ The form and color of some parts may be different when compared to actual parts due to continues improvement of production quality.

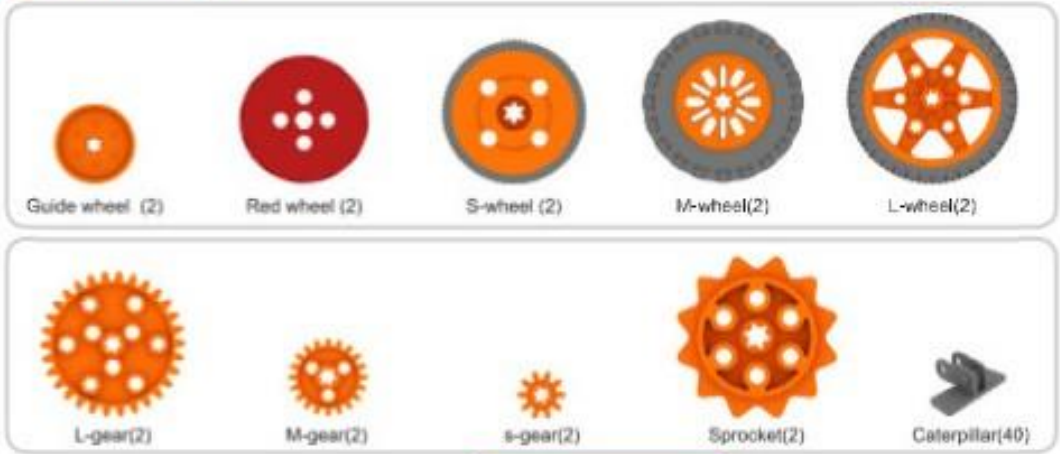


Frame / Adapter



Shaft / Bush

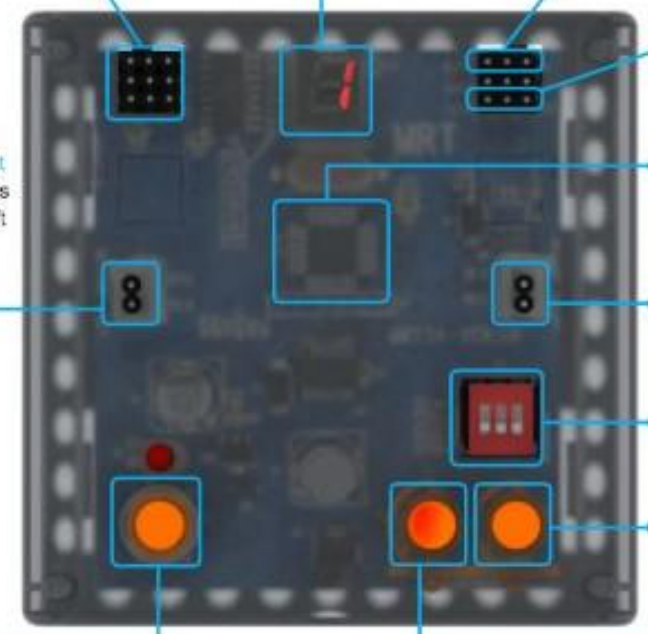
Gear / Wheel



Electronic Parts

Technology — How to use the electronic parts?

Mainboard assenmbley/Funcion of each feature



IR Sensor Input connector
This input coordinates the signals that are received from the IR sensor.

LCD Status Display
Display the status of 10 modes.

Remote Sensor Input connector
This input coordinates the signals that are received from the remote control.

Speaker Output
This output coordinates this signals that are received from the speaker sensor.

MCU IC is responsible
for the saving and running program. (Acts in the role of the brain.)

Left DC Motor connect
The output coordinates the functions of the left motor.

Right DC Motor connector
The output coordinates the functions of the right motor.

Modifying Remote Control ID Switch
This part is for setting remote control ID.

Program Start Button
Start button for each mode.

Power Switch
Power on/off switch.

MODE Settings
Modify modes of program.

Power Connector
Connects to the 6V battery packs.

Mode Setting

1. Press mode button and the LCD will be changed as below. Please select your favorite function.
2. After selecting your favorite mode, press start button and the robot will move.

MODE 1	MODE 2	MODE 3	MODE 4	MODE 5
Free Move	Remote control control	Line Tracer	Avoider	Stalker

MODE 6	MODE 7	MODE 8	MODE 9	MODE 0
Drop Checker	Touch	Remote Control + IR	Remote Control + Touch	Remote Control(R)

IR Sensor

"Send" light
An infrared signal is sent to the object.
If there is a reflection, the information is sent to the 'receive' light part.

"Receive" light
This receives the signal from the above part and converts that signal into the input signal.

Speaker Sensor

This sensor receives the Sound from MB and sent out.

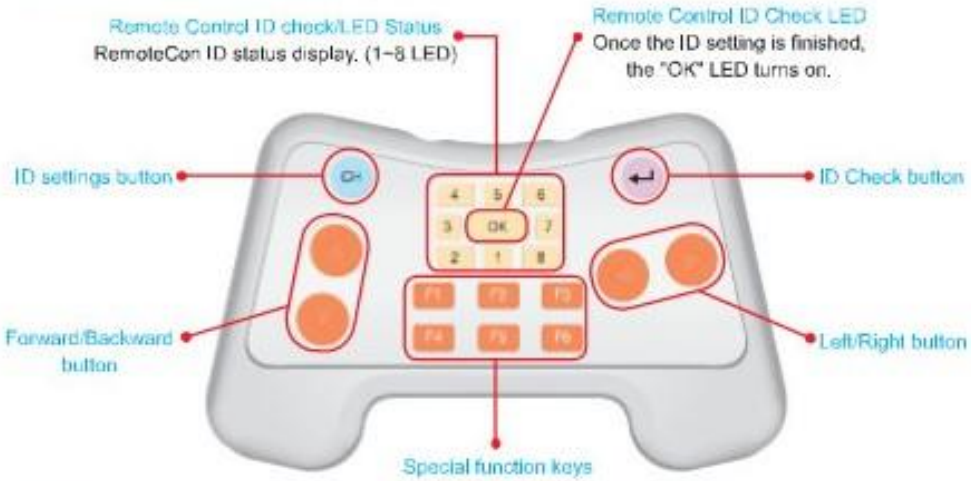
Toch Sensor

set the ontput singnal as ON/OFF function.

Technology Engineering

How to use the remote control?

Remote Control configuration



Setting remote control ID

① Turn on the robot.

② Select # 2 mode of robot.

③ Press button while holding button. The A panel ID LED turns on and shows you what mode you chose.

④ Press button while holding button and choose your ID. (Number 1~8)

⑤ After selecting ID, if you release Button and press button, ID will be selected.

⑥ The LED on the mainboard will blink 3 times and it will turn off automatically.
That means the ID Selection is finished.

⑦ If you press button, you can see your selected ID.

※ If there is a problem, repeat steps 1-7 carefully.

How to set up communication ID

※ The maximum number of channels can be set as shown below without interference.
Use the picture to assign the channels to the communication ID.

CH 1 CH 2 CH 3 CH 4 CH 5 CH 6 CH 7 CH 8

What robots are we going to assemble?

1. Mini Tank

2. Duckling

3. Power Spin

4. Sumo-Bot

5. Skier Man

6. Huna-E

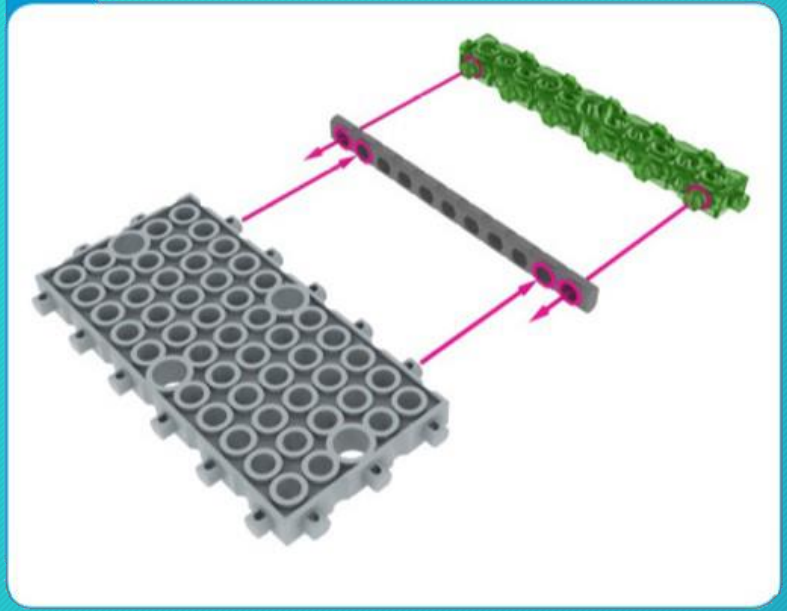
7. Line Tracer Train

8. Target shooting game with gun

9. Car and car key

Mini Tank Robot

1



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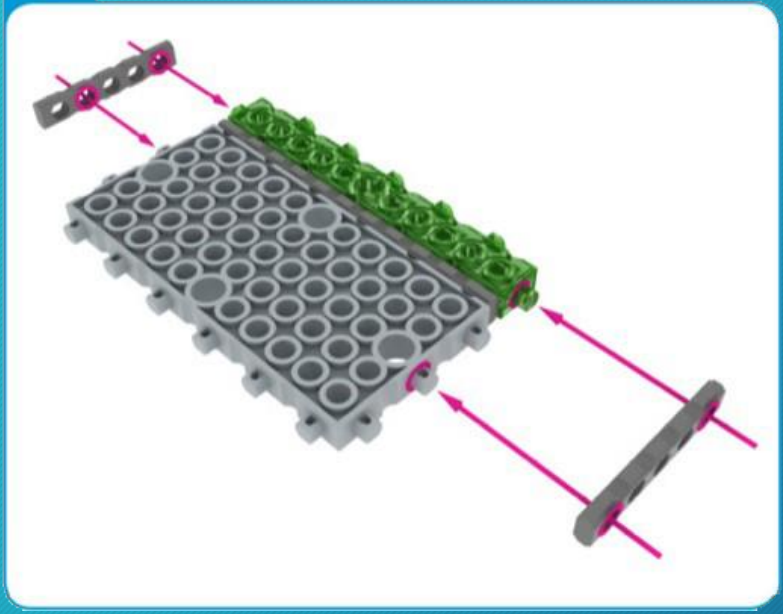

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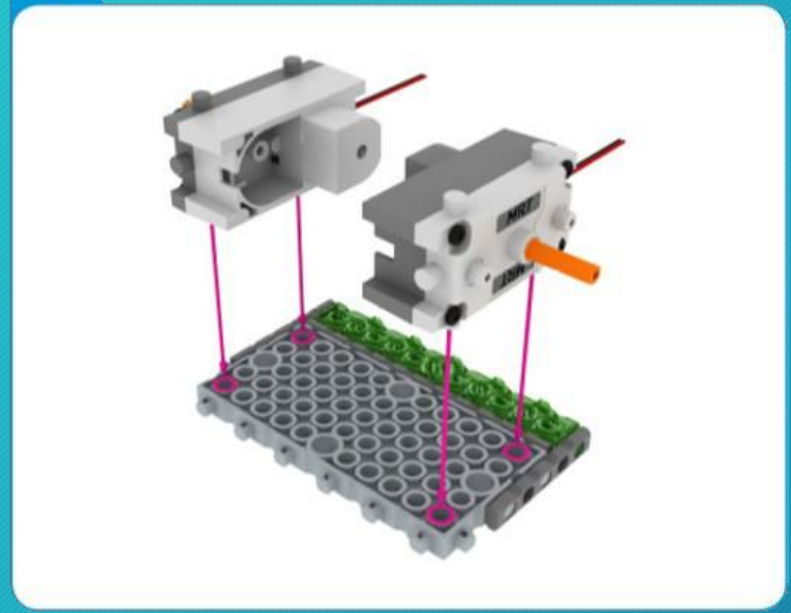

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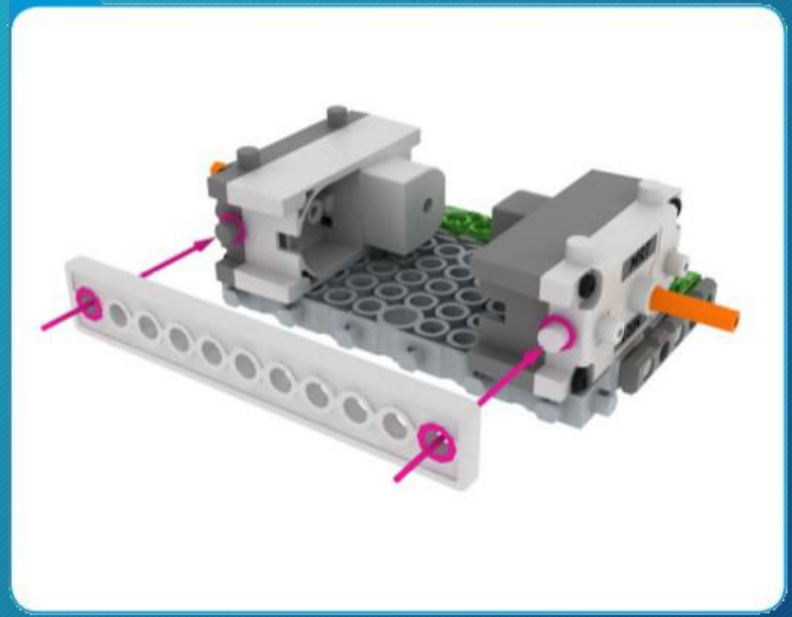

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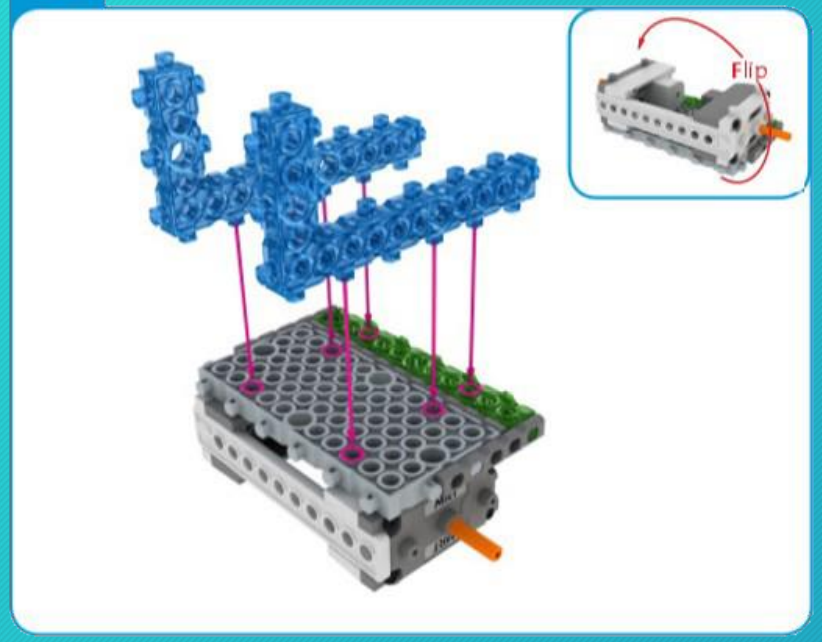

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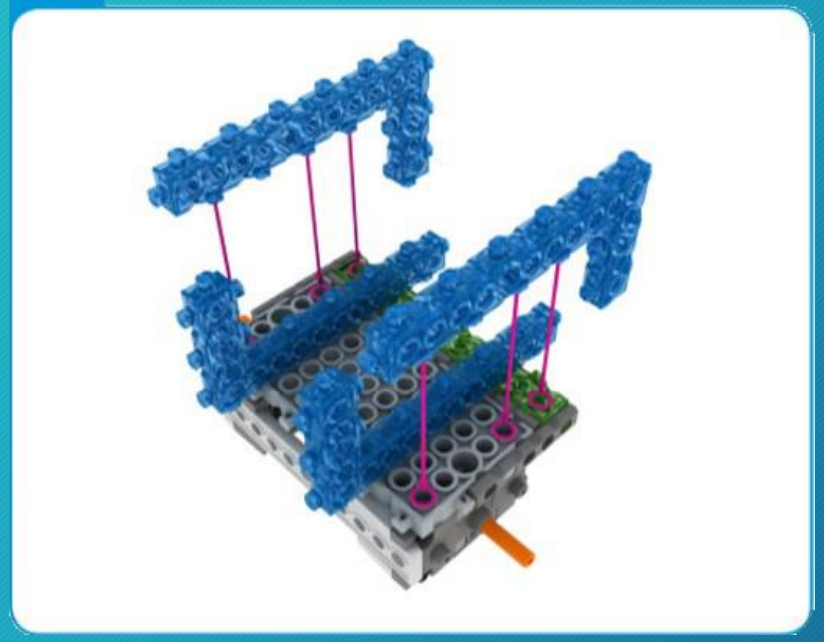

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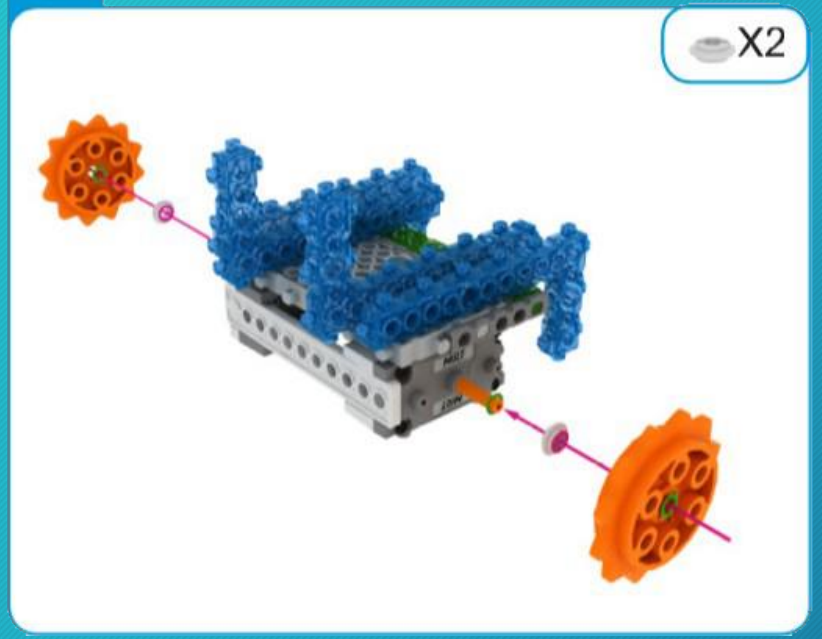

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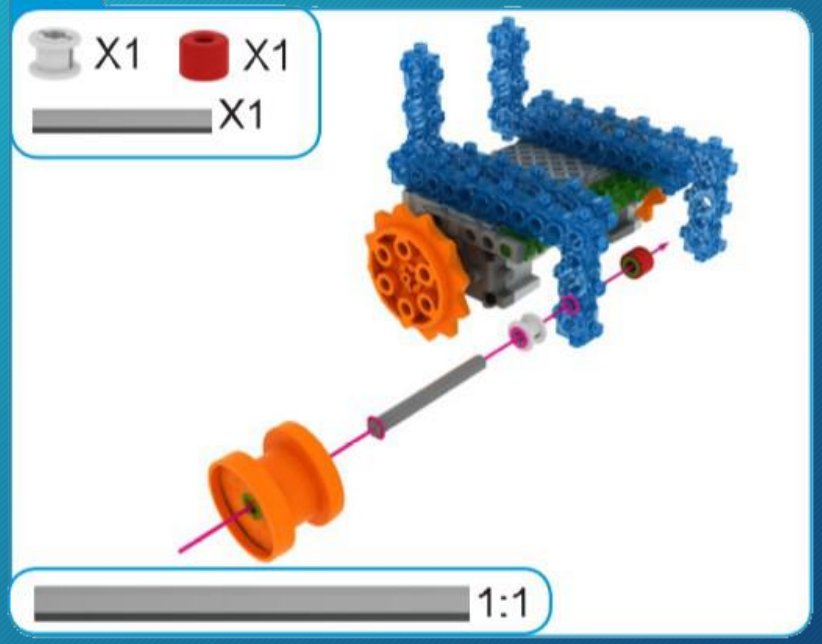

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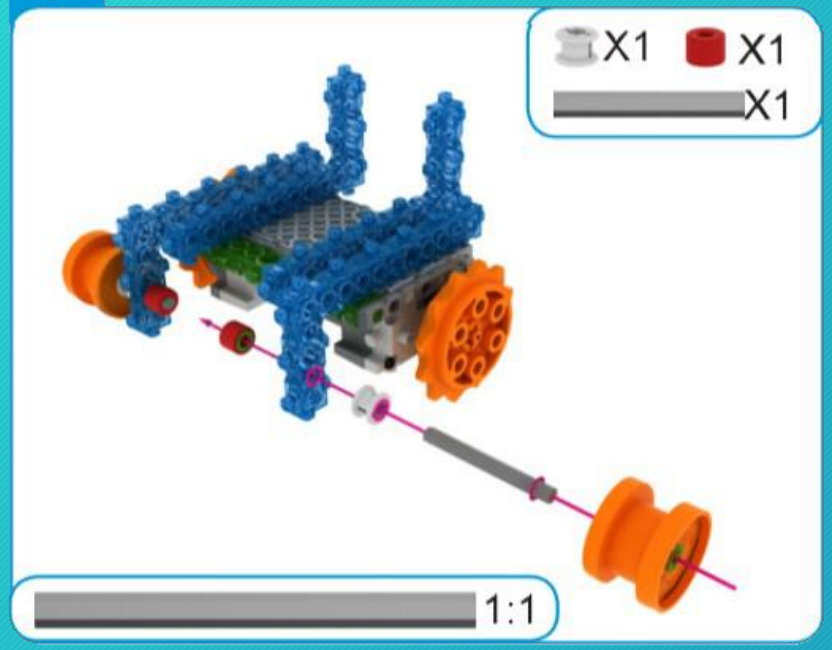

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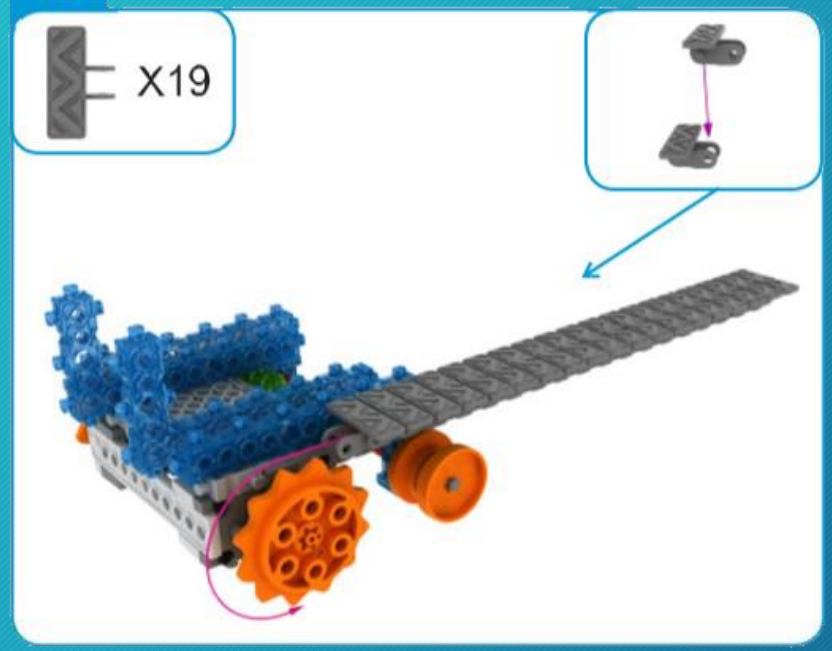

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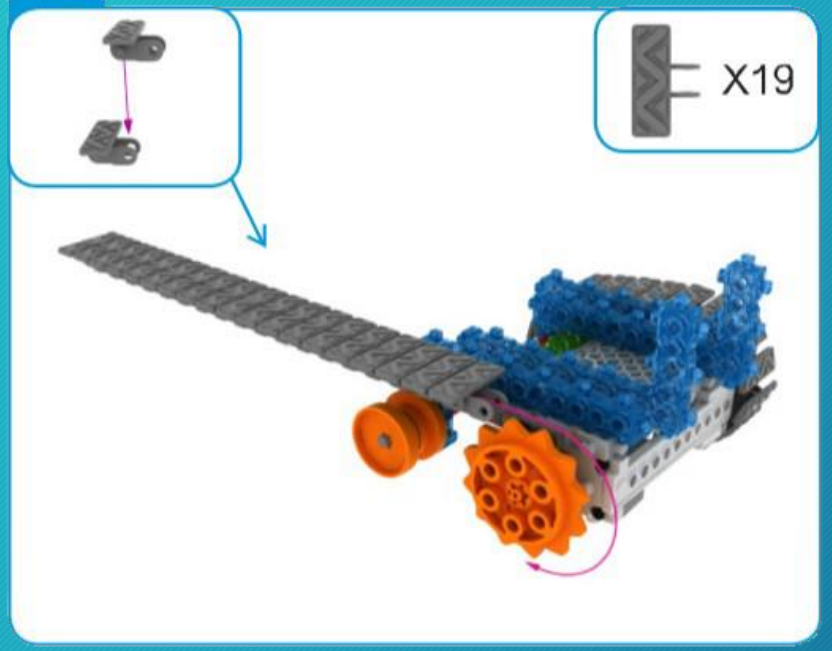

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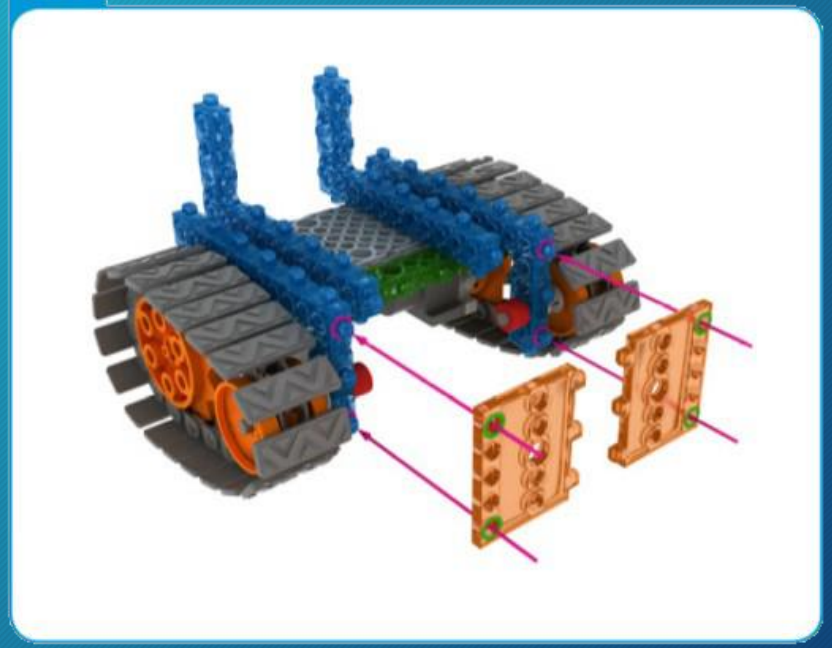

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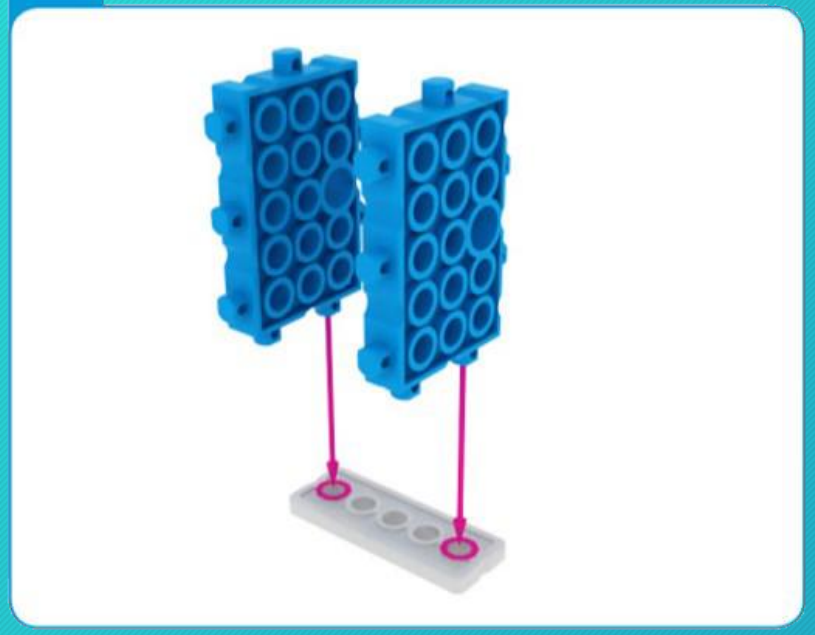

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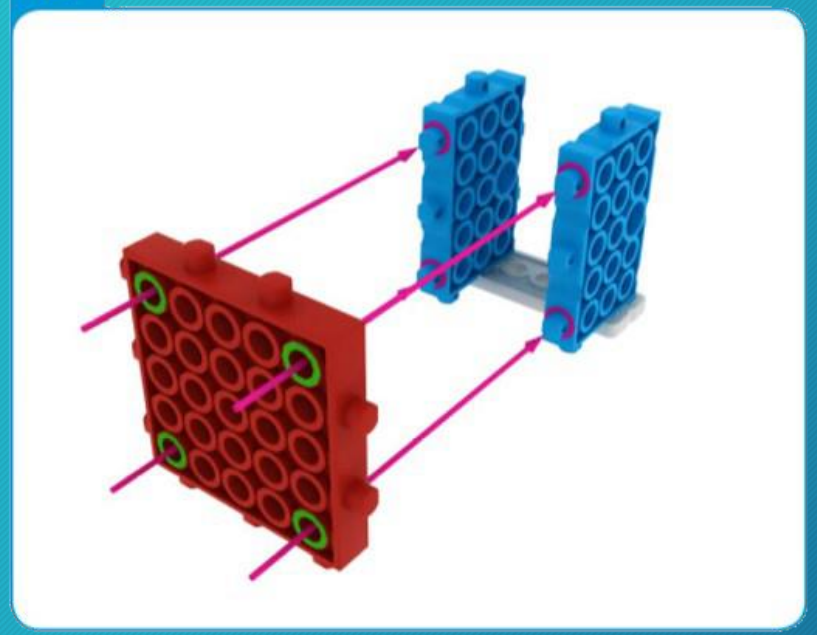

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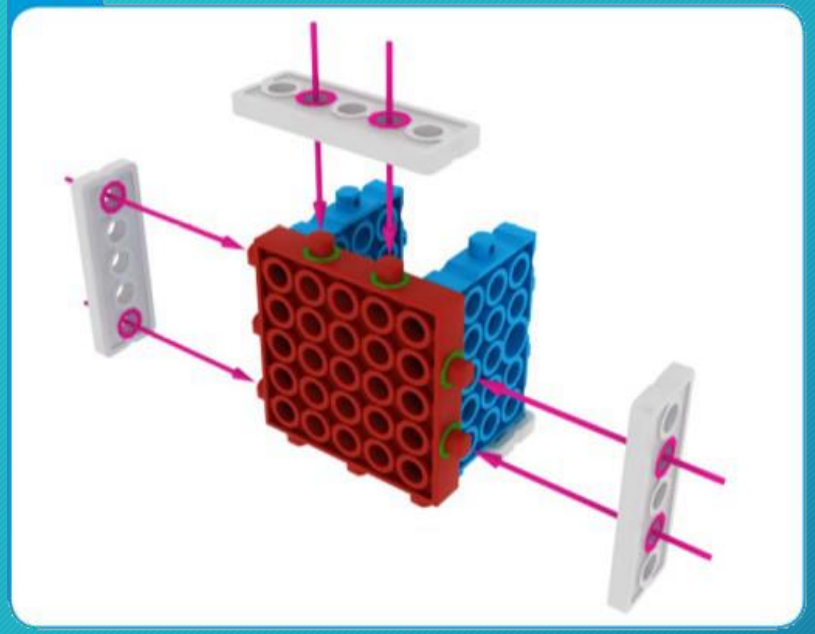

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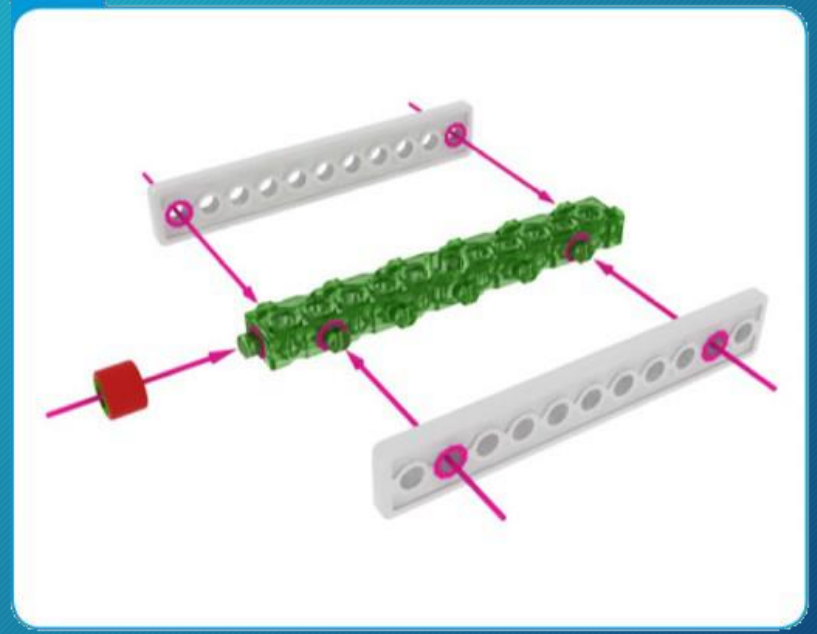

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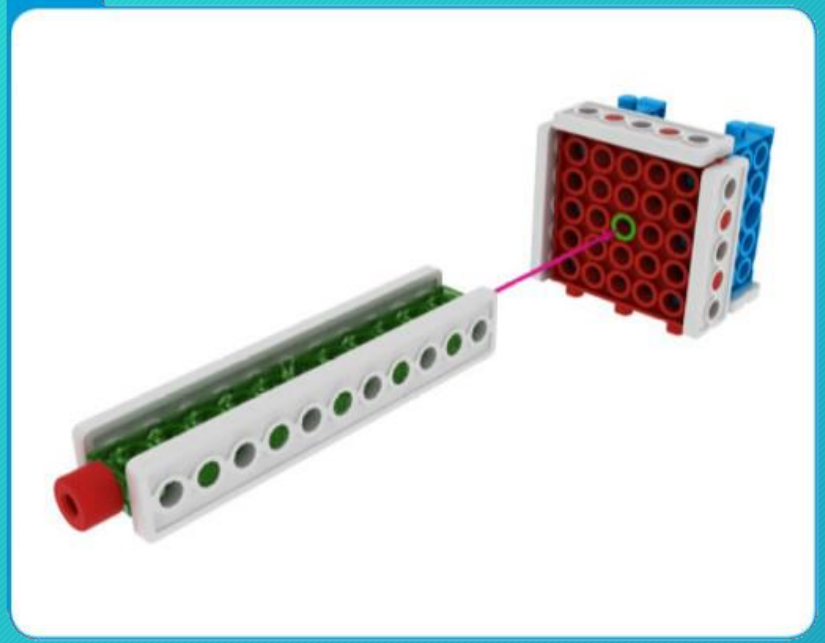

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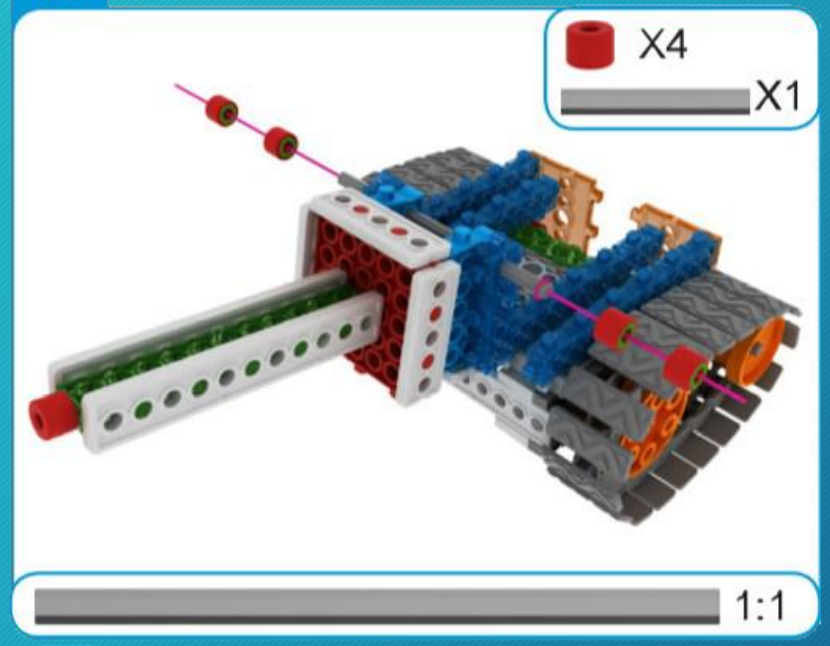

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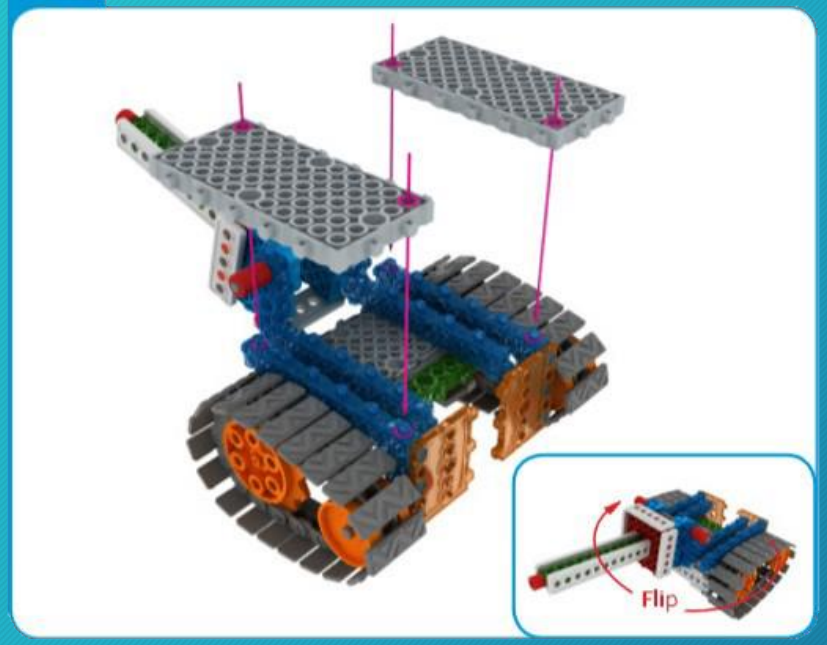

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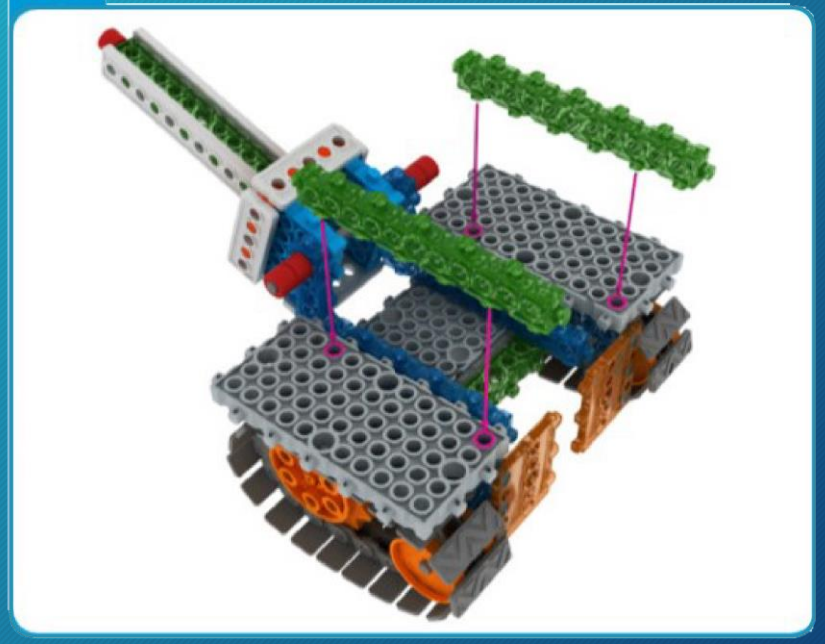

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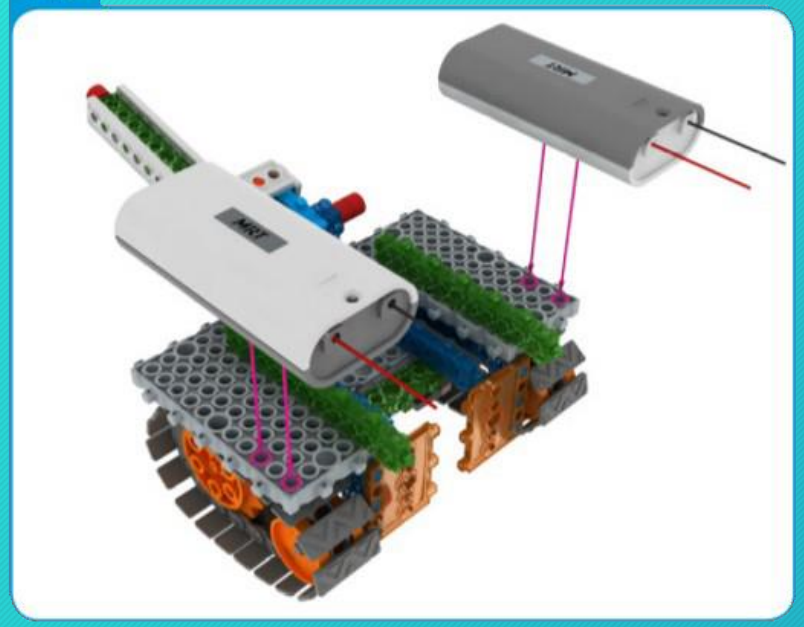

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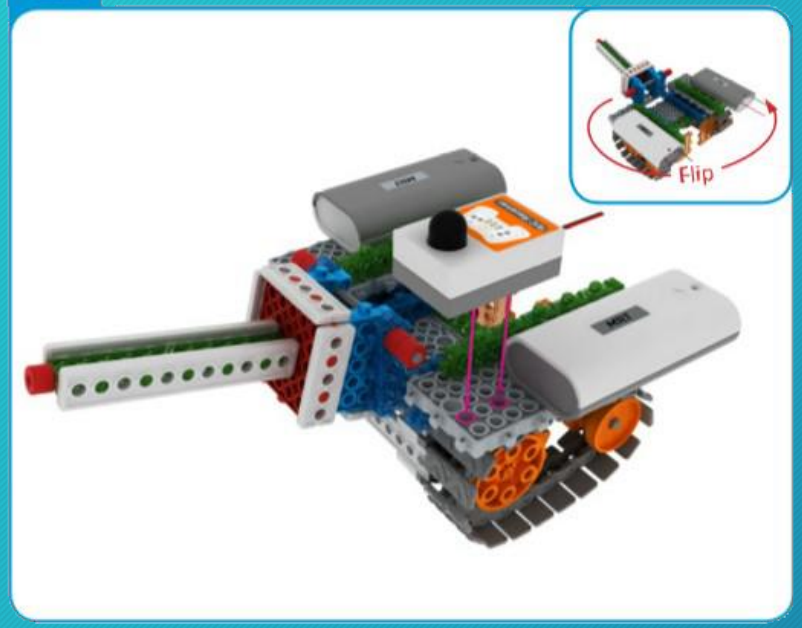

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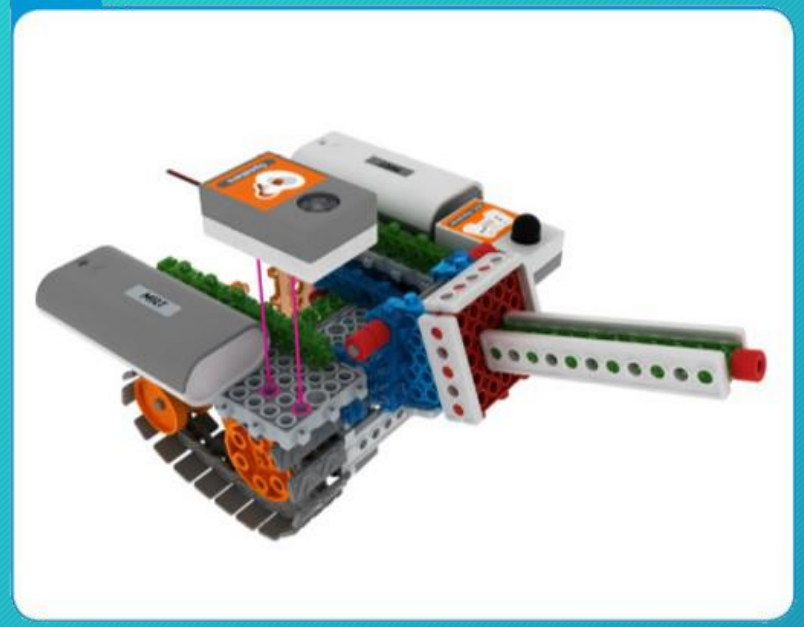

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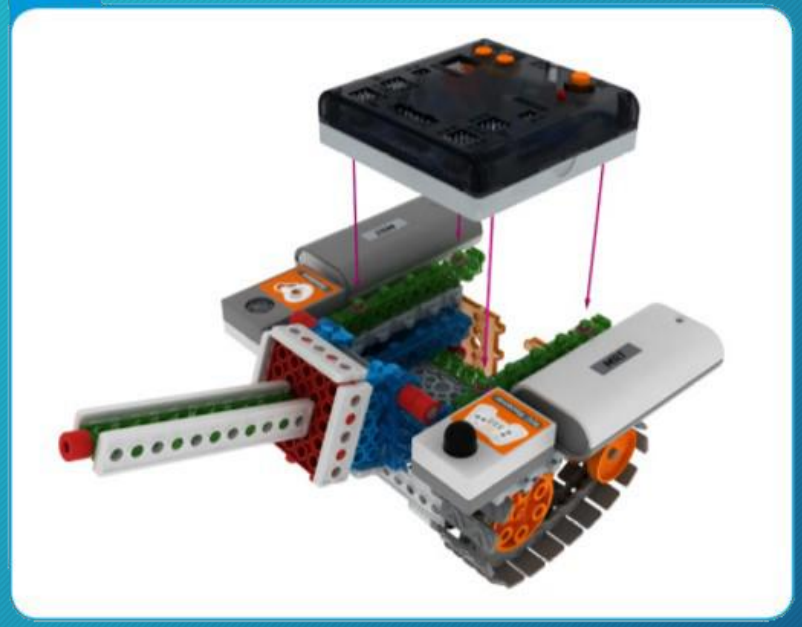

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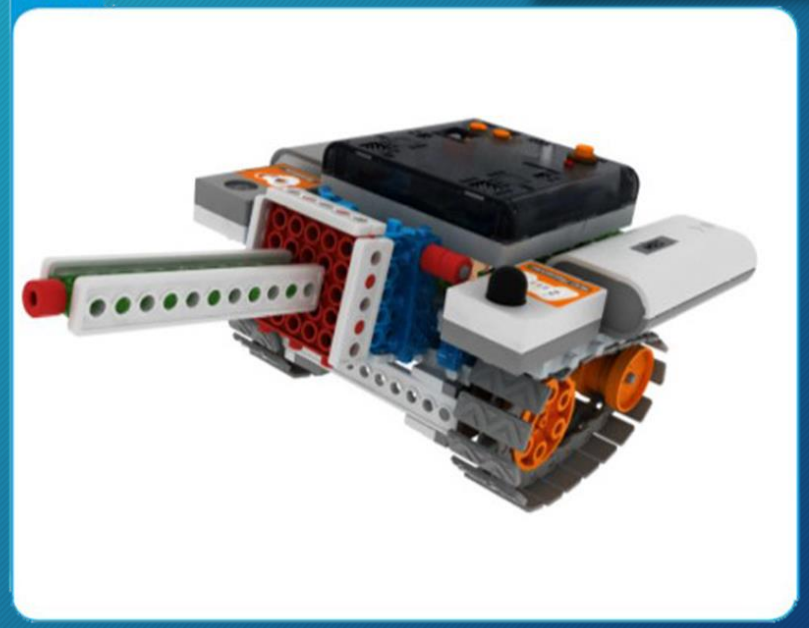
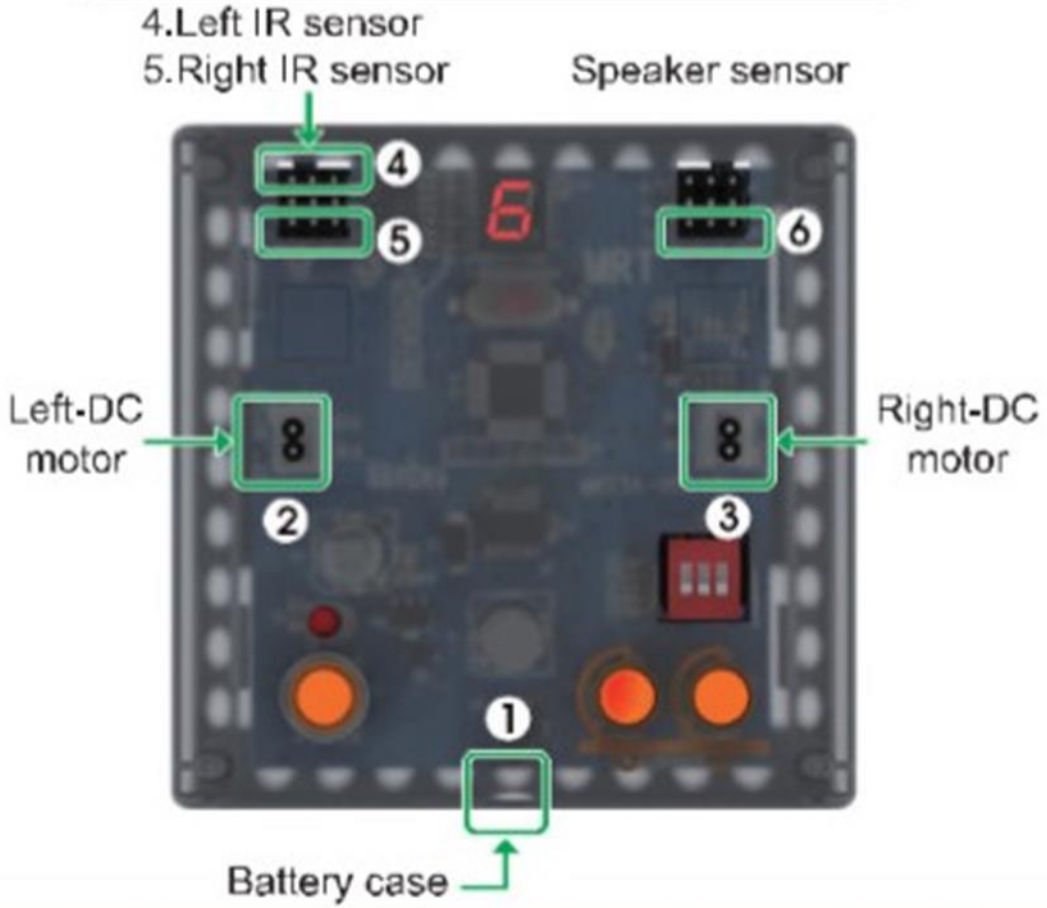


Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect Left-DC motor to Left-motor connector.
3. Connect Right-DC motor to Right-motor connector.
4. Connect Left IR sensor to R connector.
5. Connect Right IR sensor to R connector.
6. Comect speaker sensor to INZ connector.

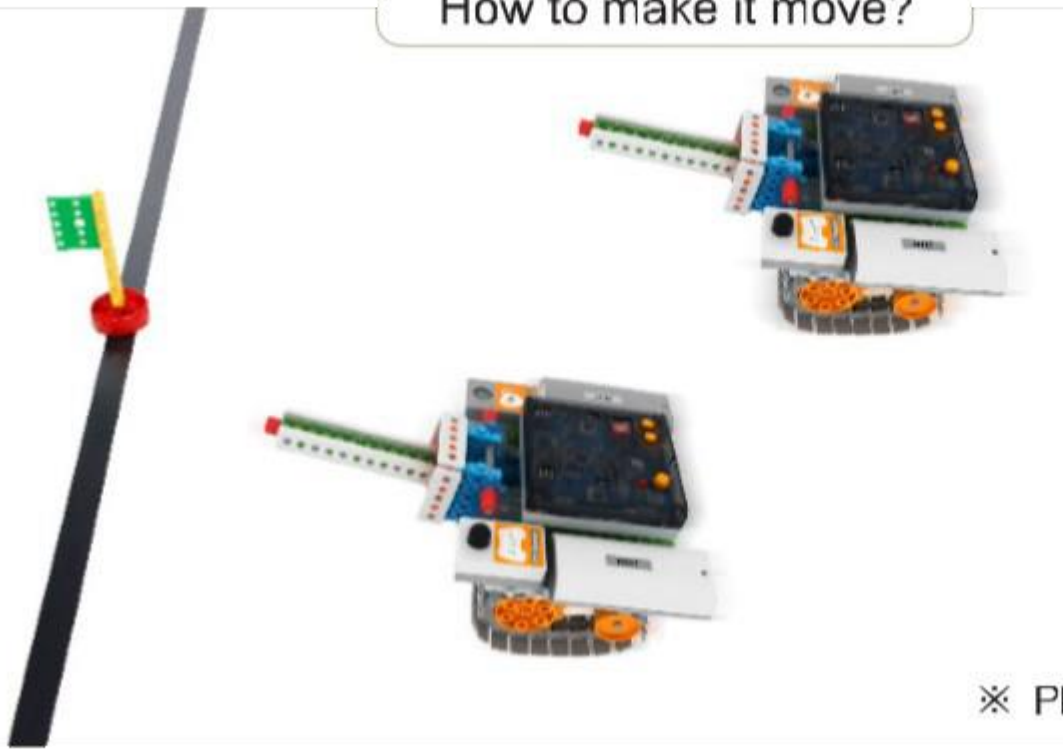
Setting mode

1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

MODE # 2		2	Remote control Mode

4. Select Remote ID.
5. Press the START button.

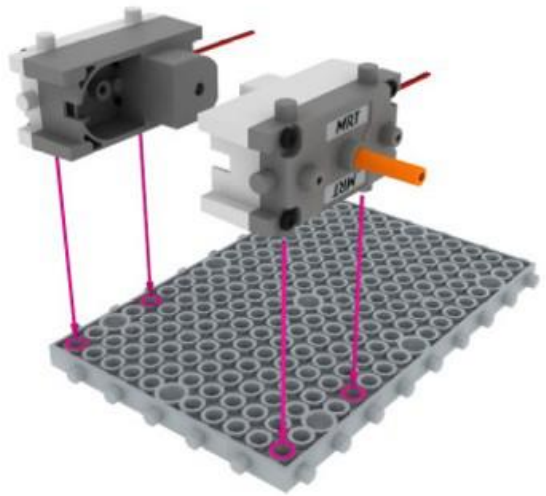
How to make it move?



※ Play funny game with your friends

Duckling Robot

1



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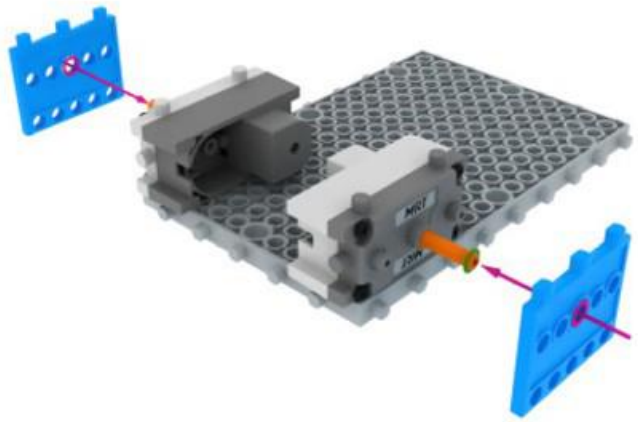

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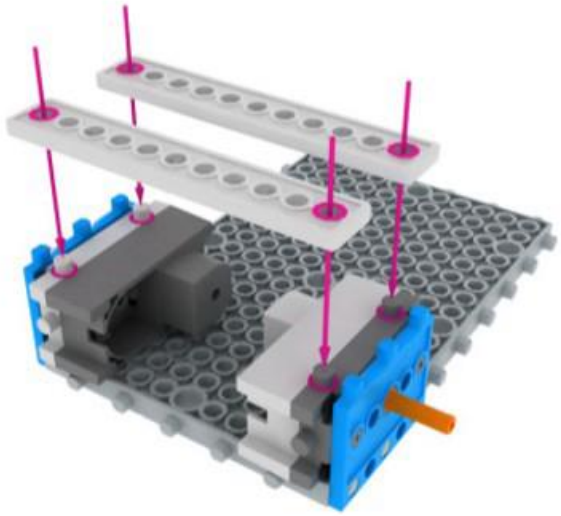

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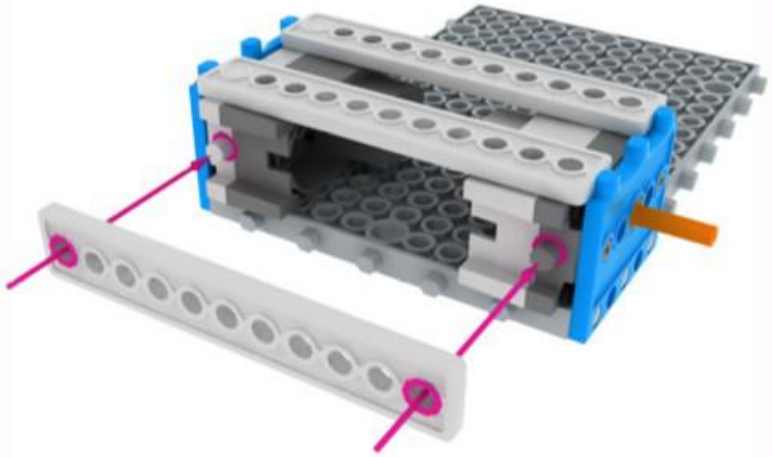

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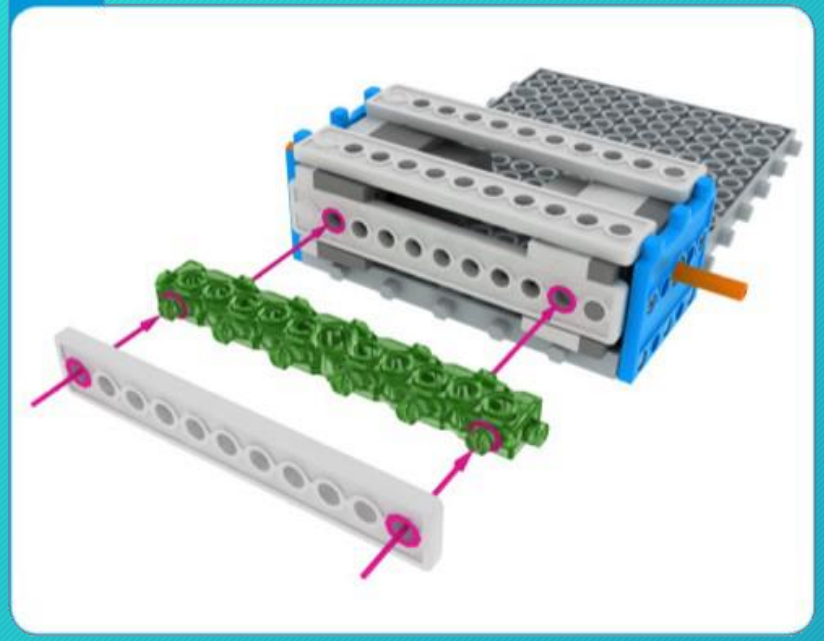

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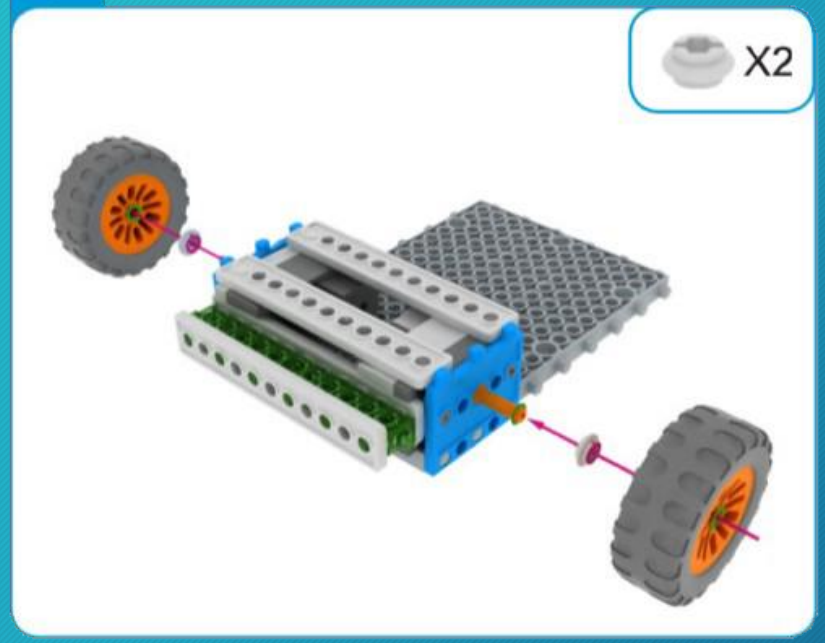

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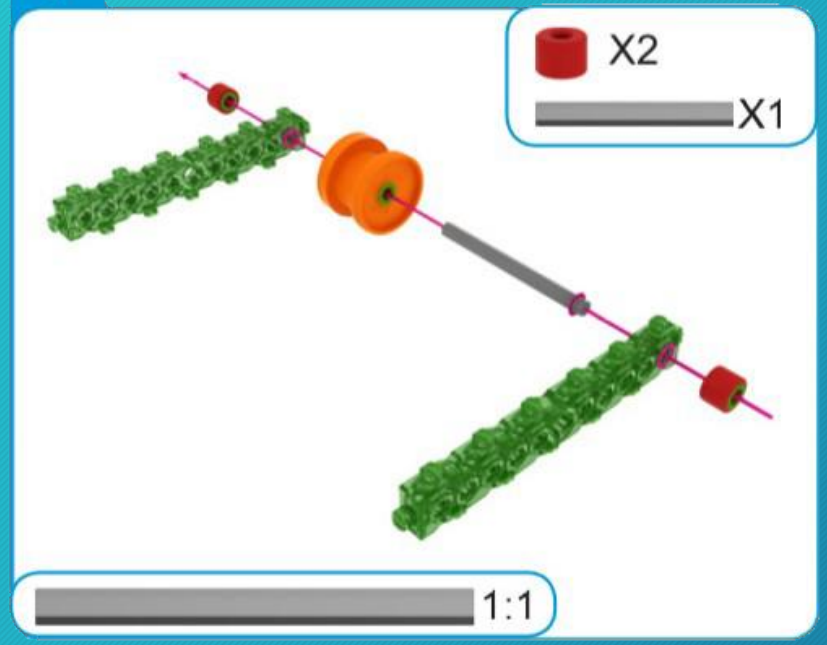

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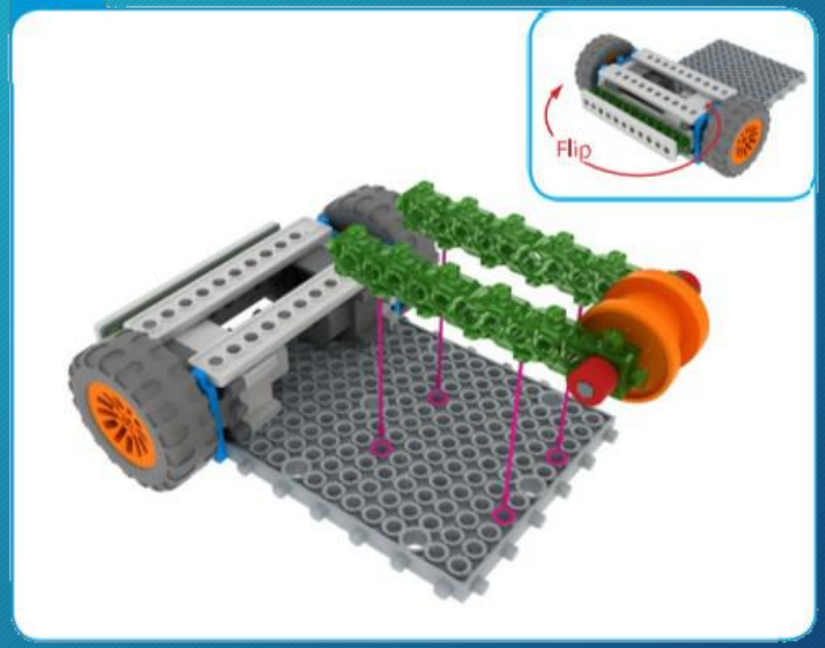

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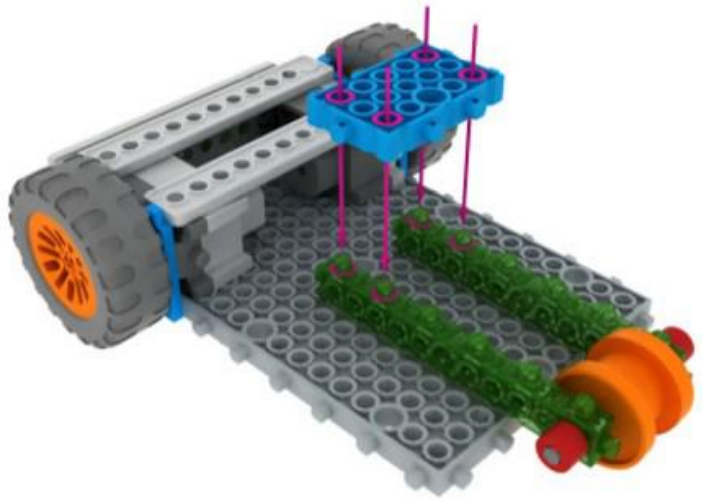

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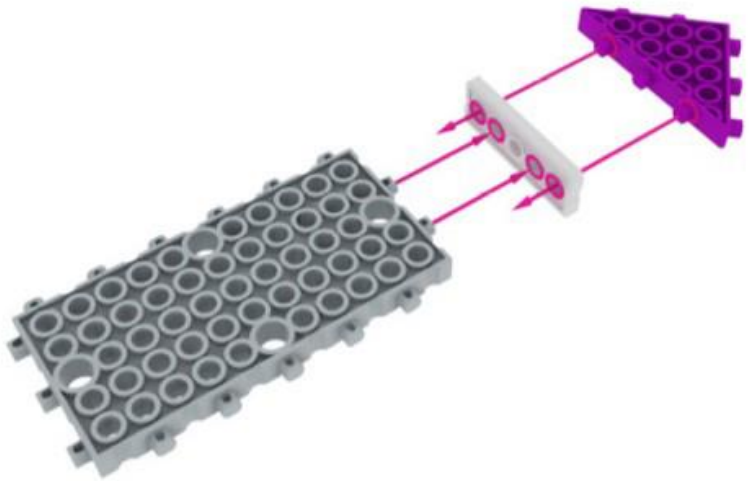

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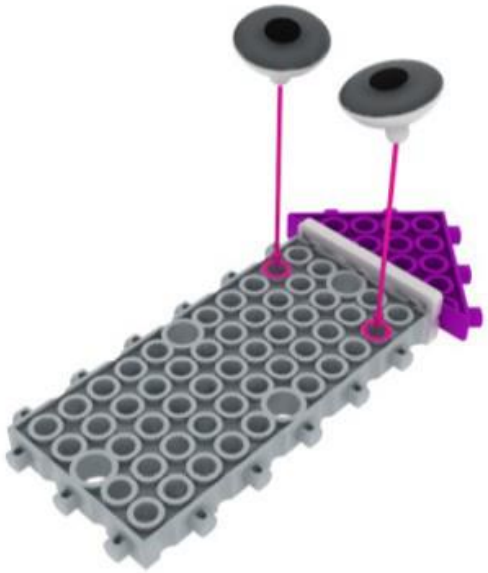

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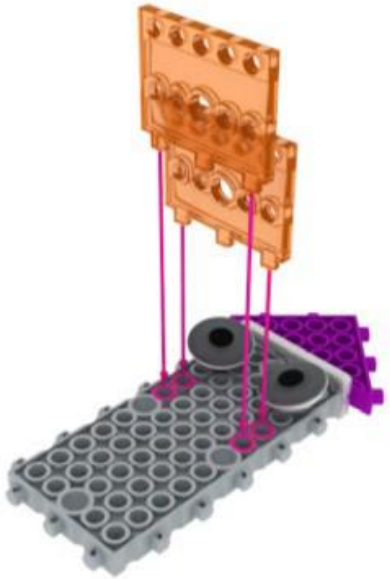

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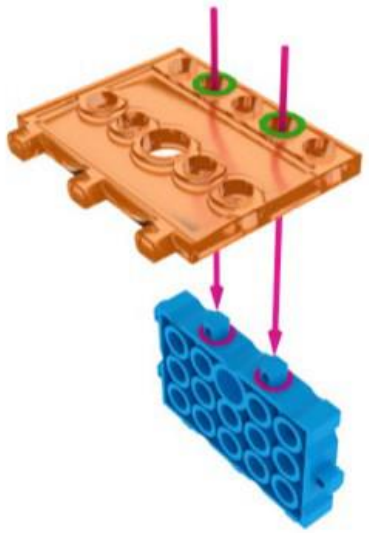

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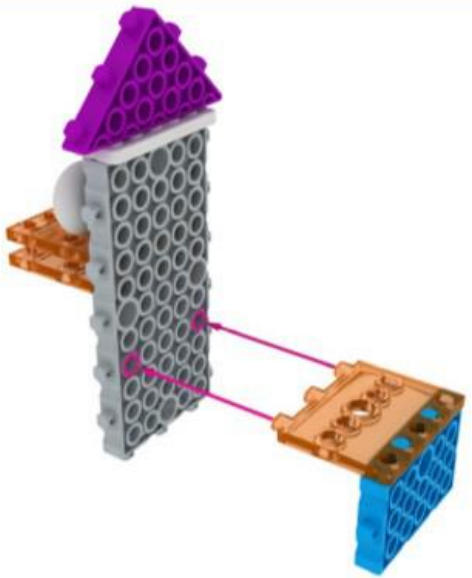

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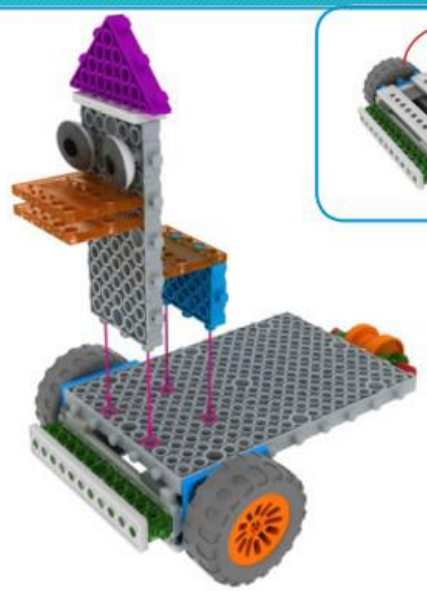

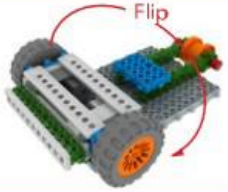

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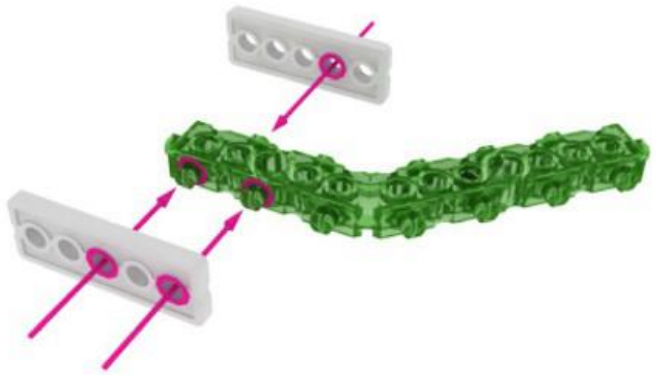

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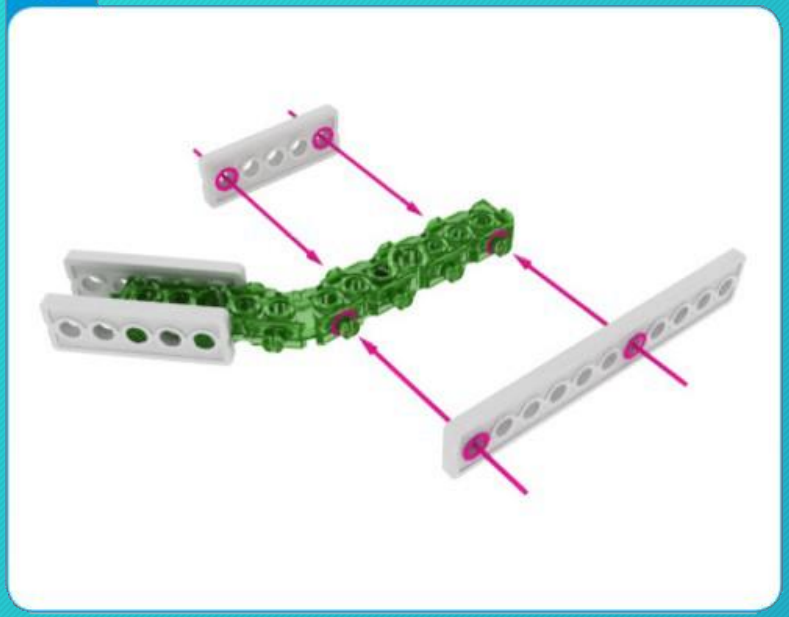

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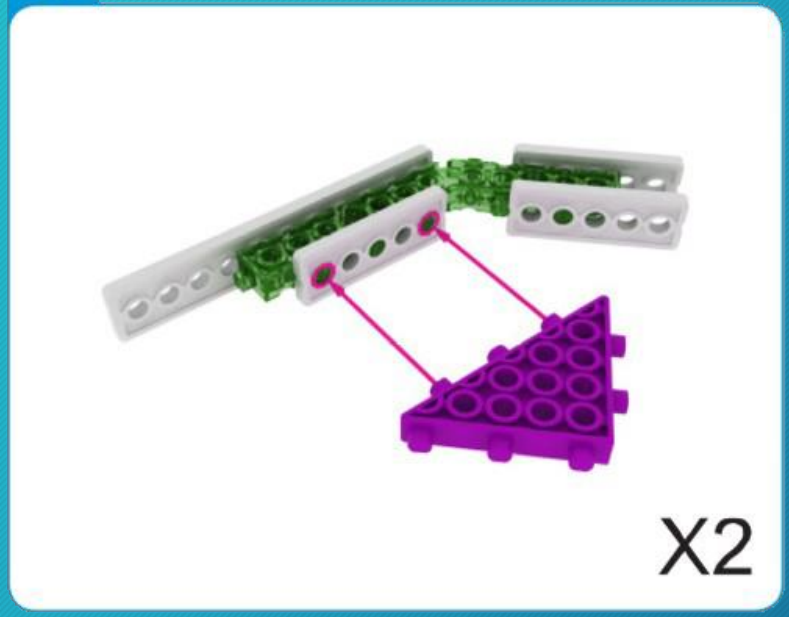

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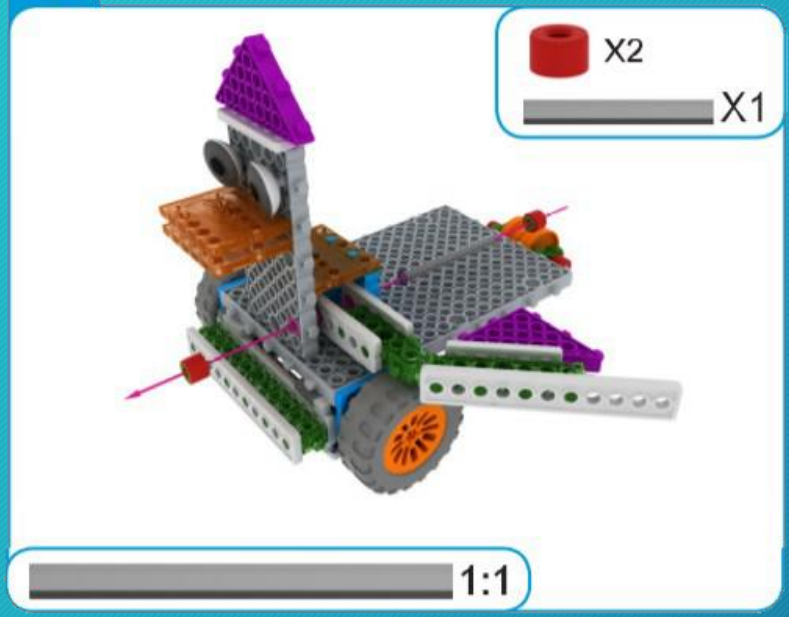

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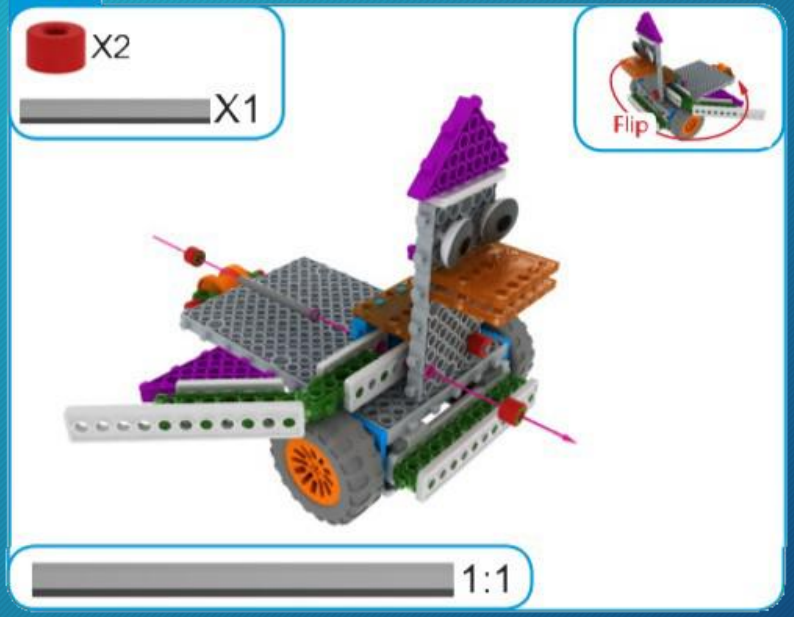

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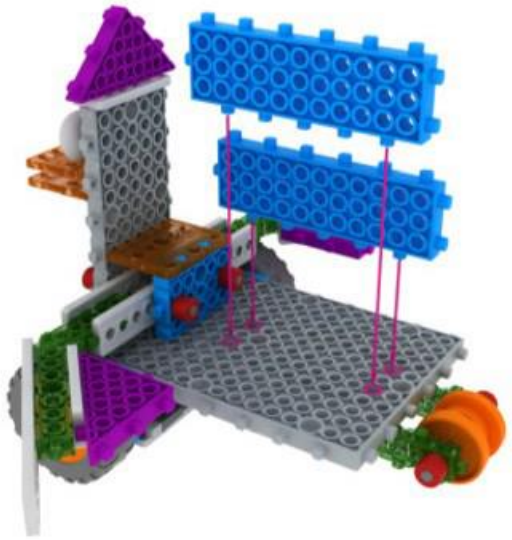

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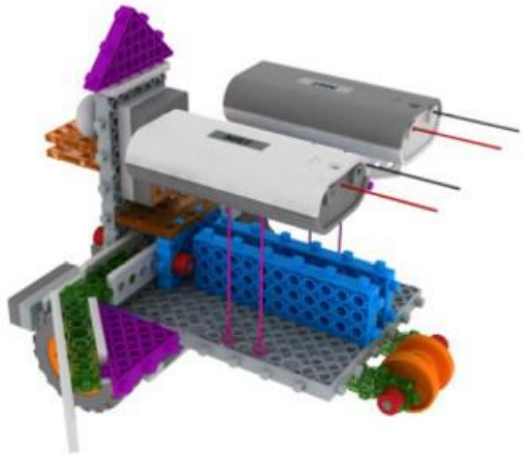

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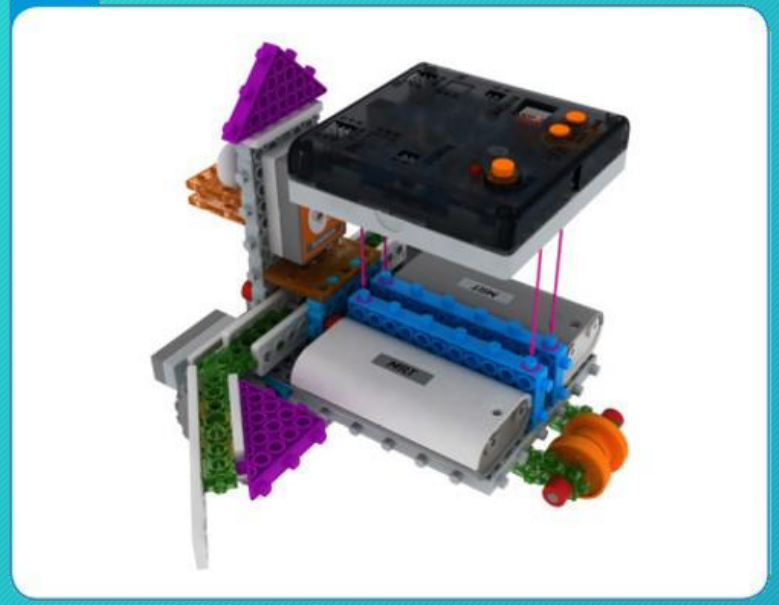

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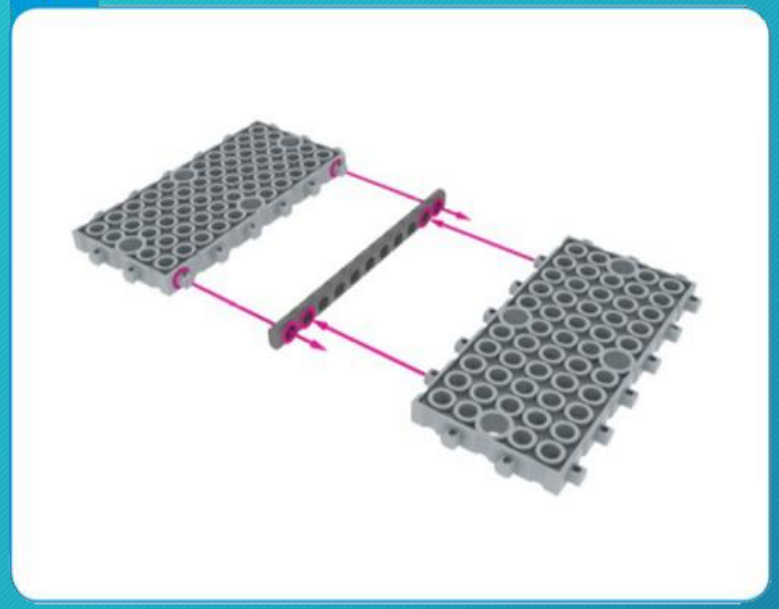

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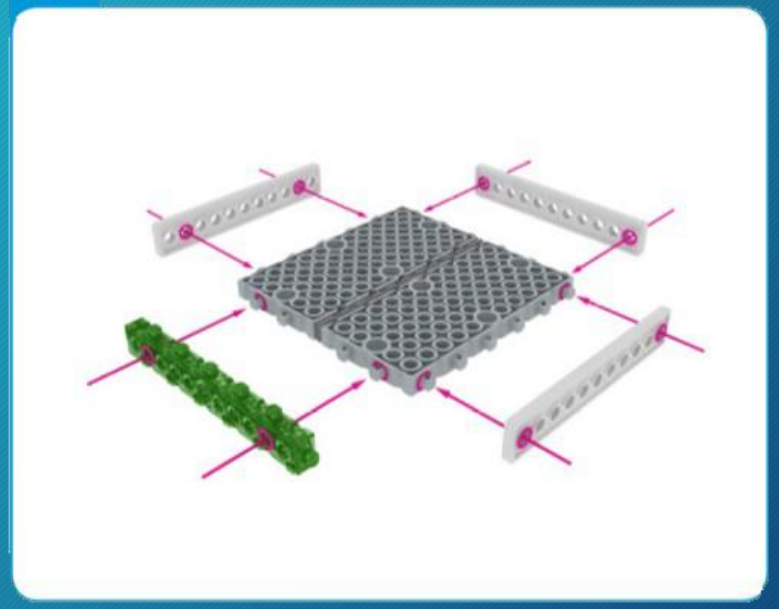

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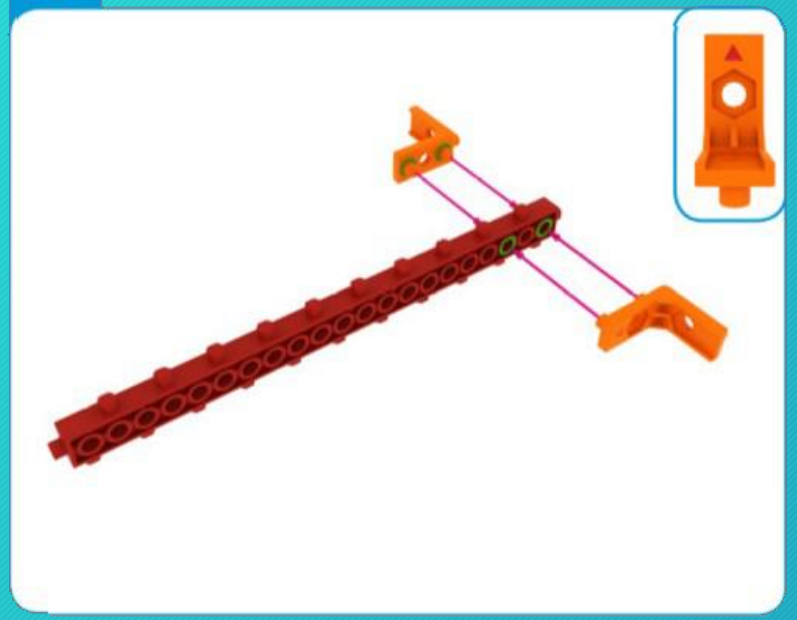

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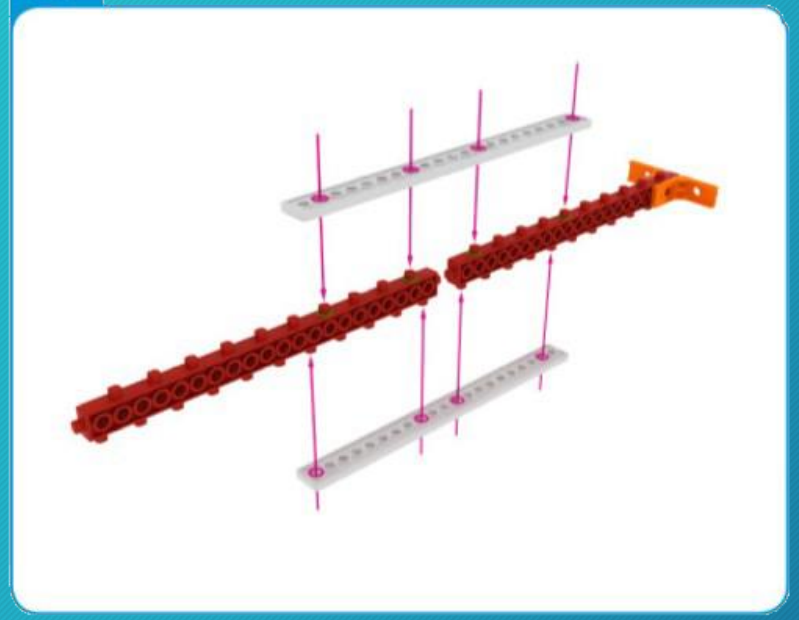

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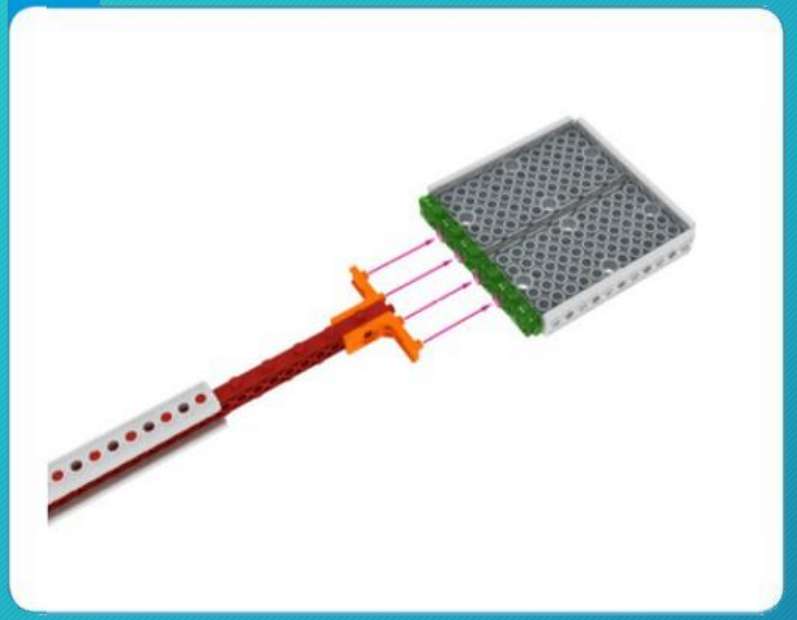

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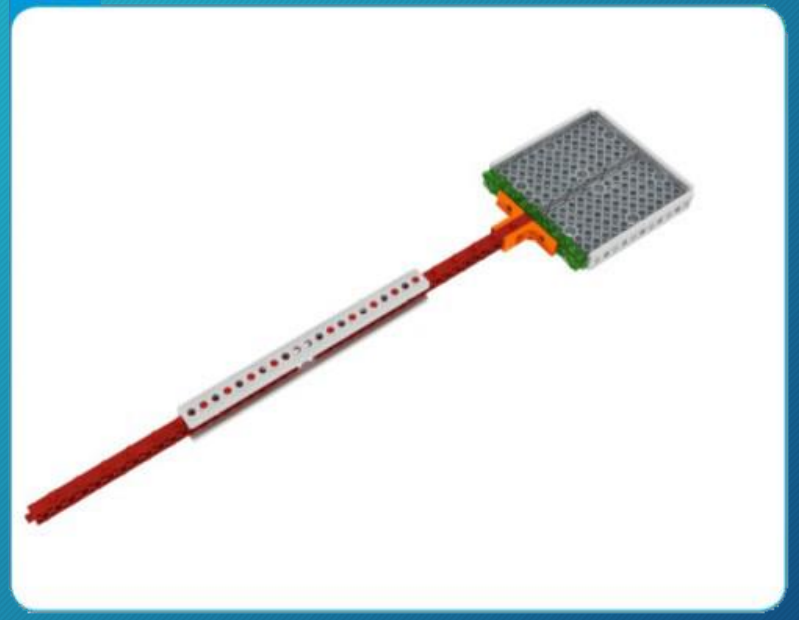
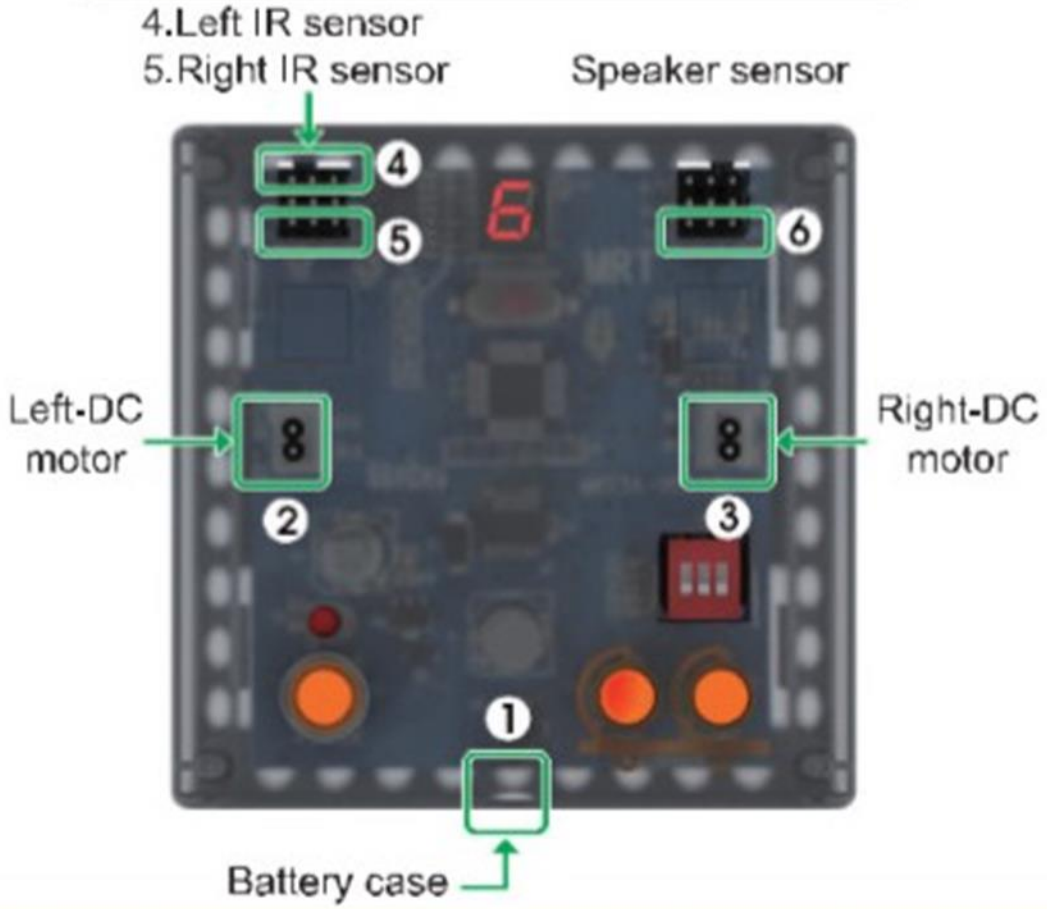


Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect Left-DC motor to Left-motor connector.
3. Connect Right-DC motor to Right-motor connector.
4. Connect Left IR sensor to R connector.
5. Connect Right IR sensor to R connector.
6. Comect speaker sensor to INZ connector.

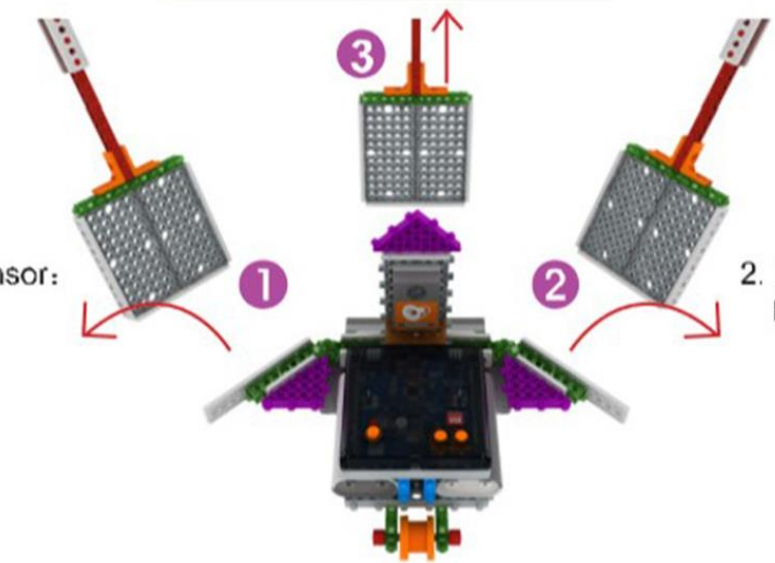
Setting mode

1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

MODE # 5		Stalker Mode

4. Select Remote ID.
5. Press the START button.

How to make it move?

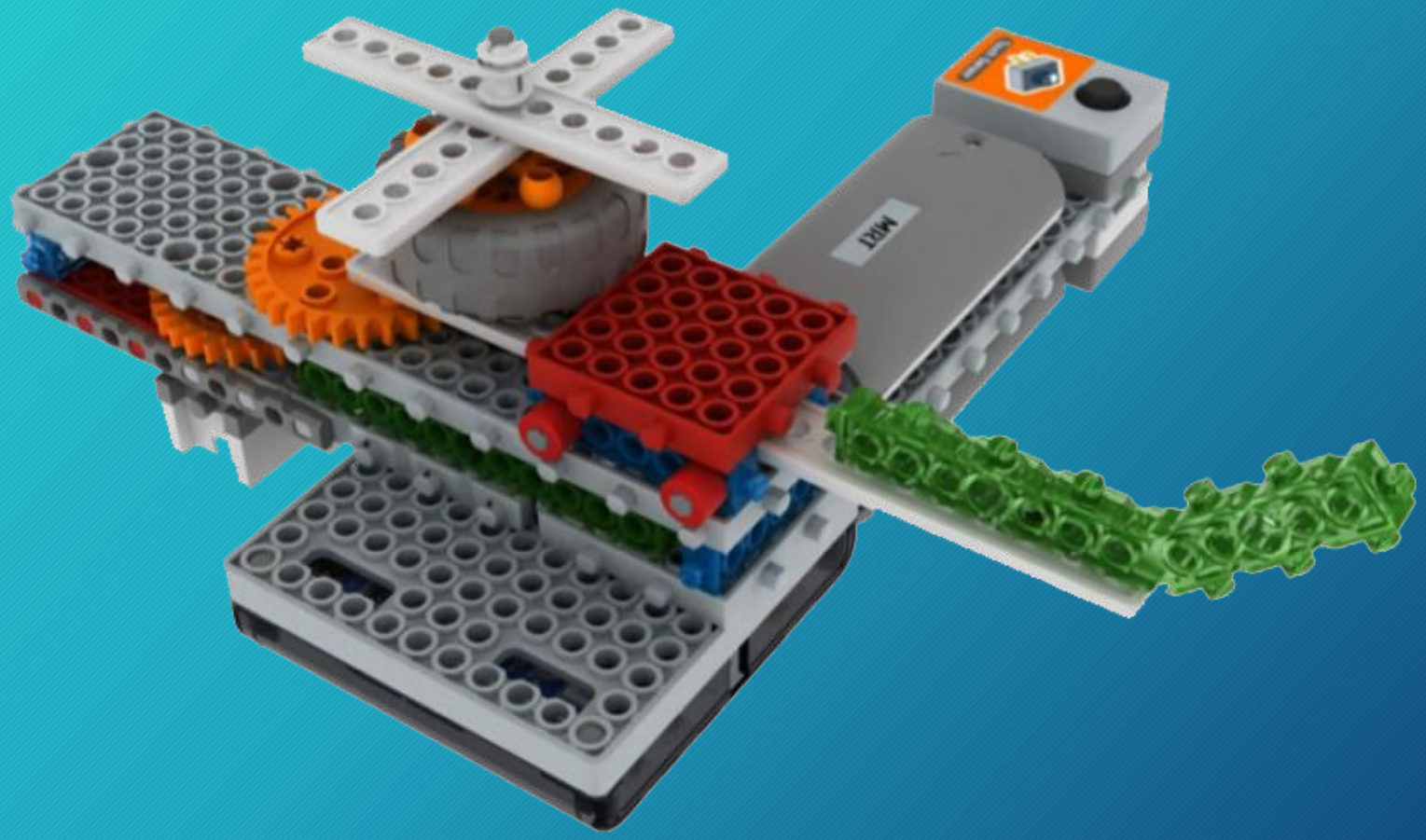


1. Recognize left IR sensor: Follow left side.

2. Recognize right IR sensor: Follow right side.

3. Recognize both right and left IR sensors: Follow forward.

Power Spin



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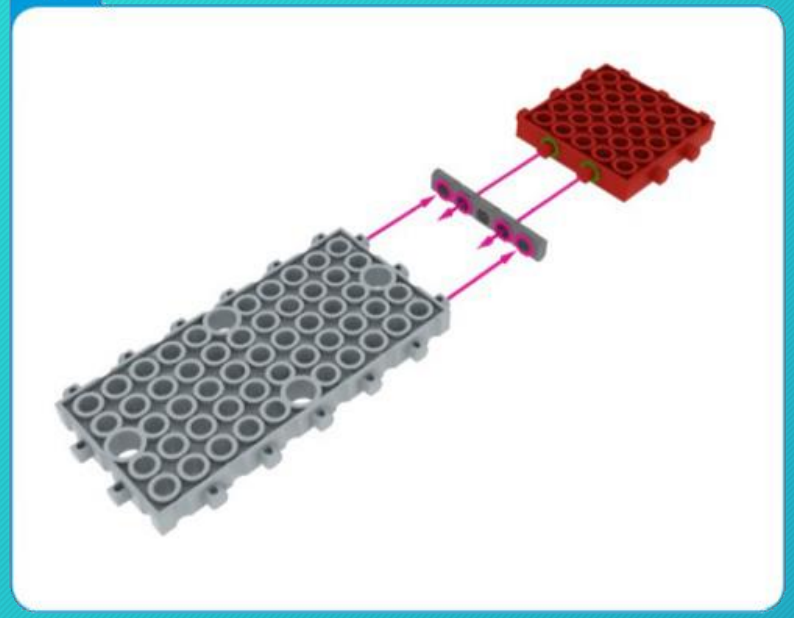

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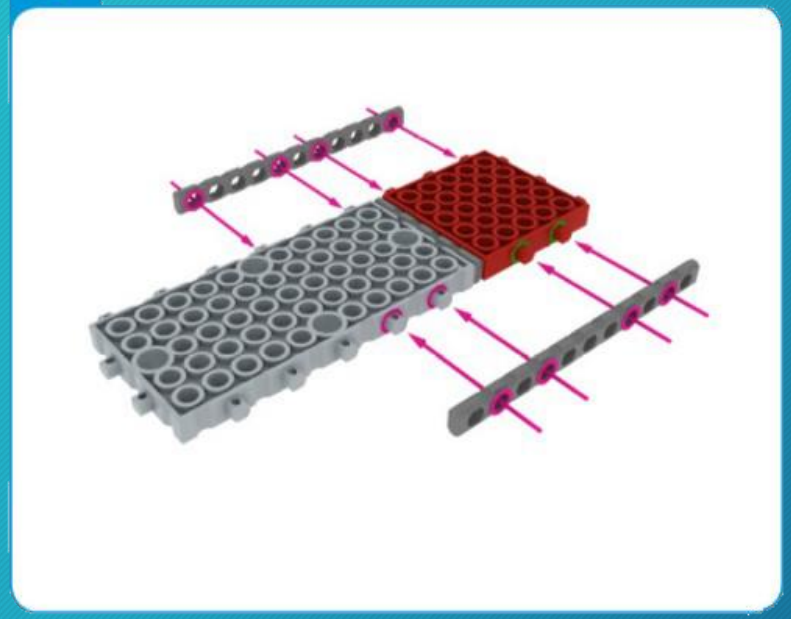

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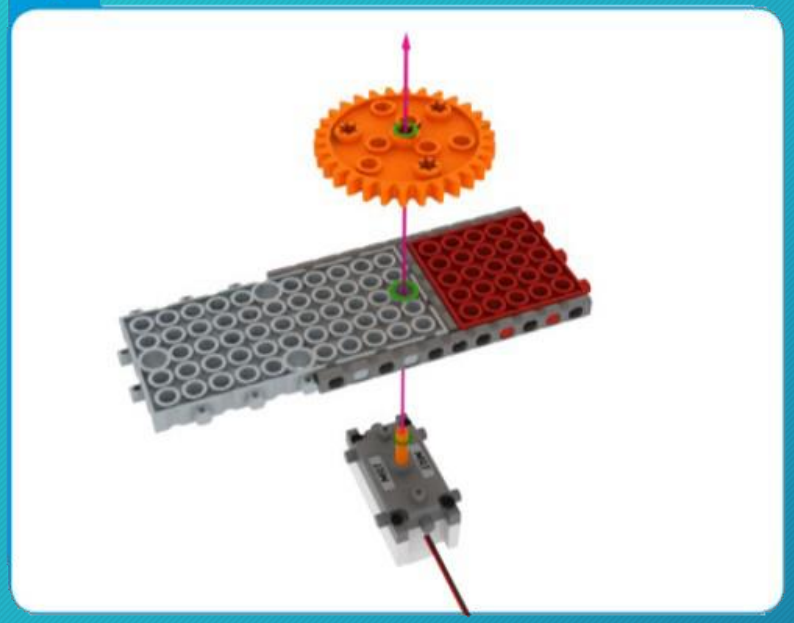

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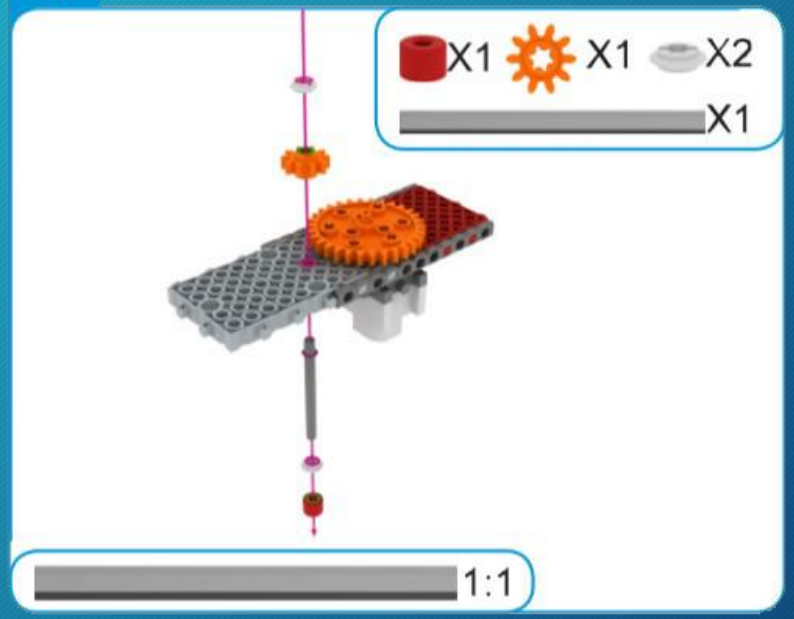

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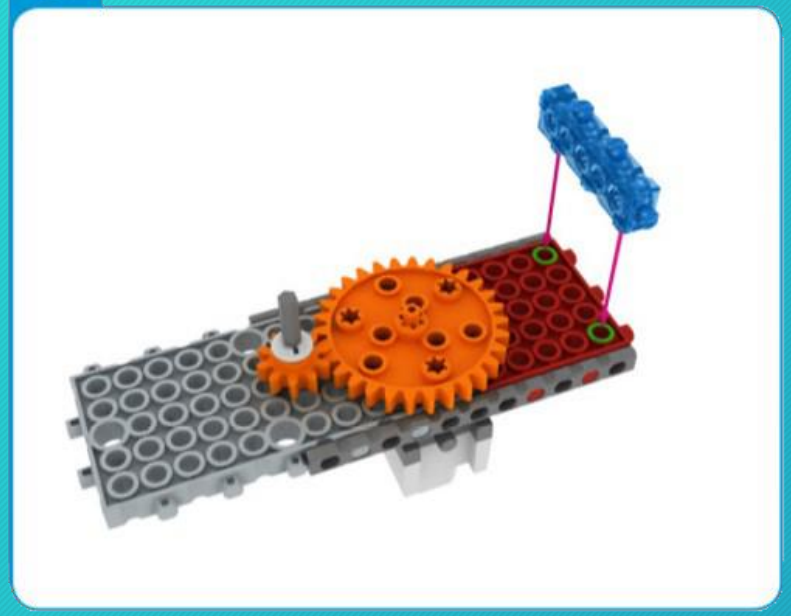

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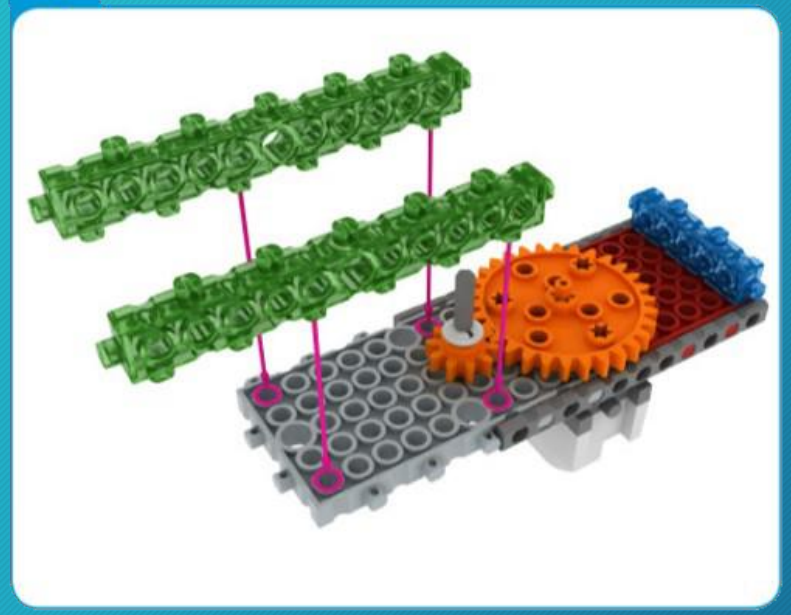

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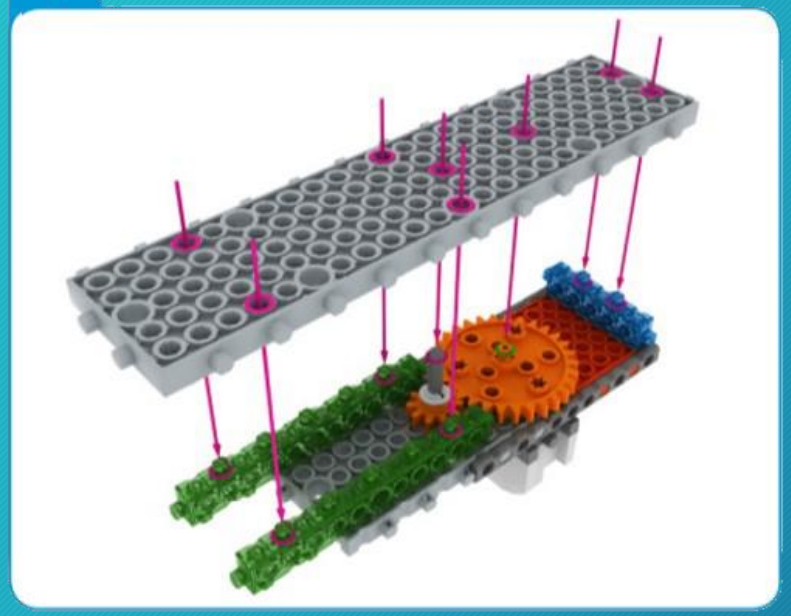

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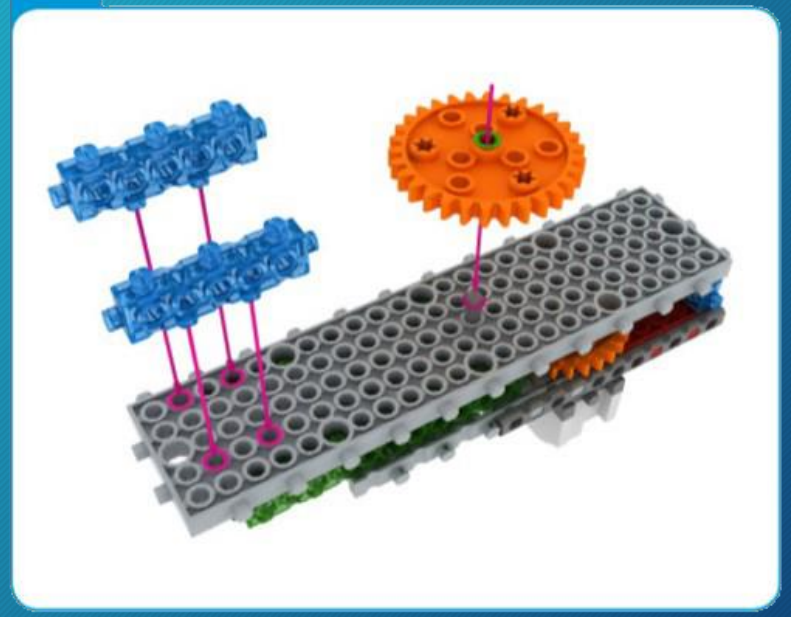

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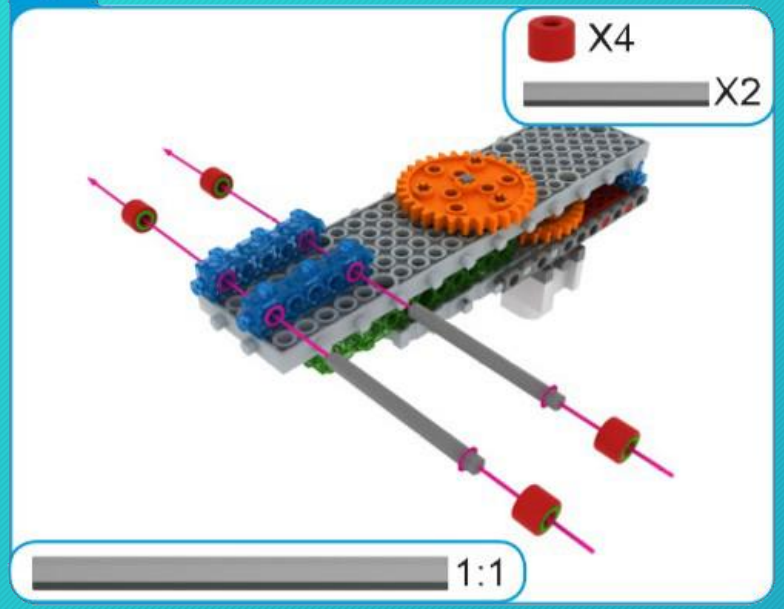

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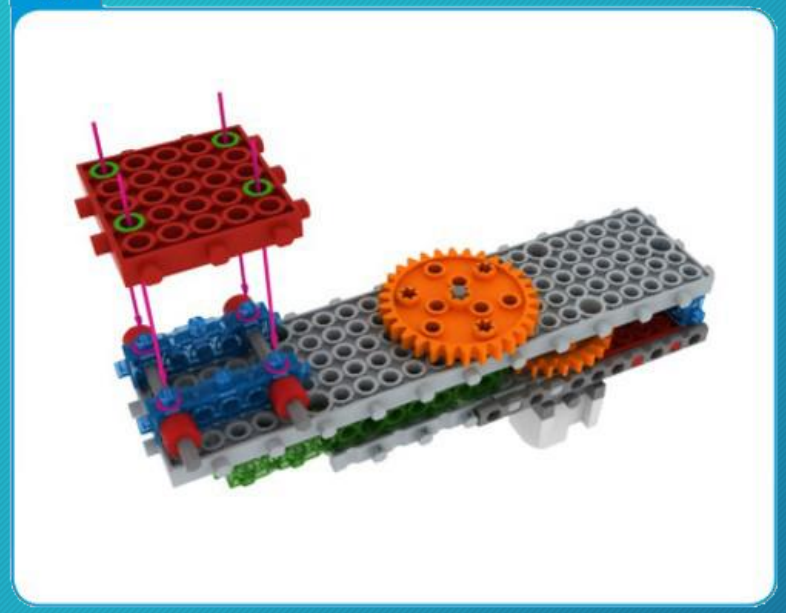

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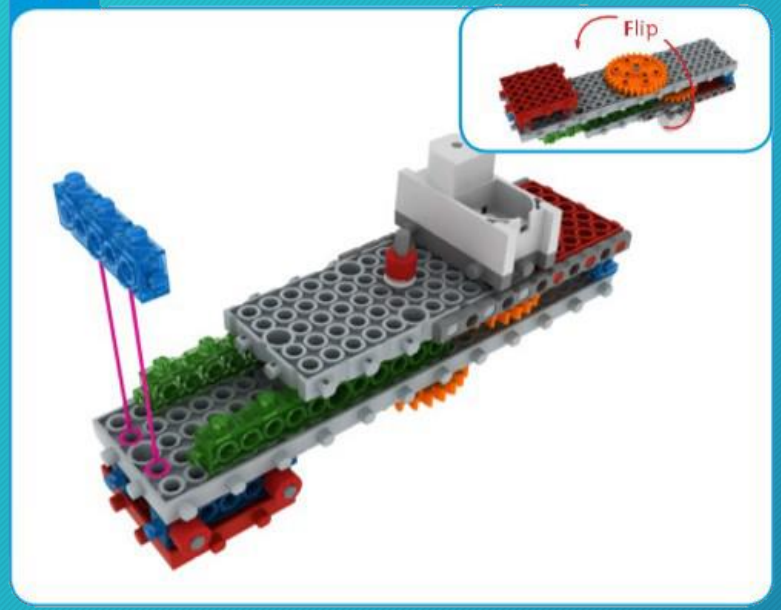

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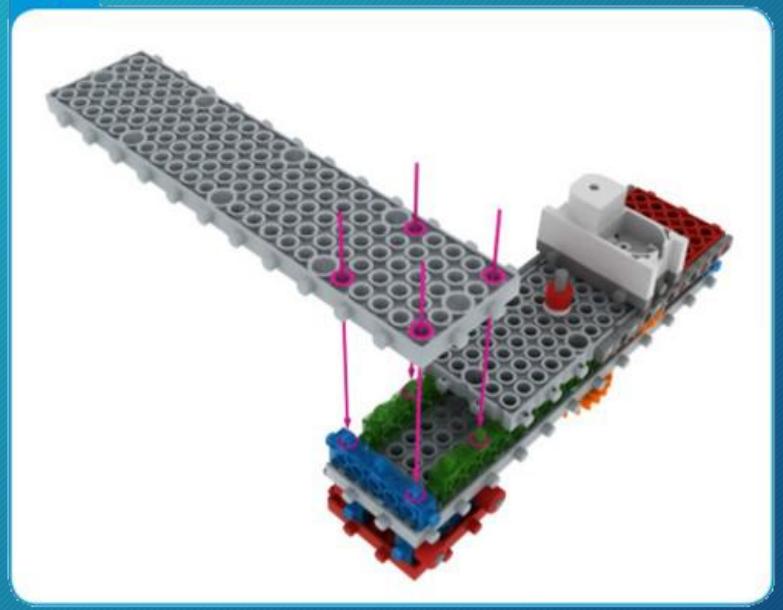

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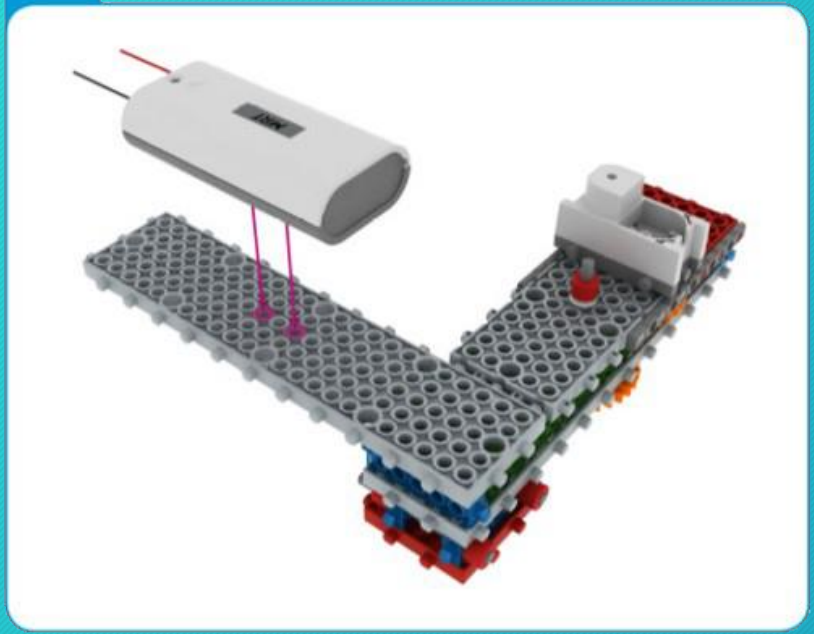

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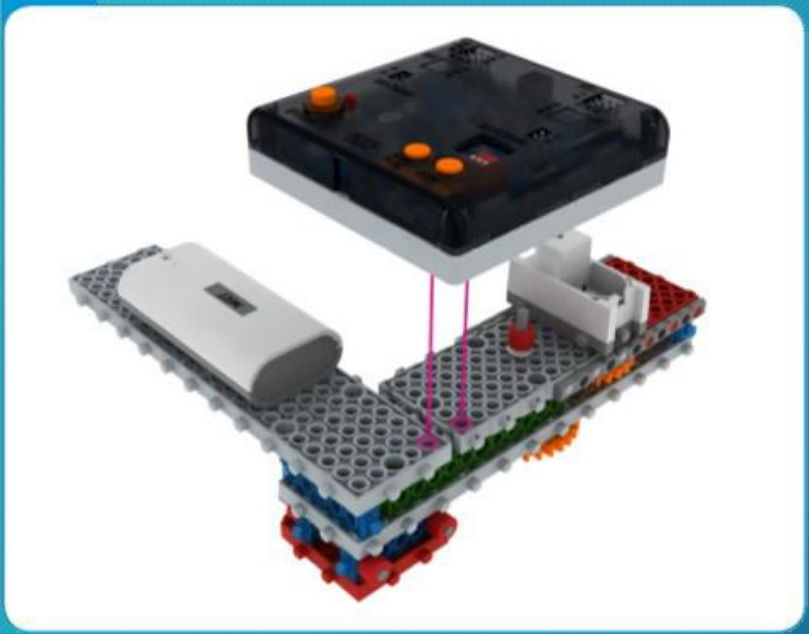

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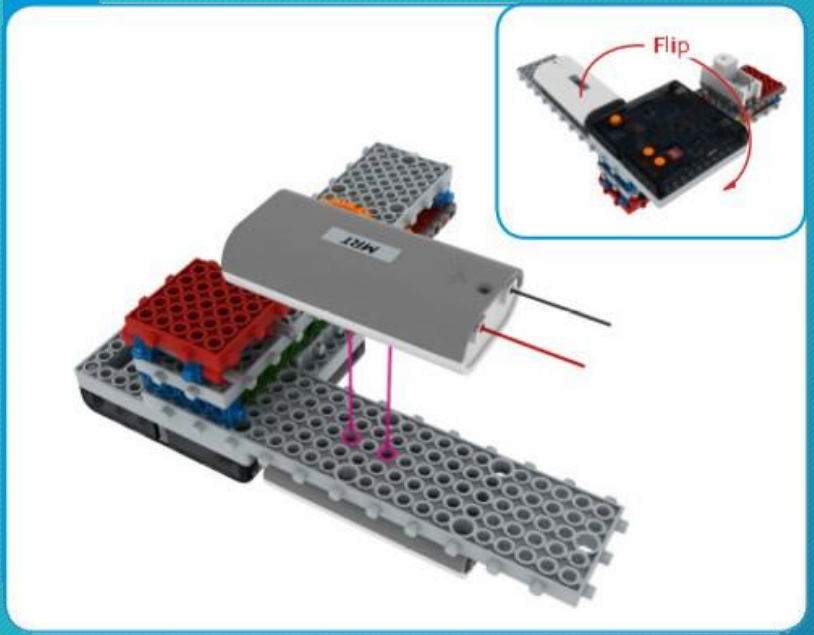

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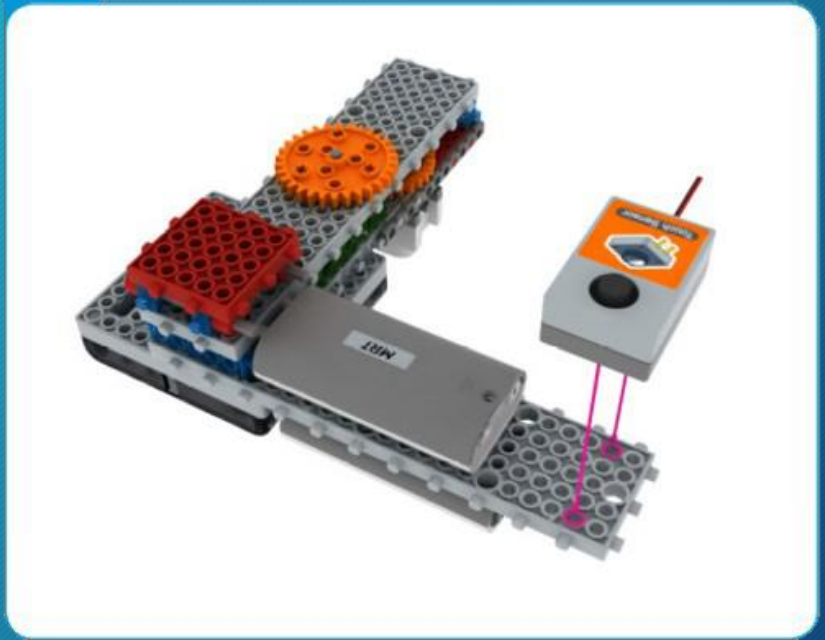

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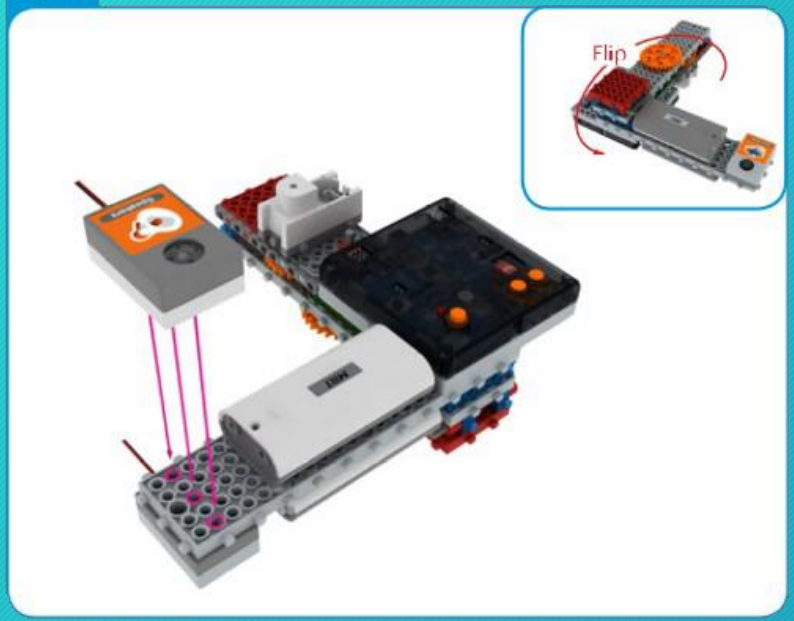

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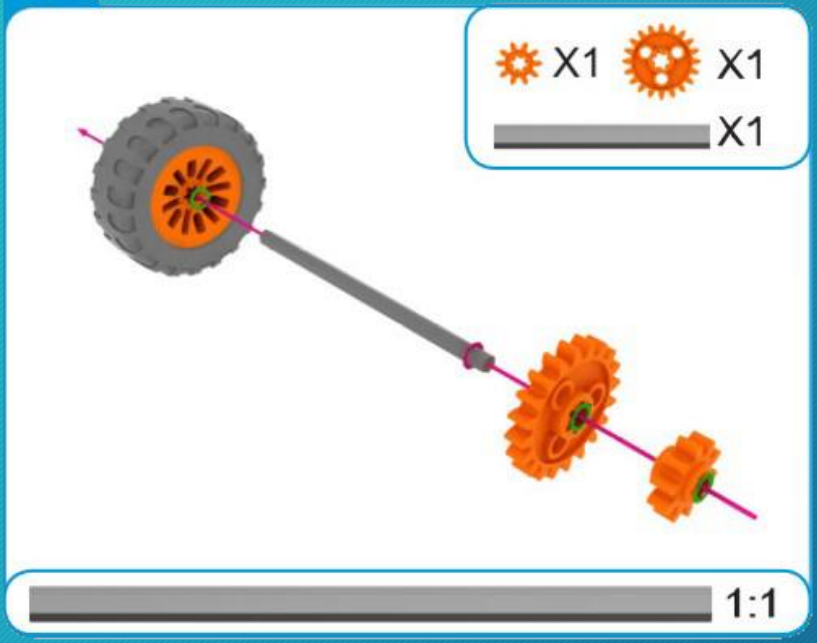

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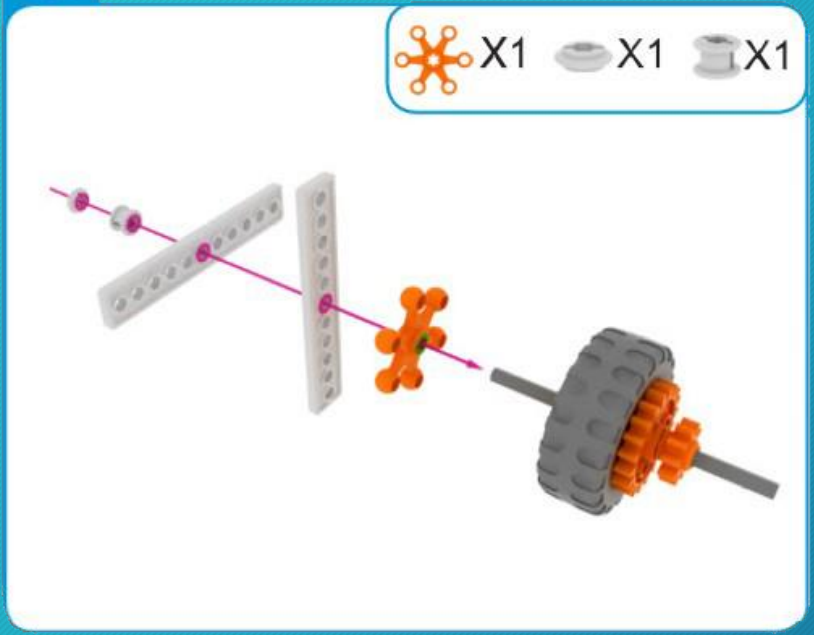

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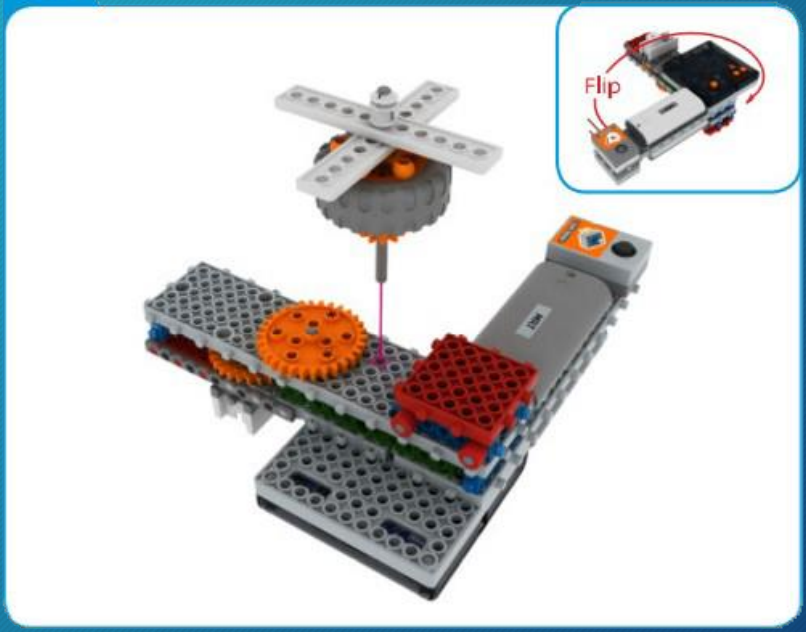

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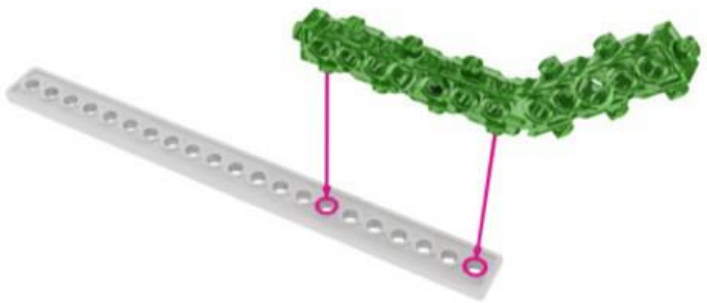

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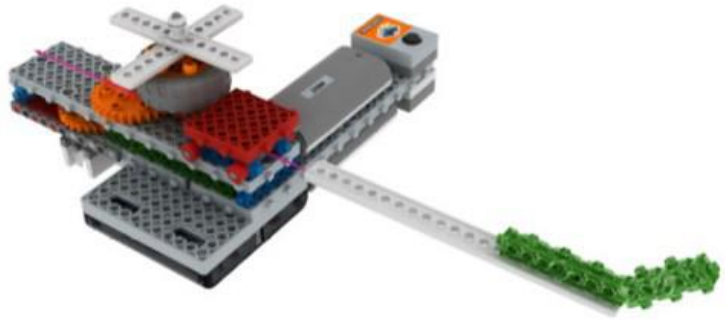

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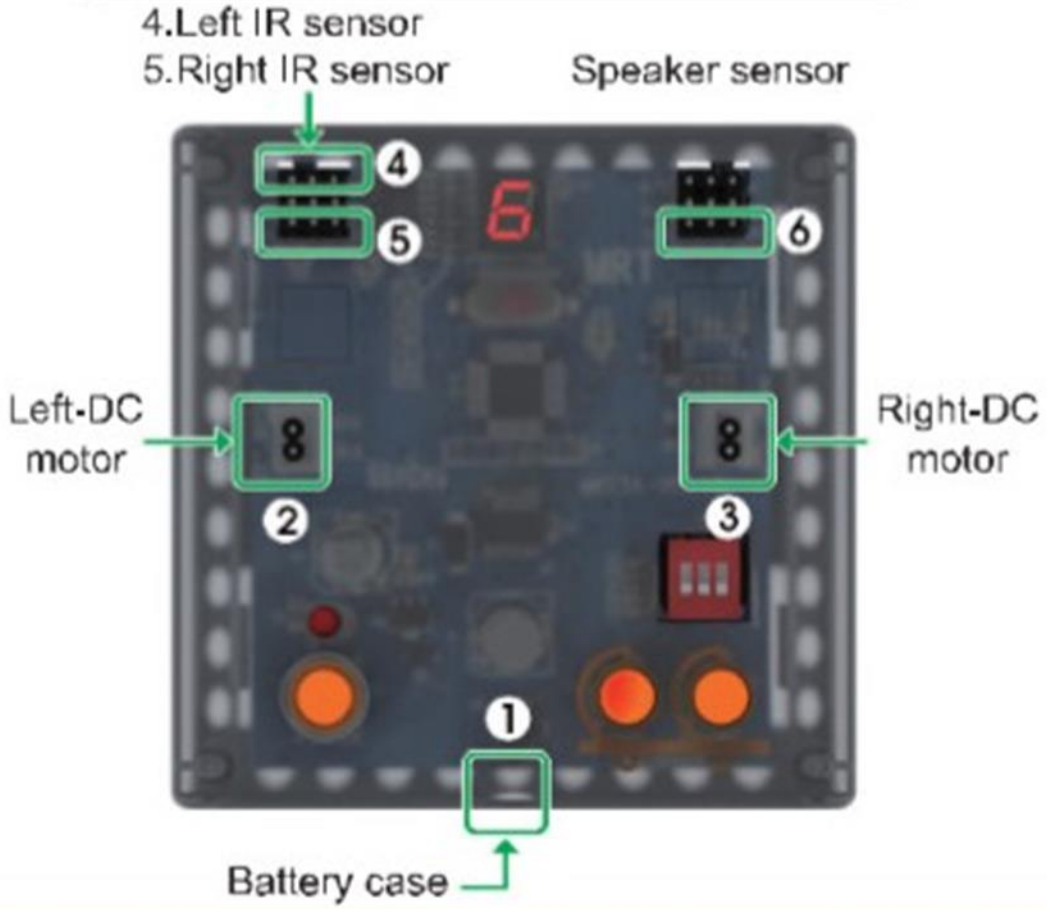
Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect Left-DC motor to Left-motor connector.
3. Connect Right-DC motor to Right-motor connector.
4. Connect Left IR sensor to R connector.
5. Connect Right IR sensor to R connector.
6. Comect speaker sensor to INZ connector.

Setting mode

1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

MODE # 7		Touch Mode

4. Select Remote ID.
5. Press the START button.

How to make it move?

A

B

Put the spinner on the red dot.

C

Connect safety handle.

D

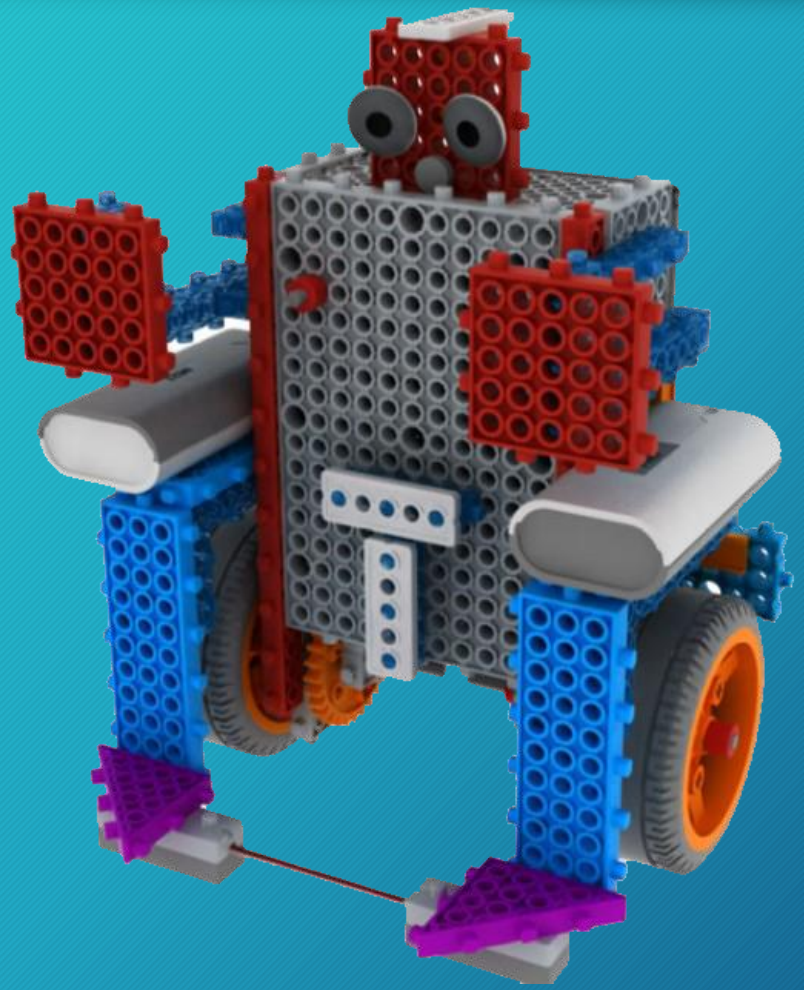
When you touch the IR sensor, the spinner will turn on.

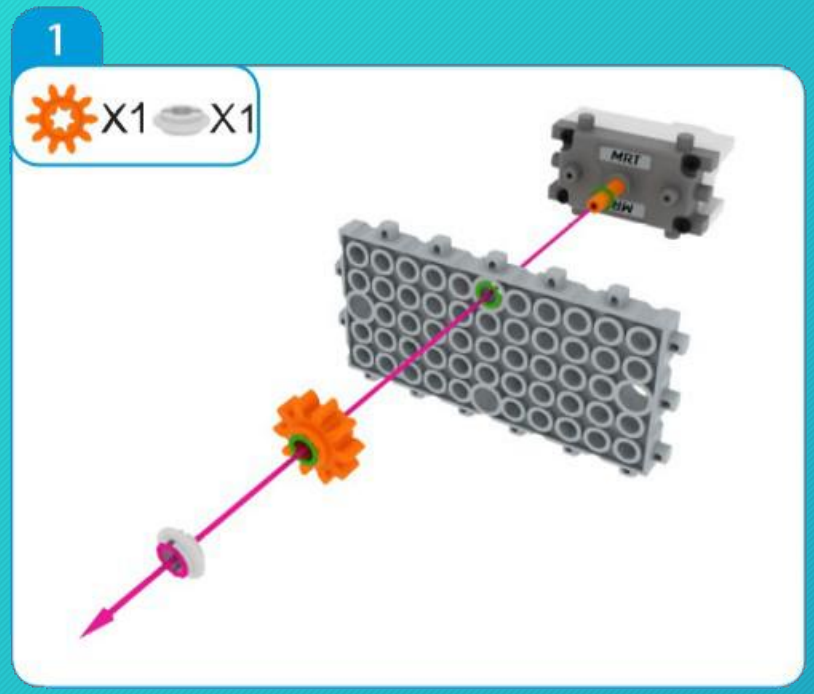
E

Pull the safety handle to release the spinner.

F

Sumo - Bot

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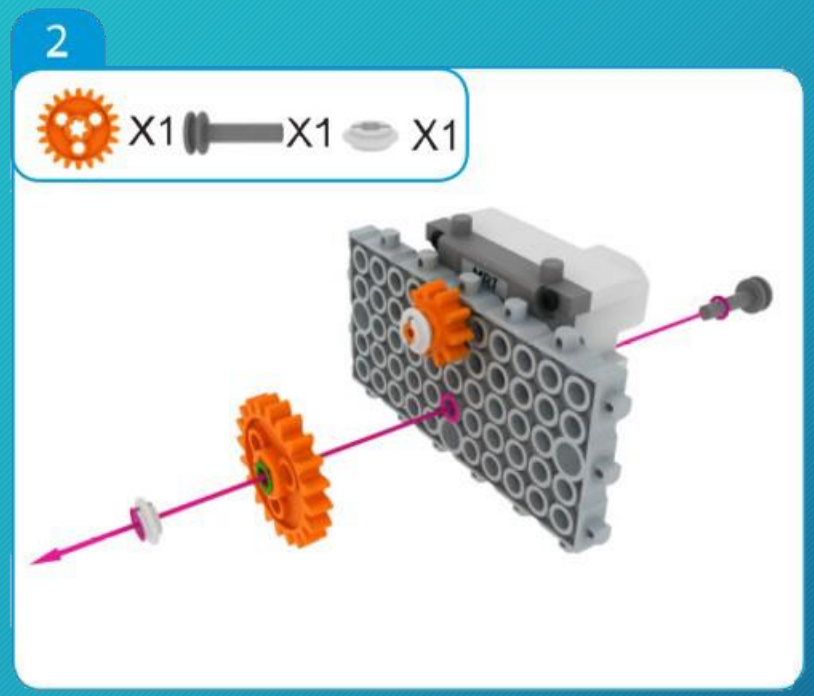
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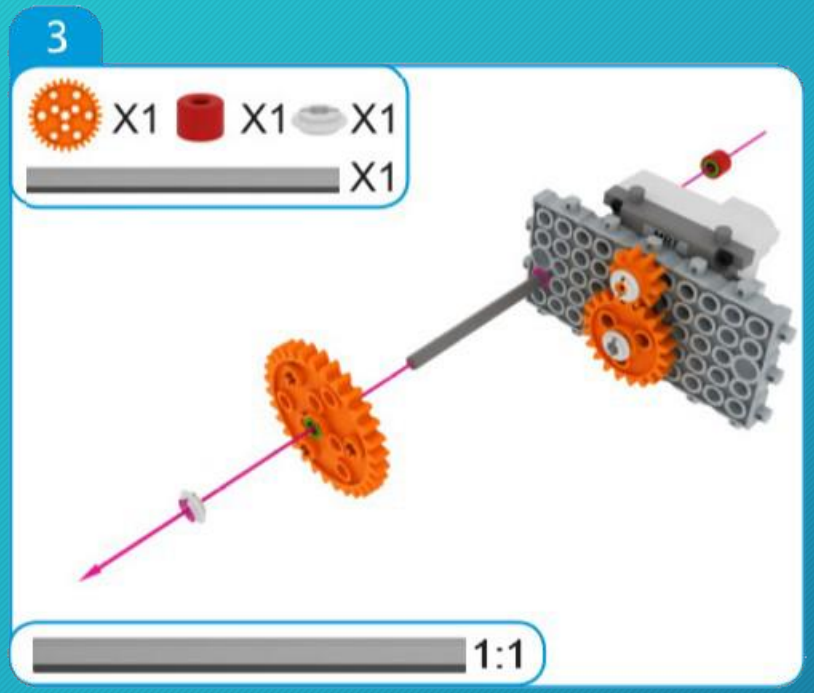
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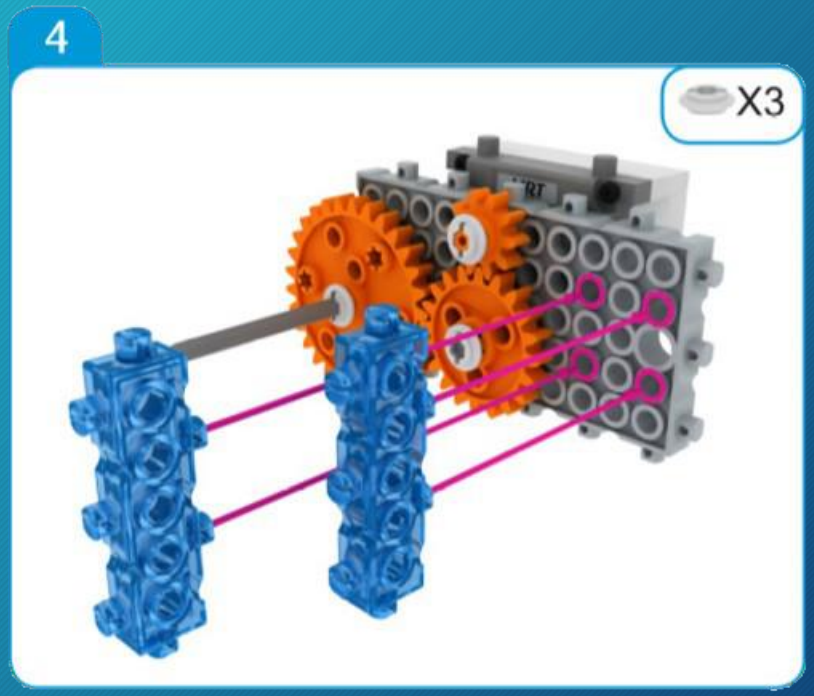
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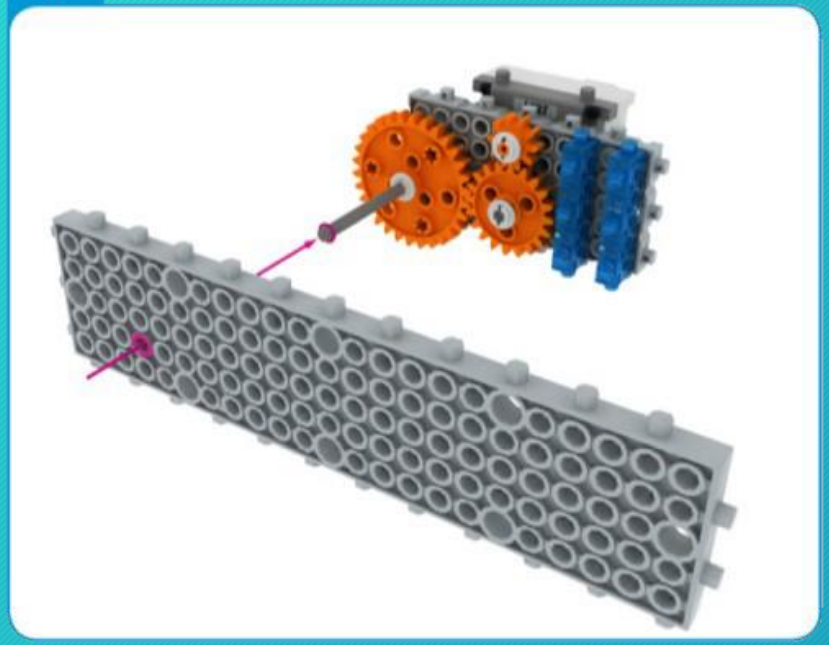

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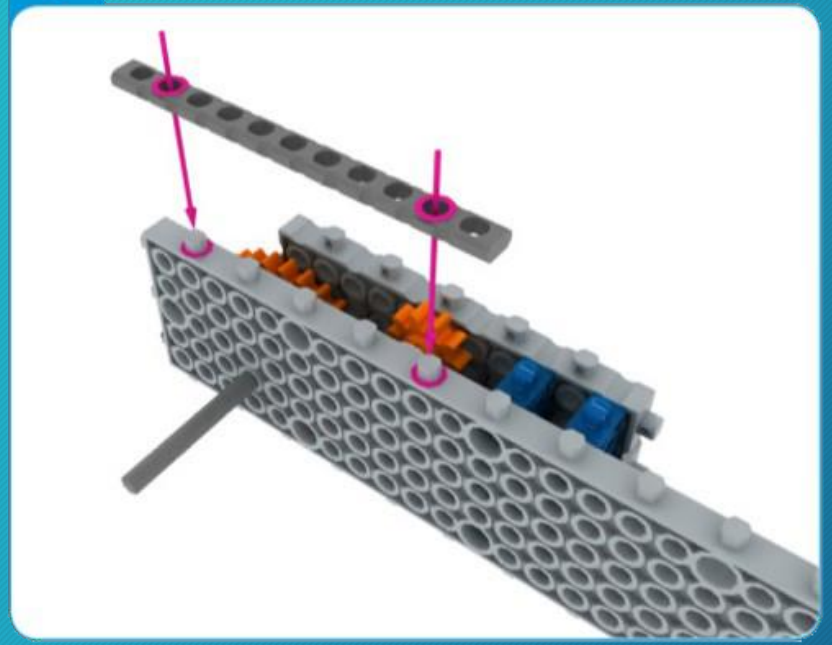

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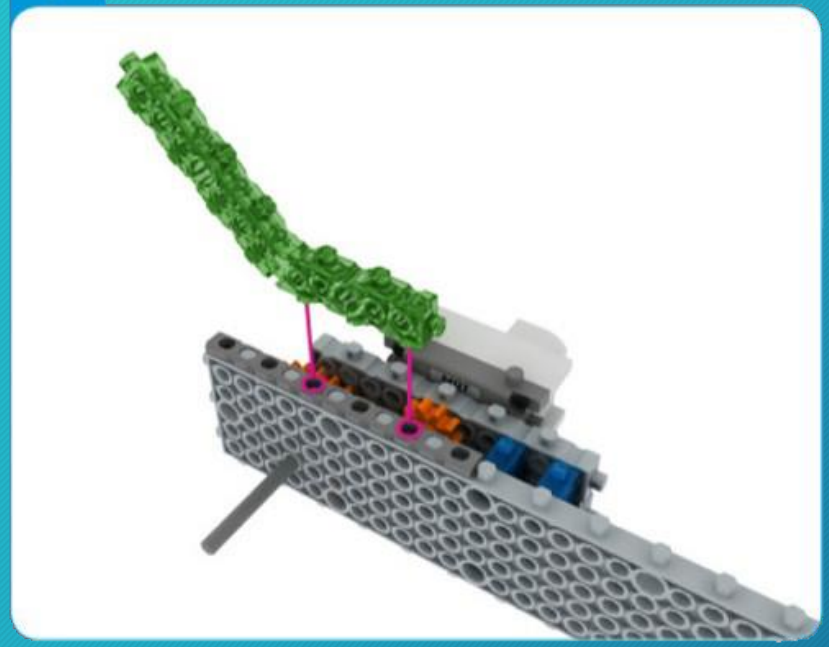

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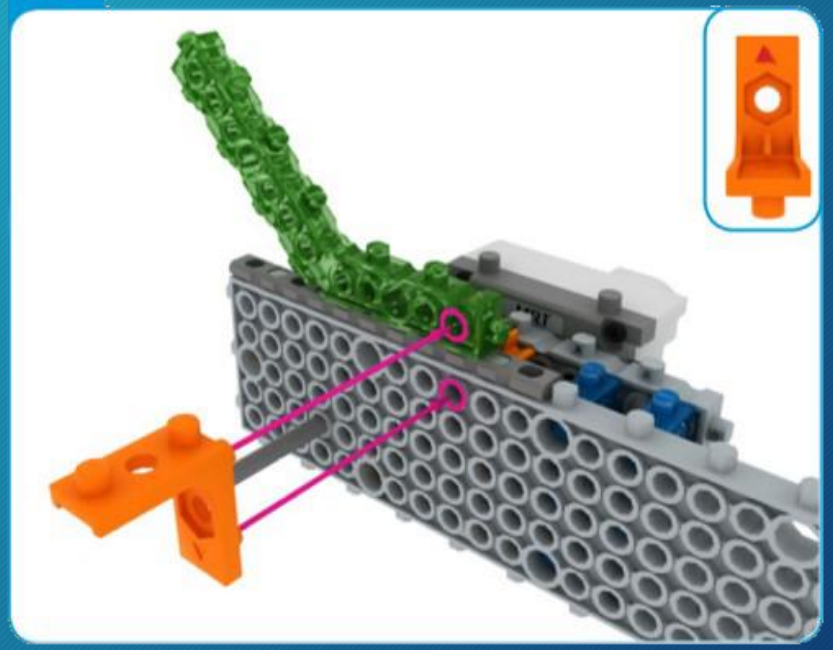

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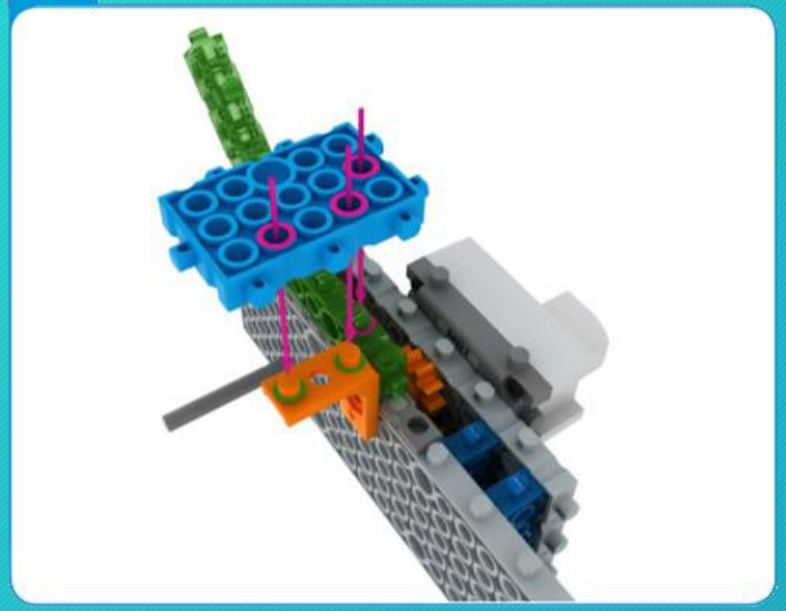

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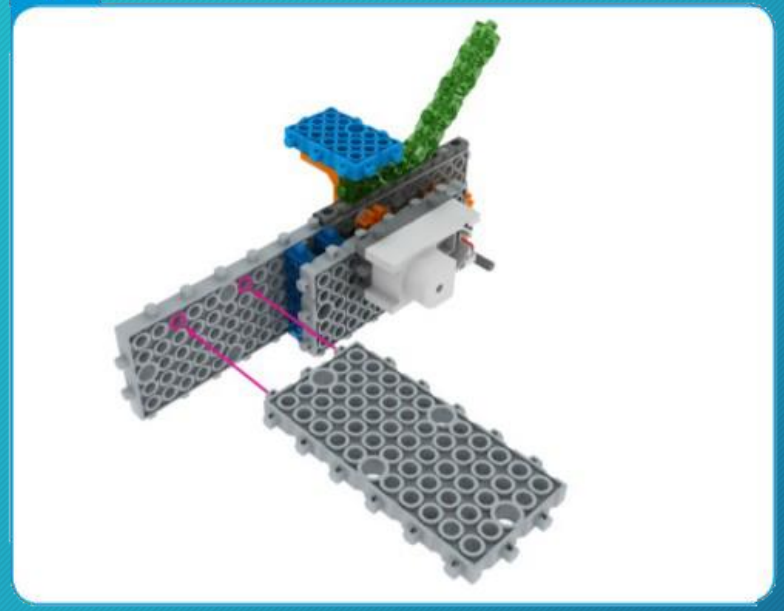

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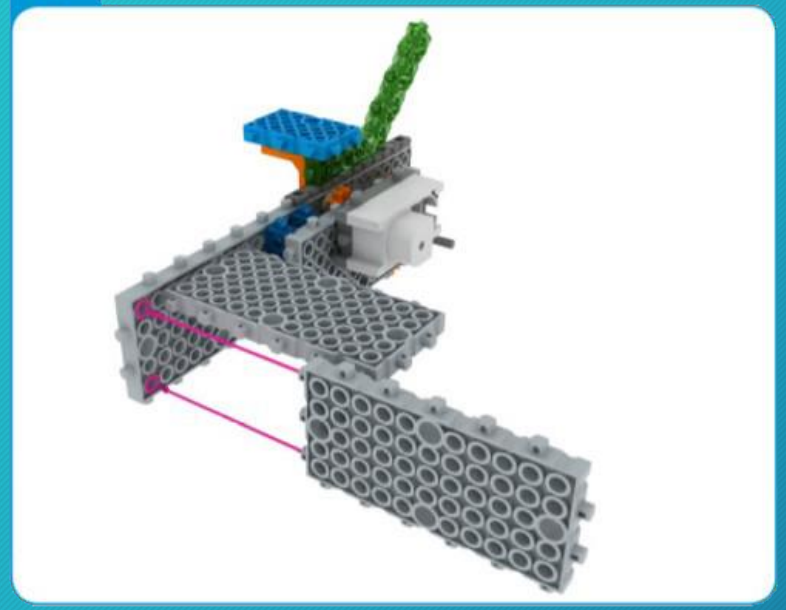

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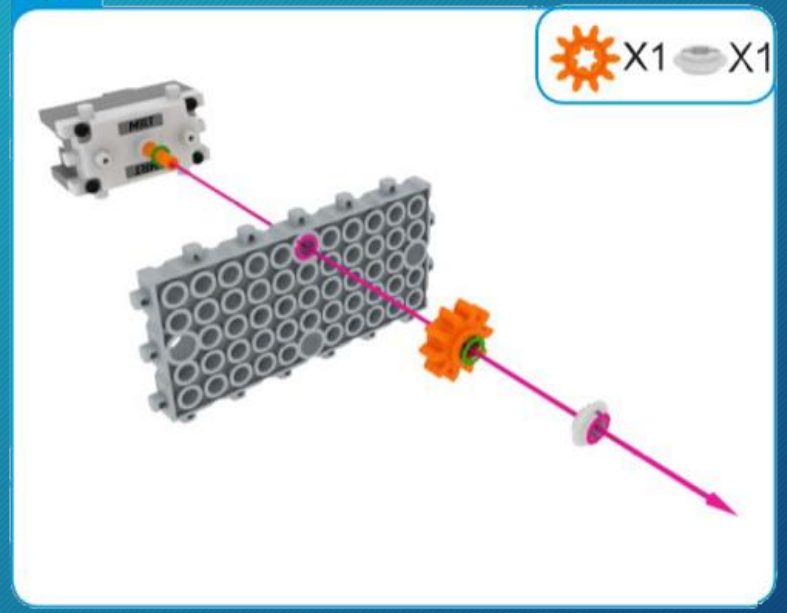

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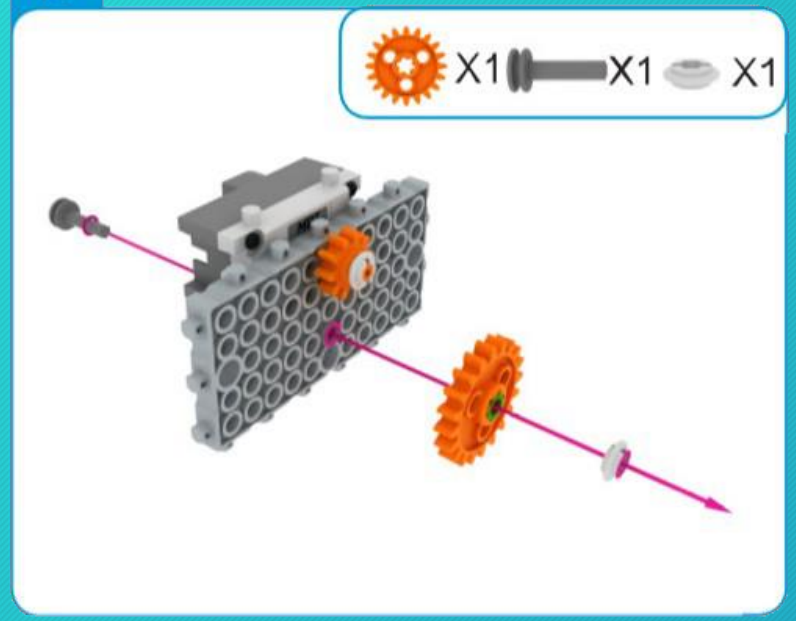

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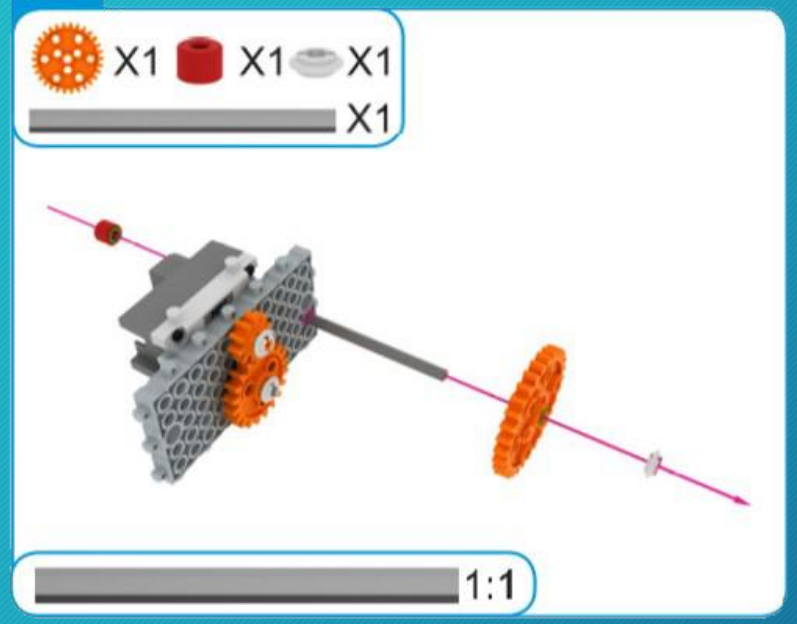

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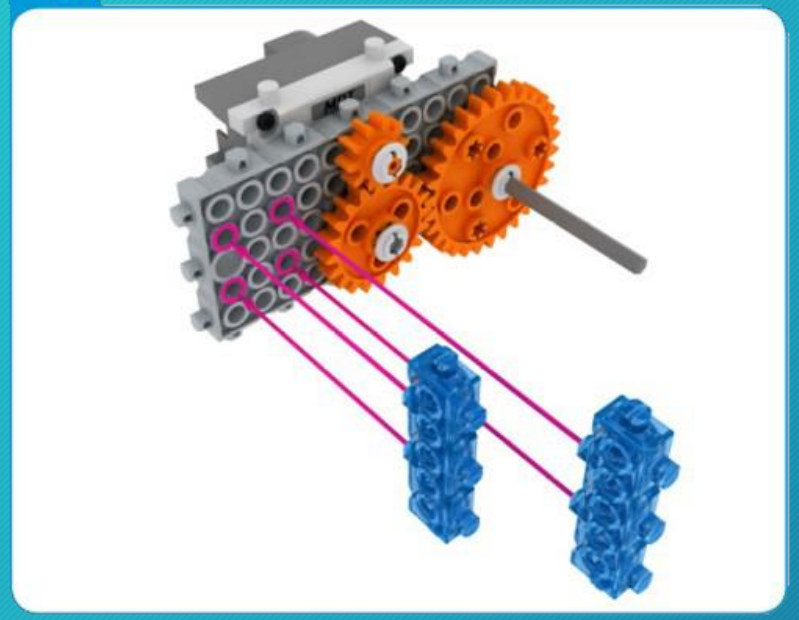

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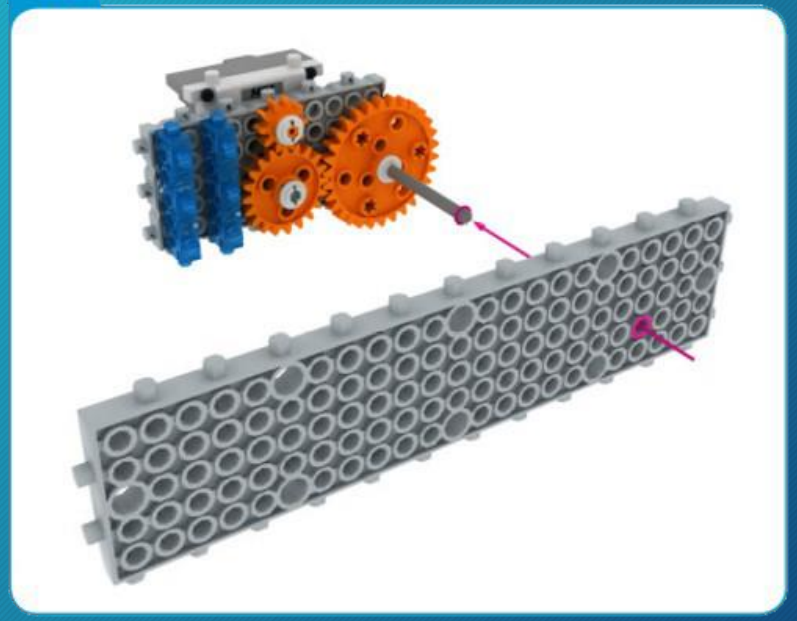

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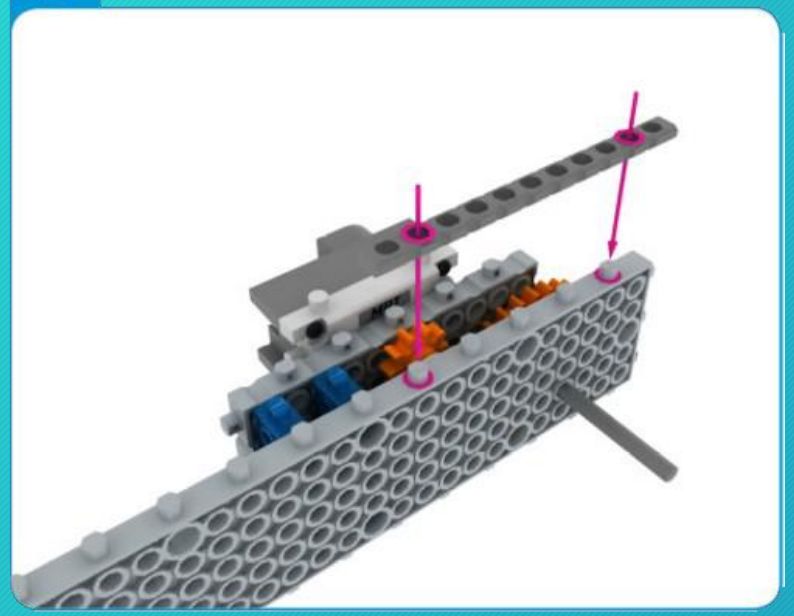

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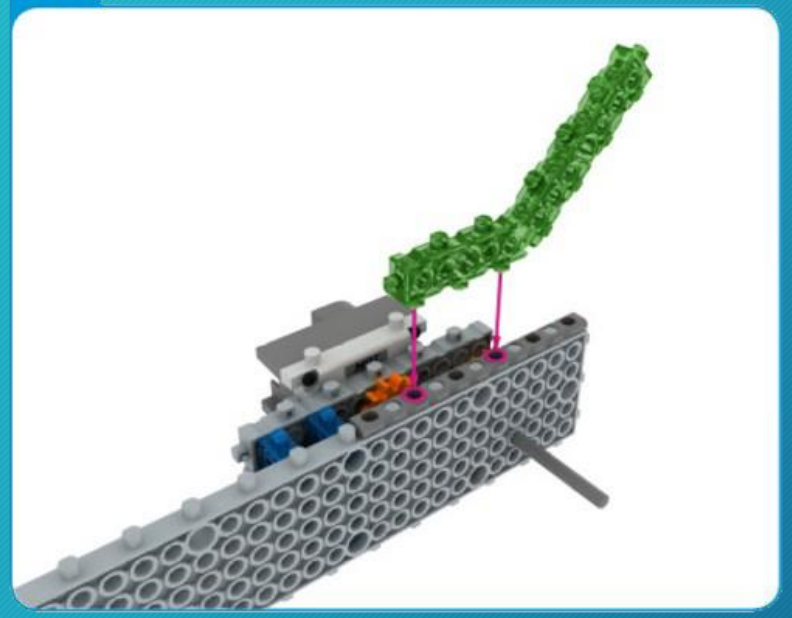

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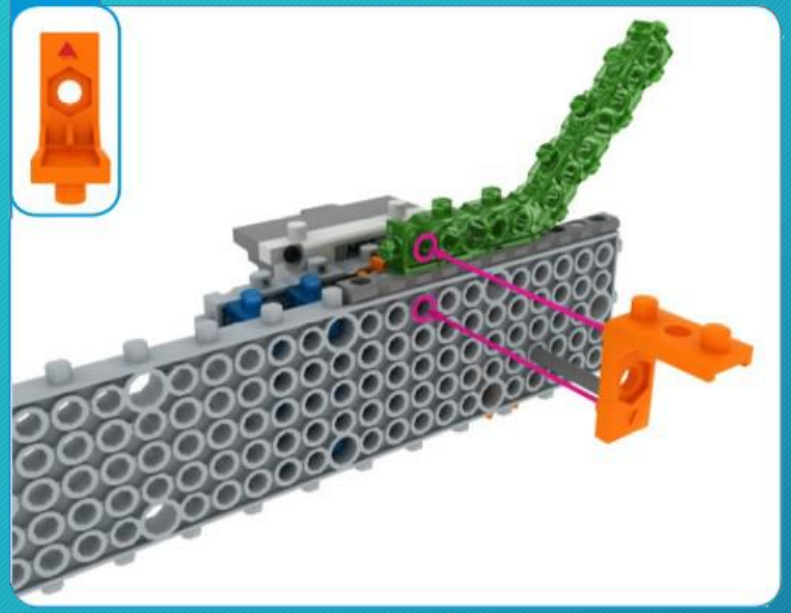

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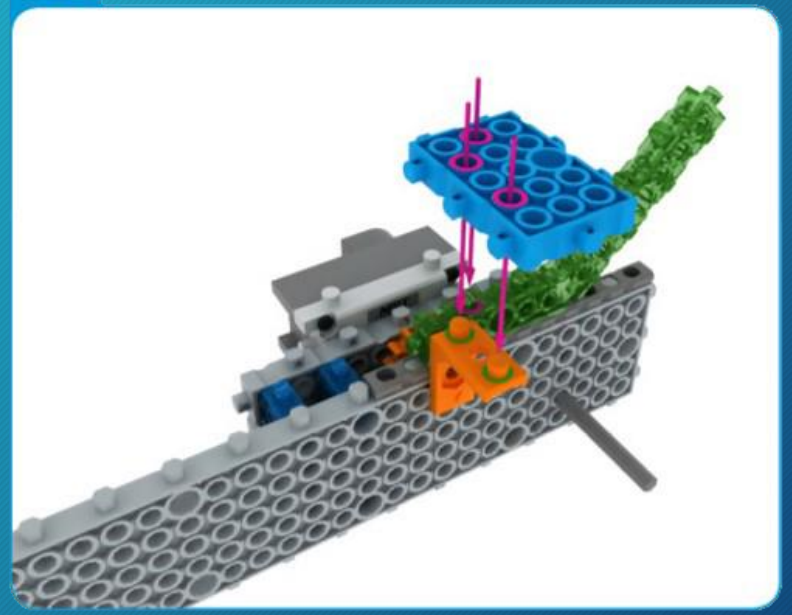

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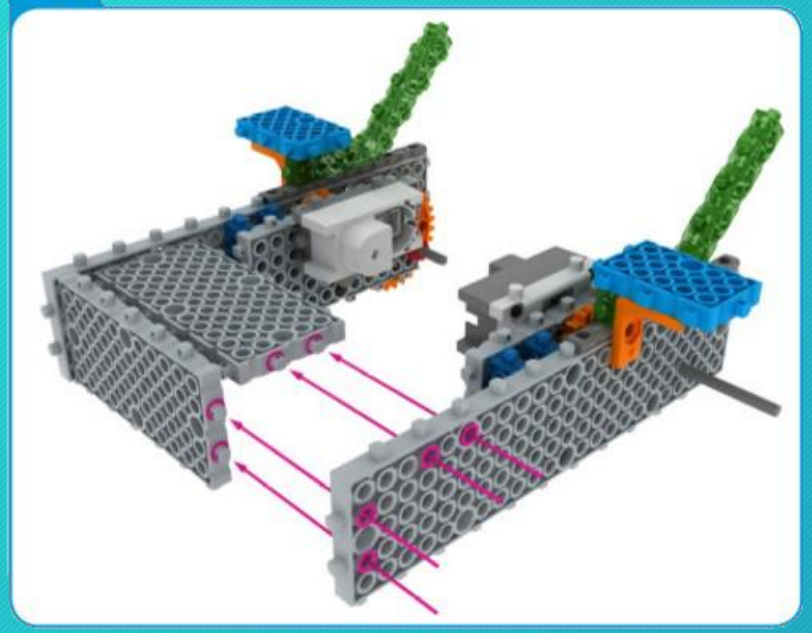

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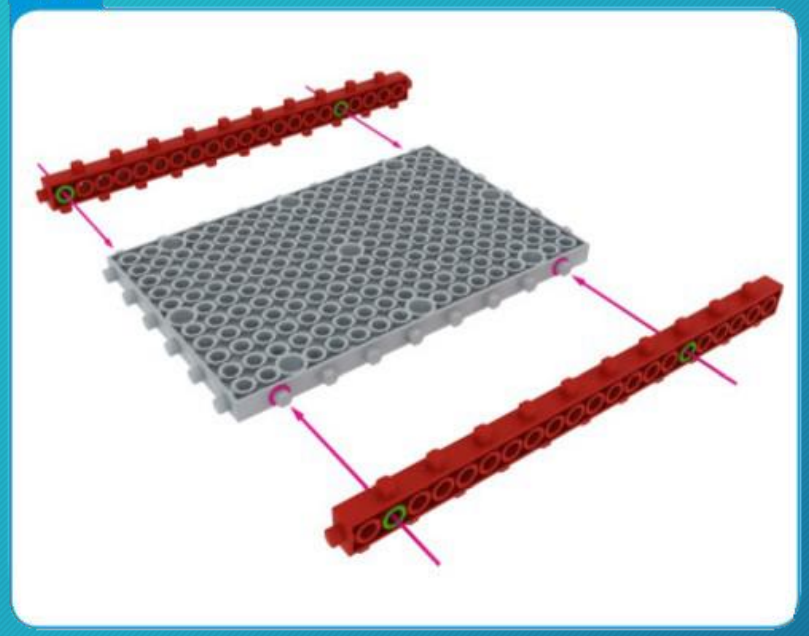

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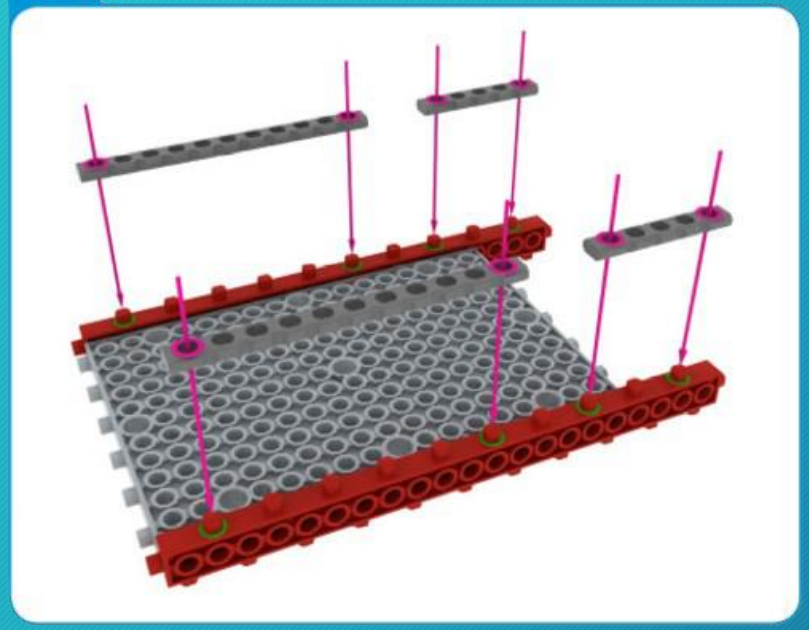

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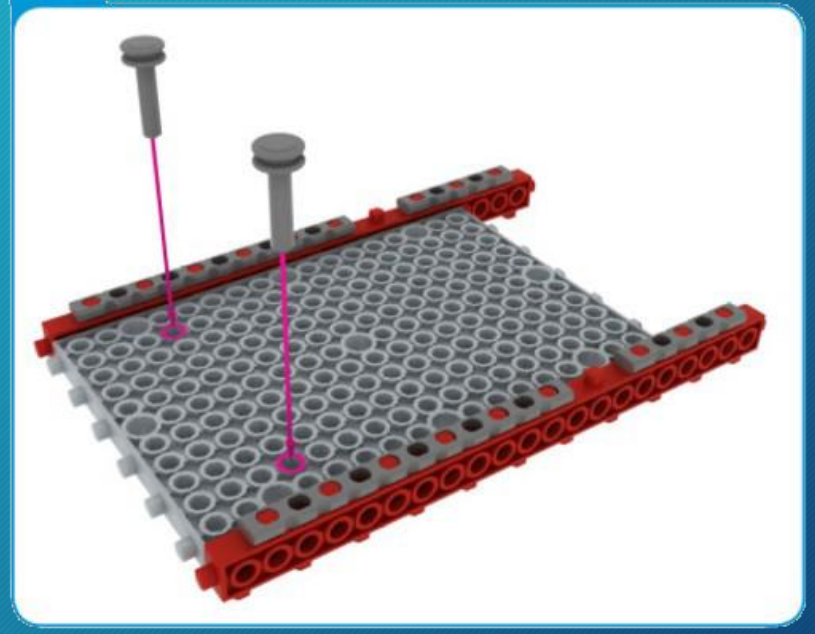

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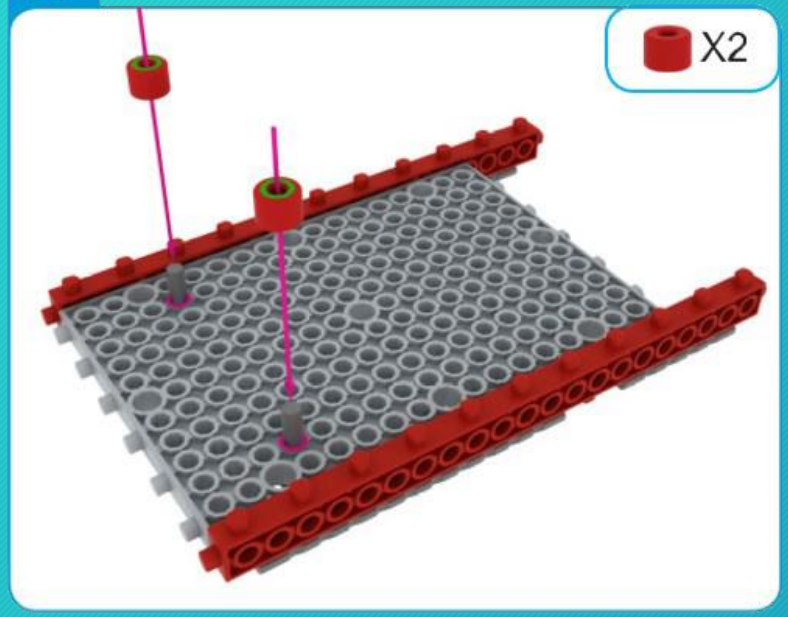

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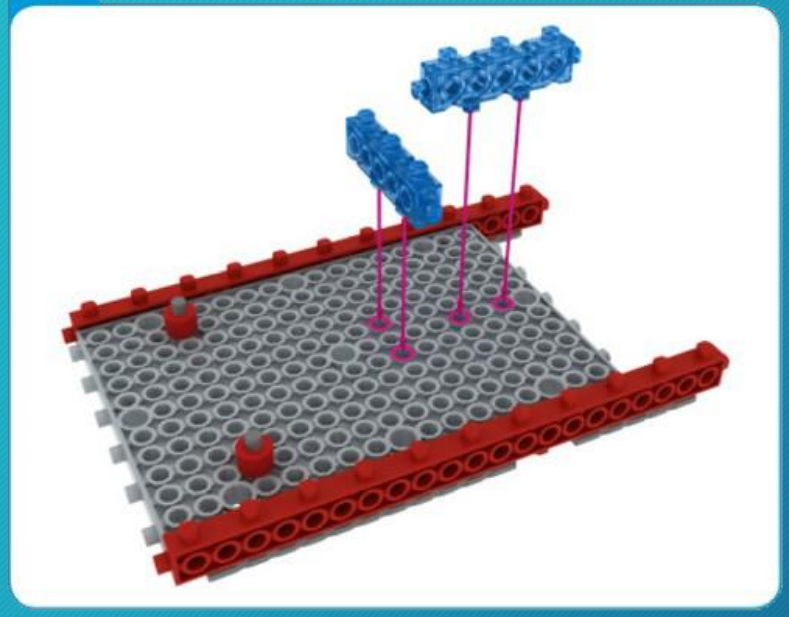

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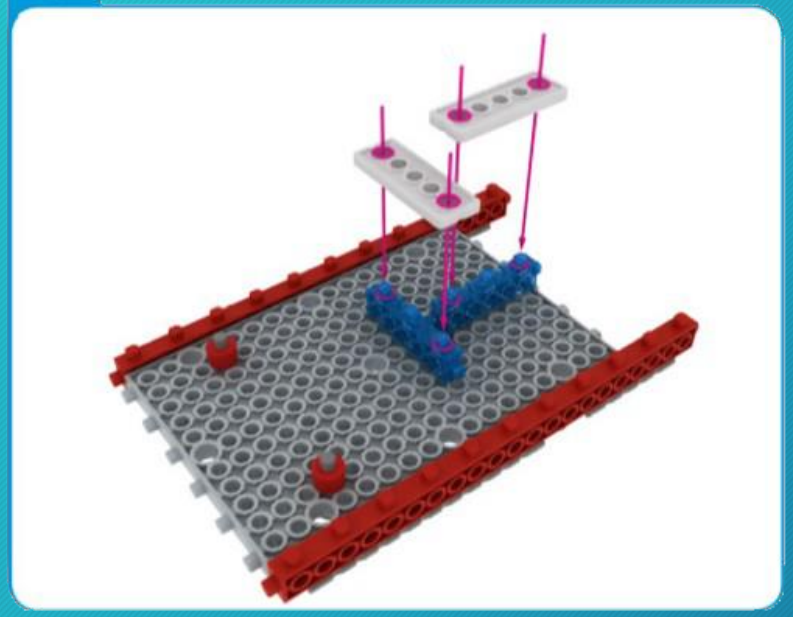

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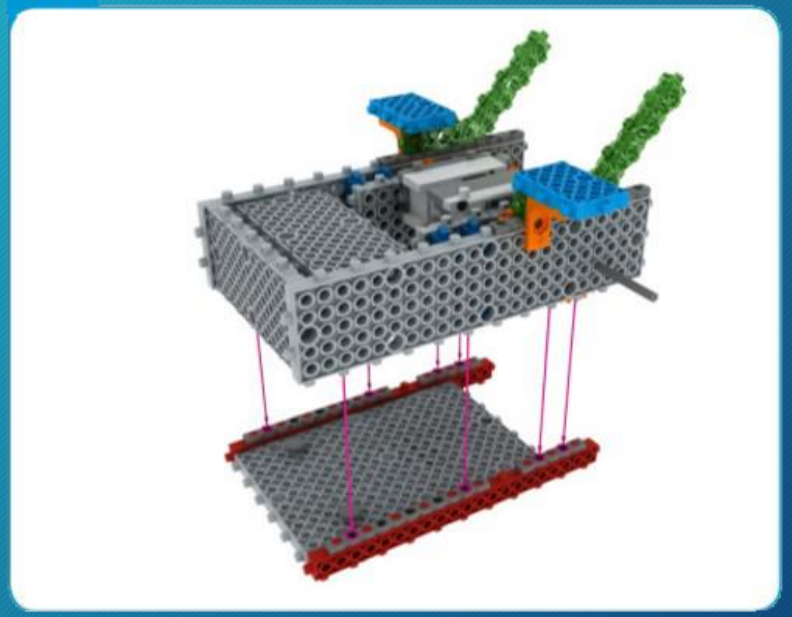

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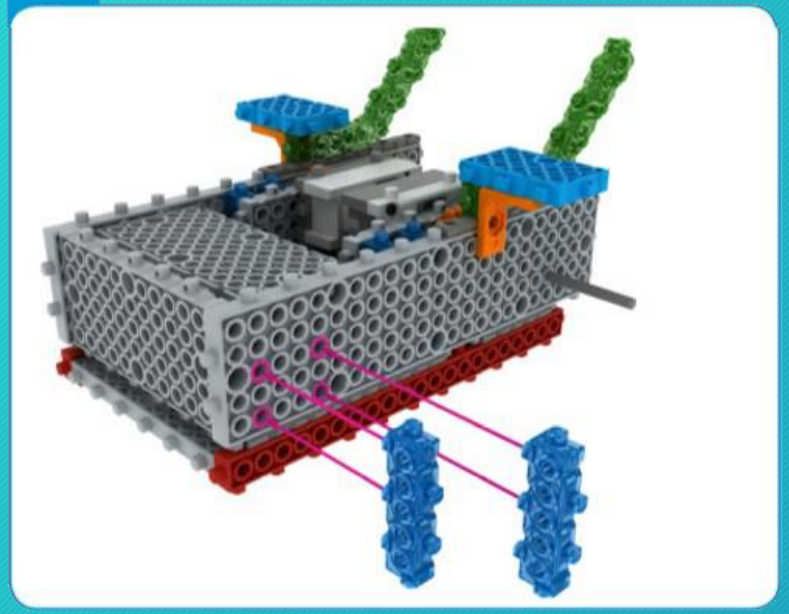

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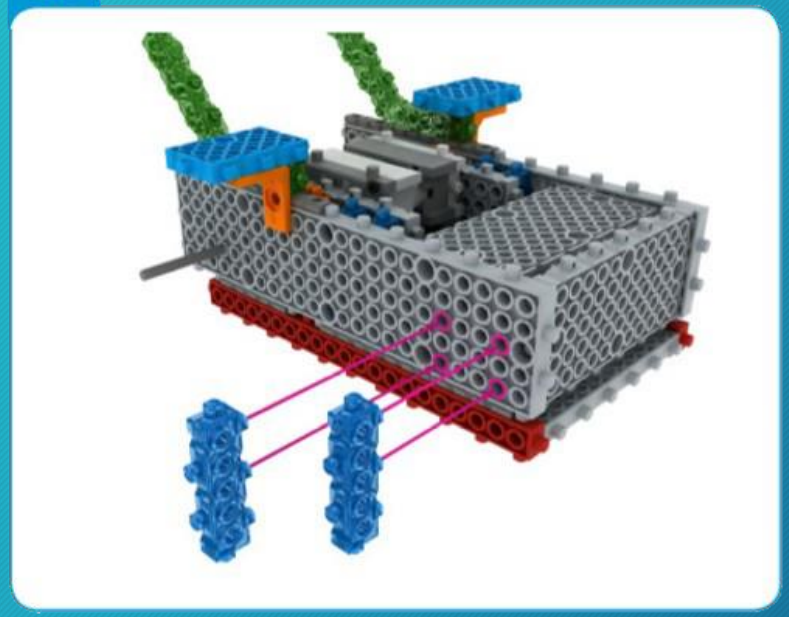

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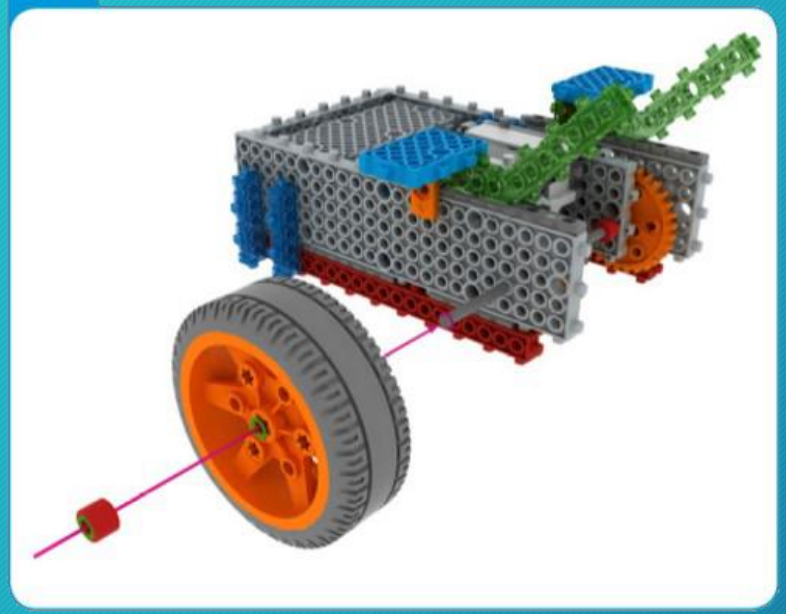

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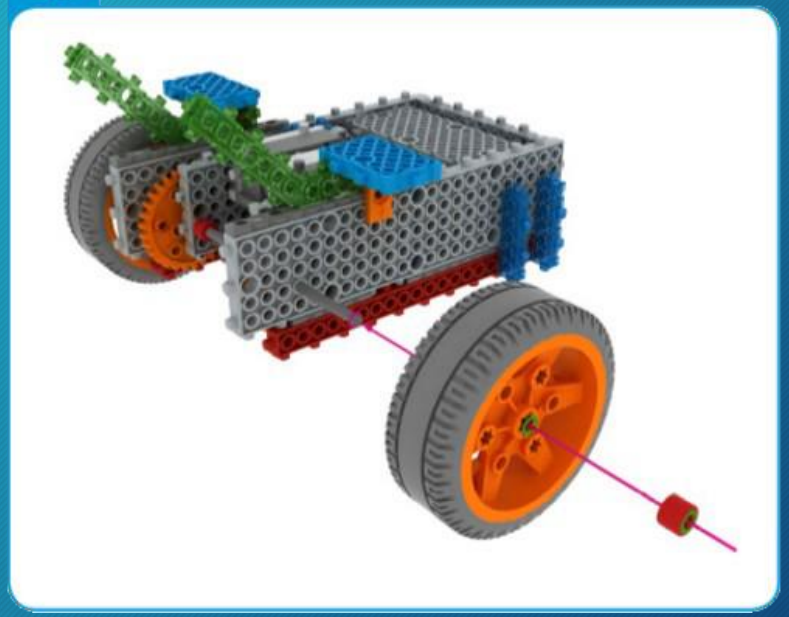

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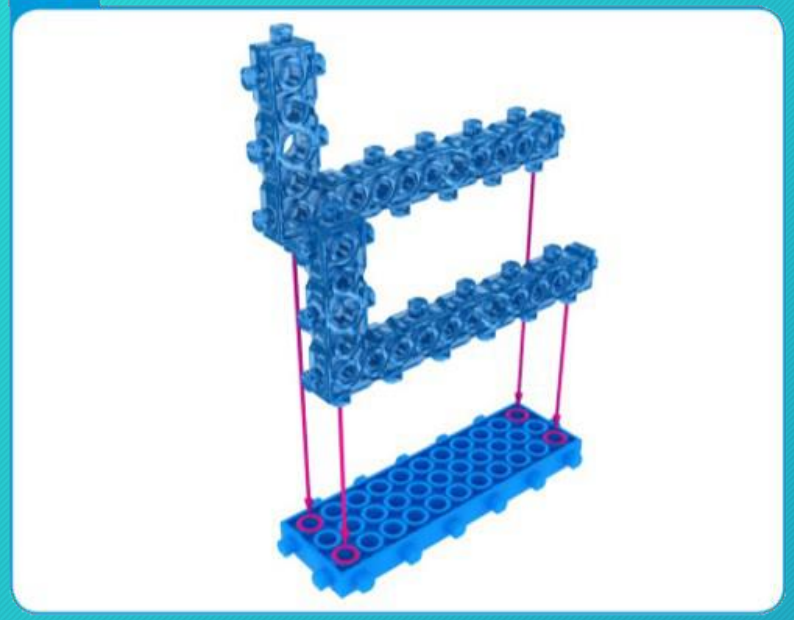

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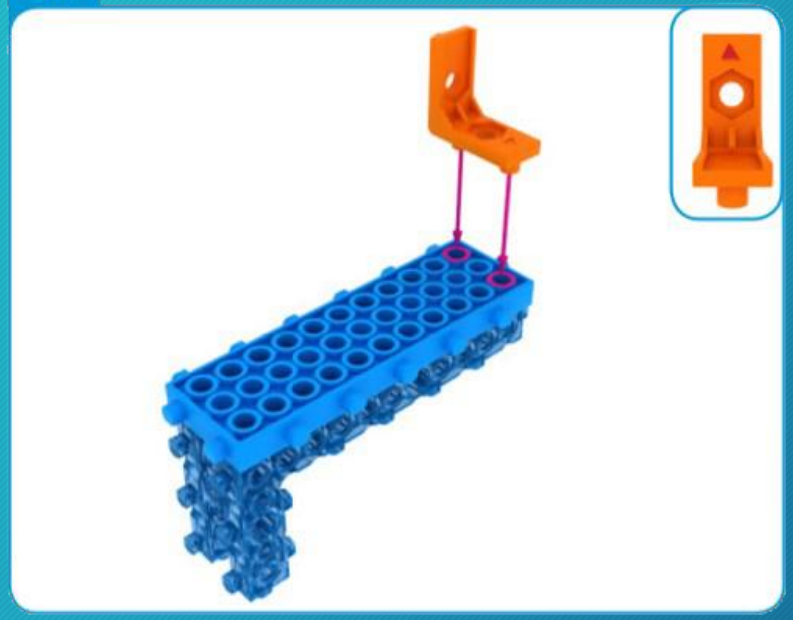

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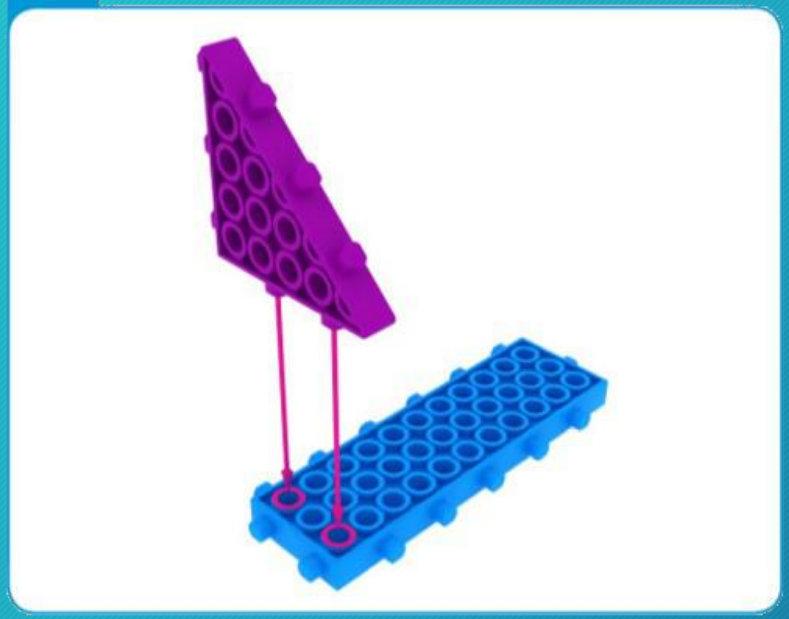

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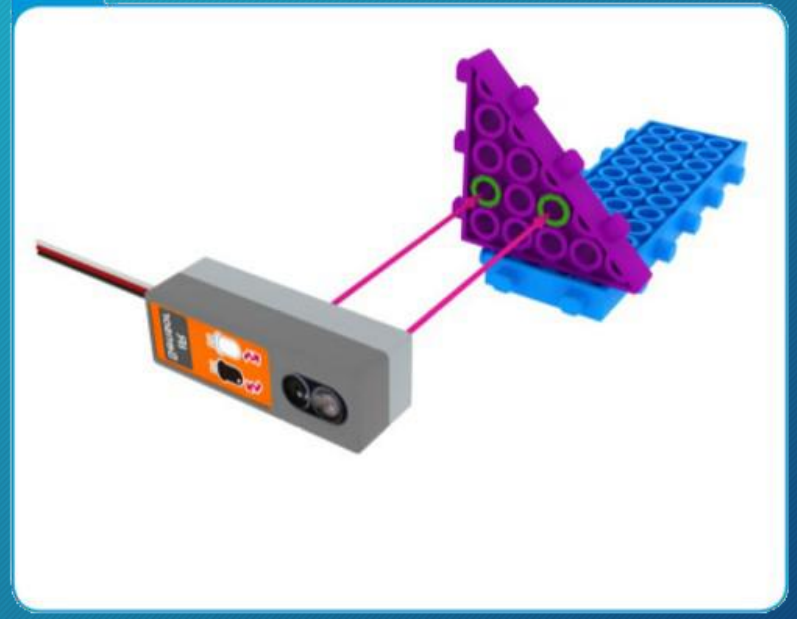

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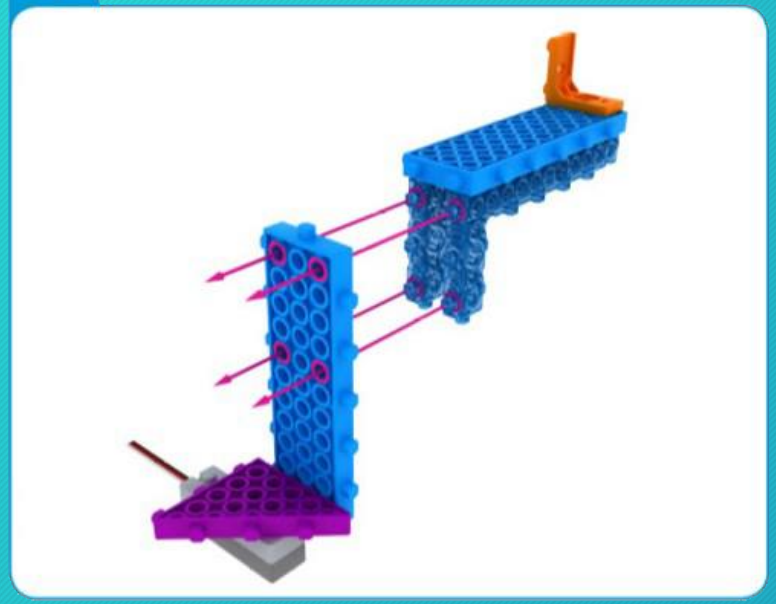

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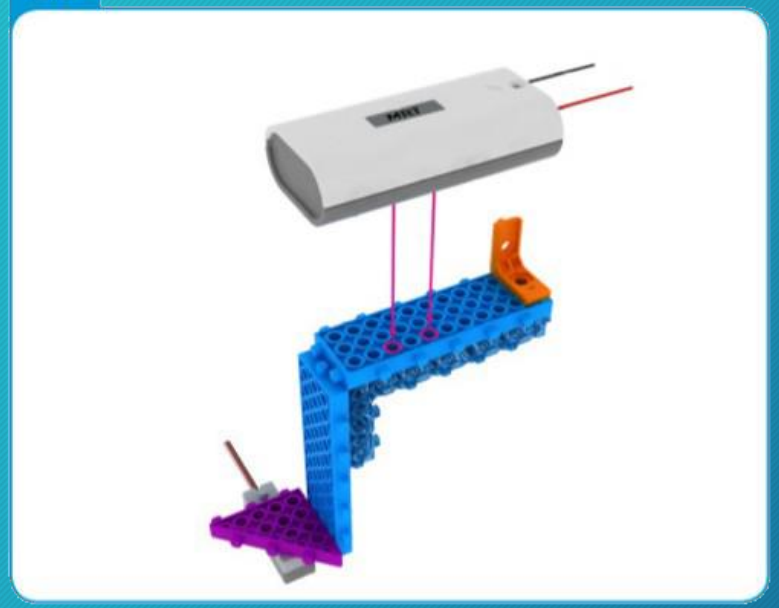

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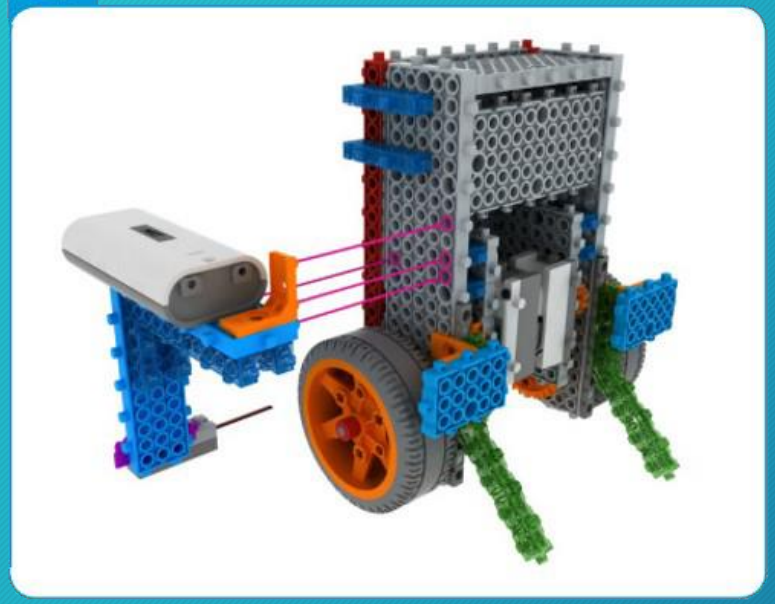

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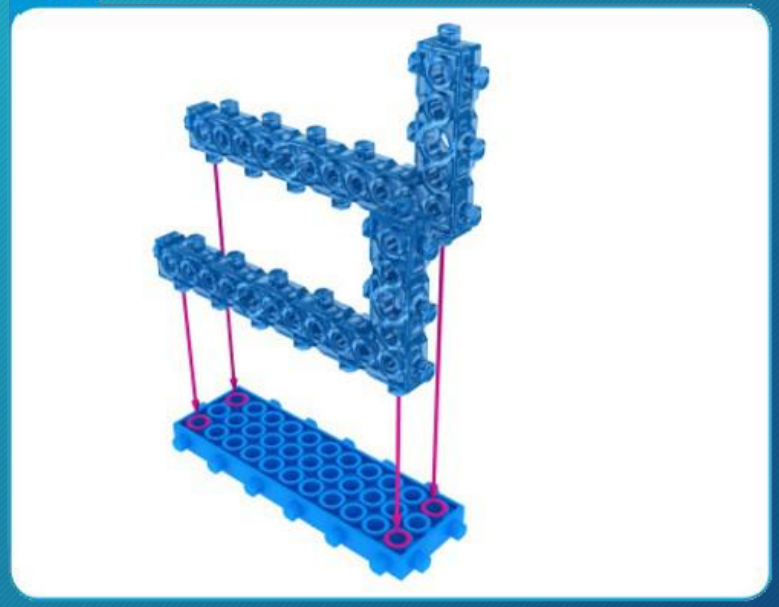

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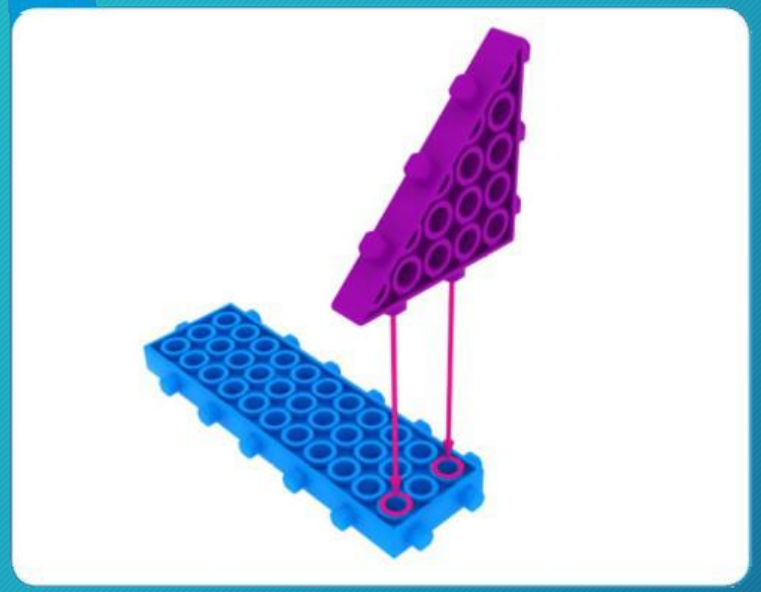

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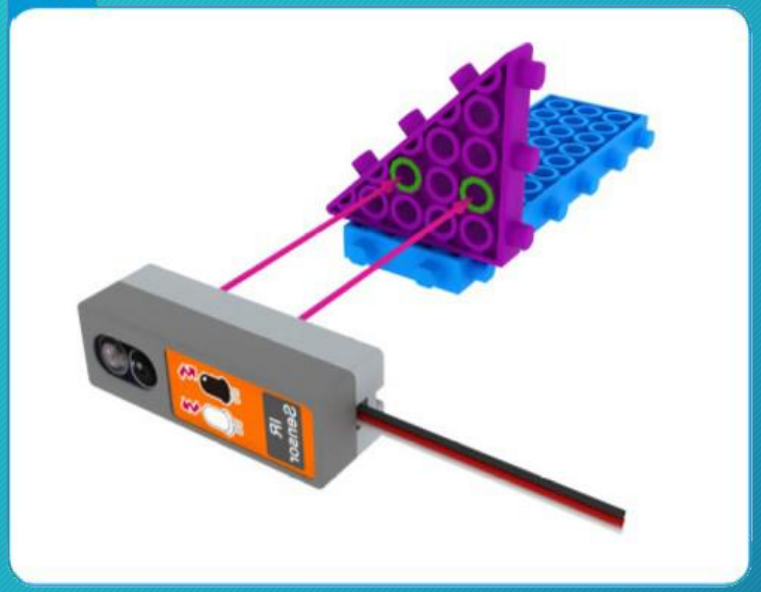

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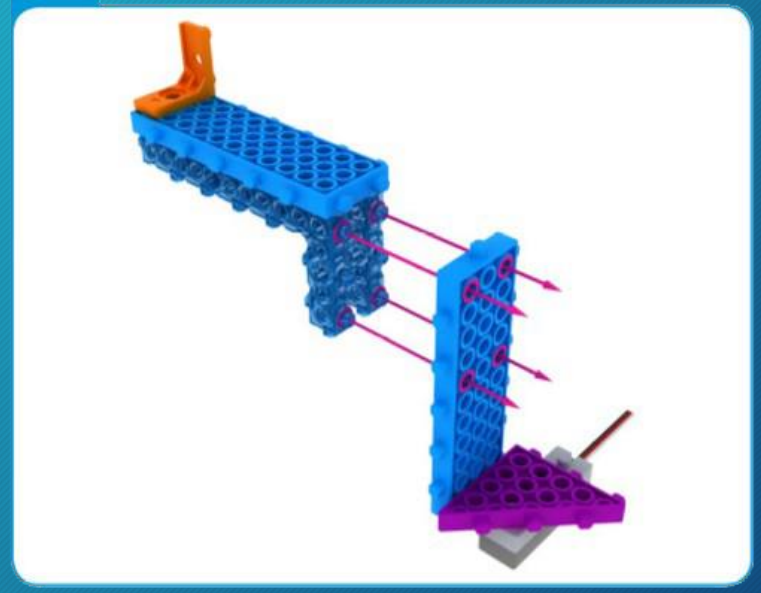

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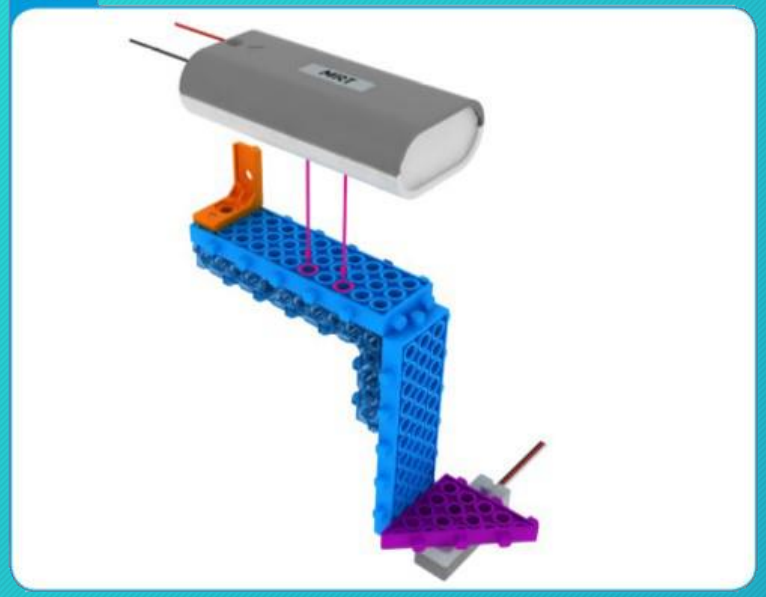

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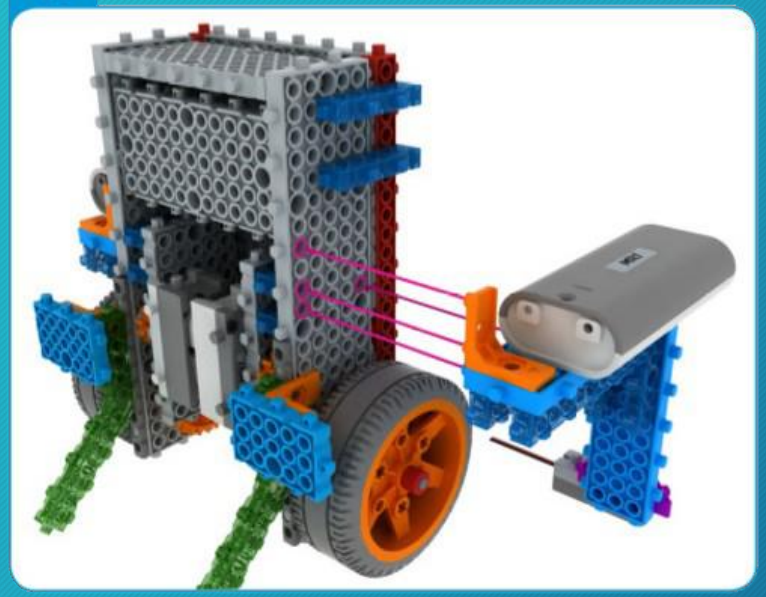

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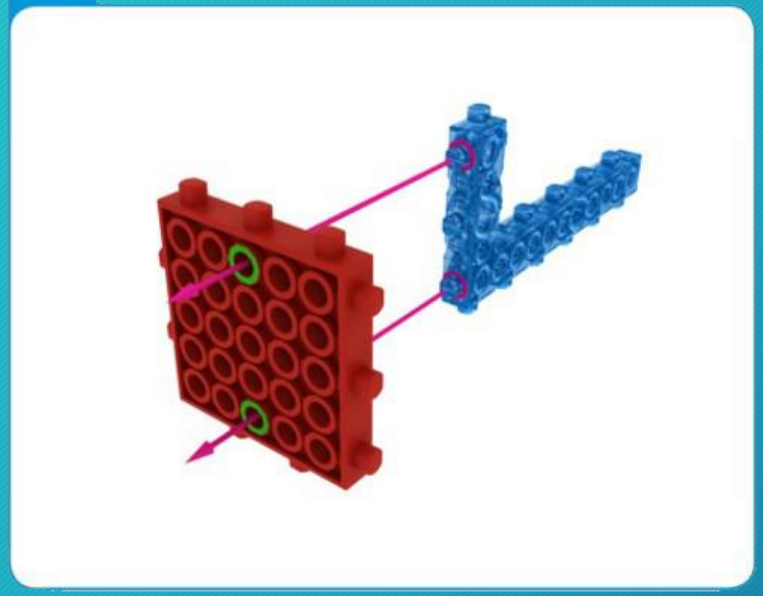

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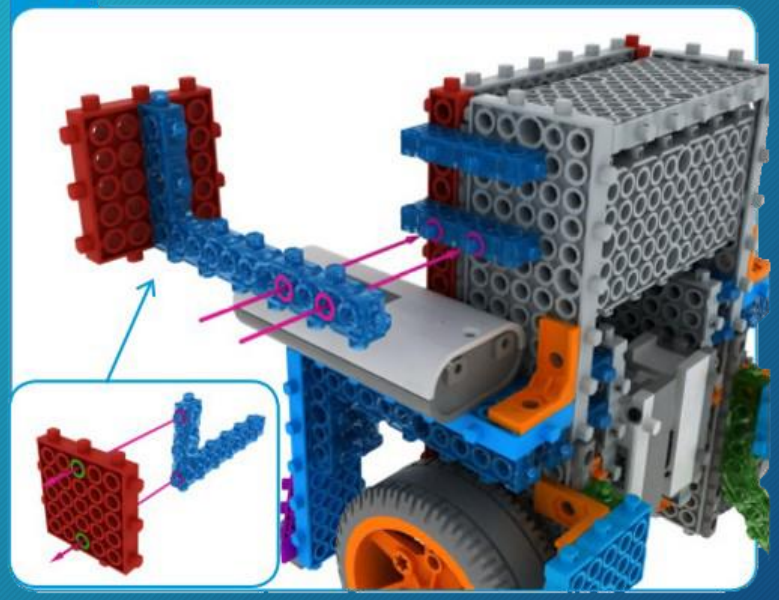

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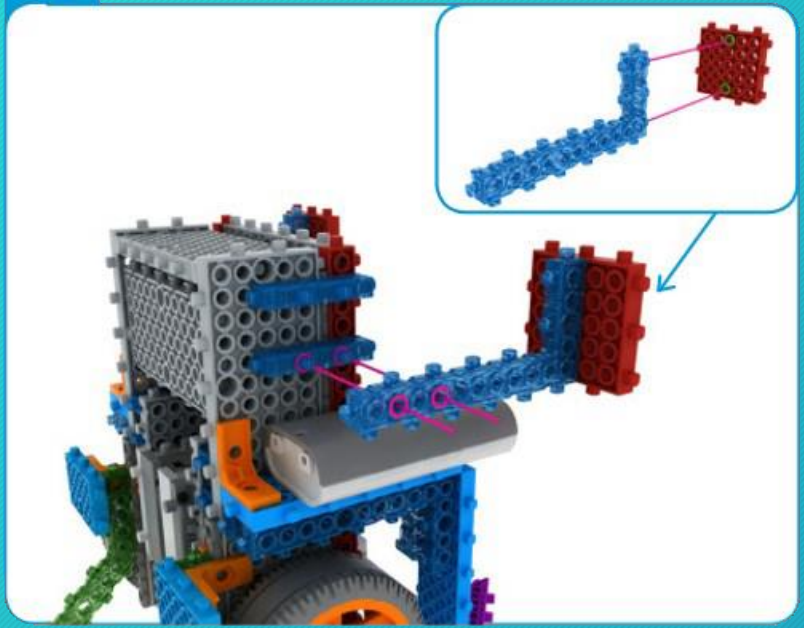

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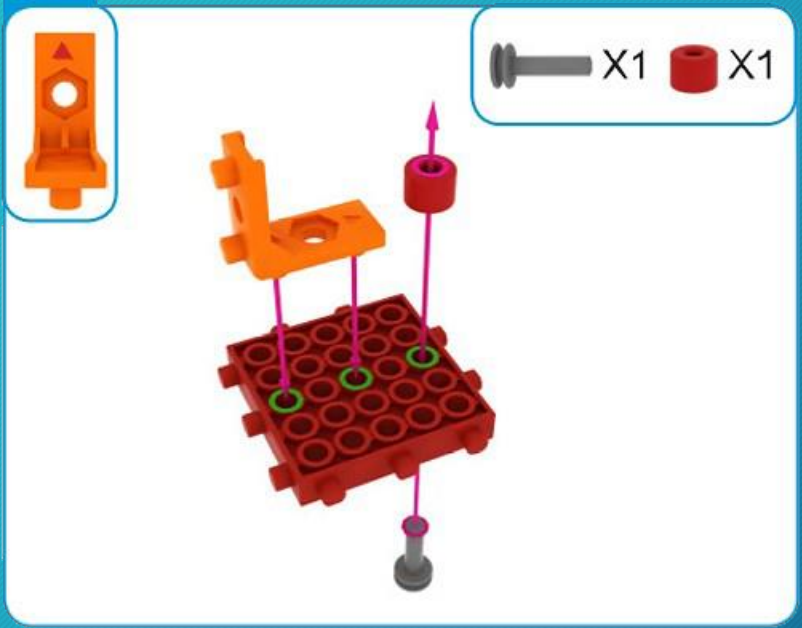

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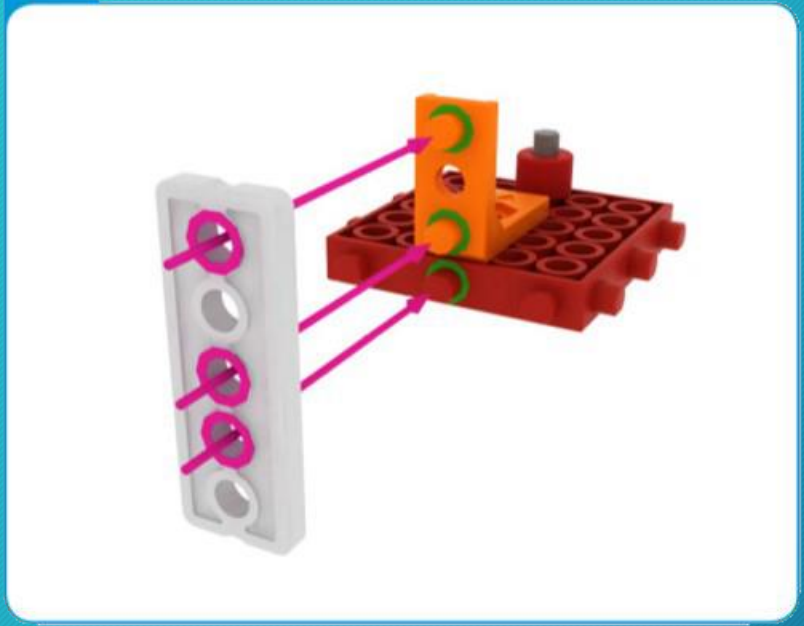

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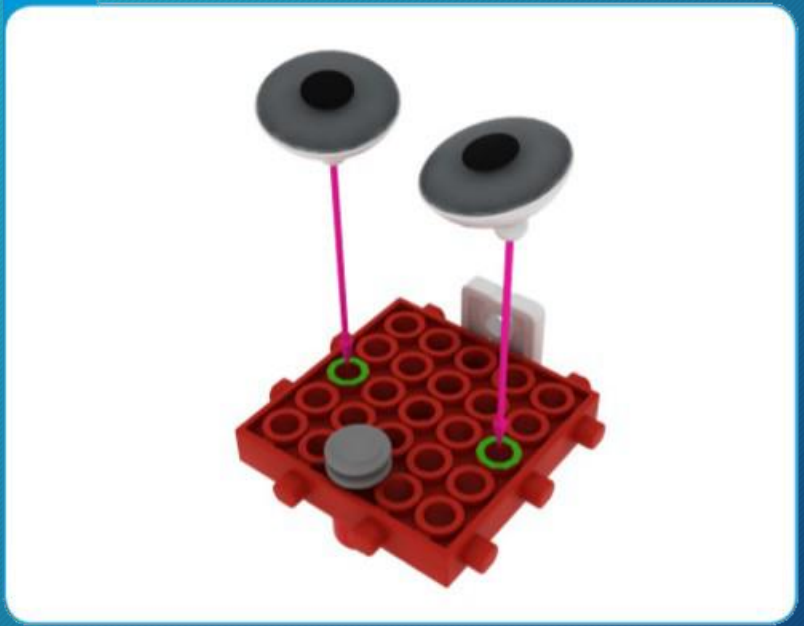

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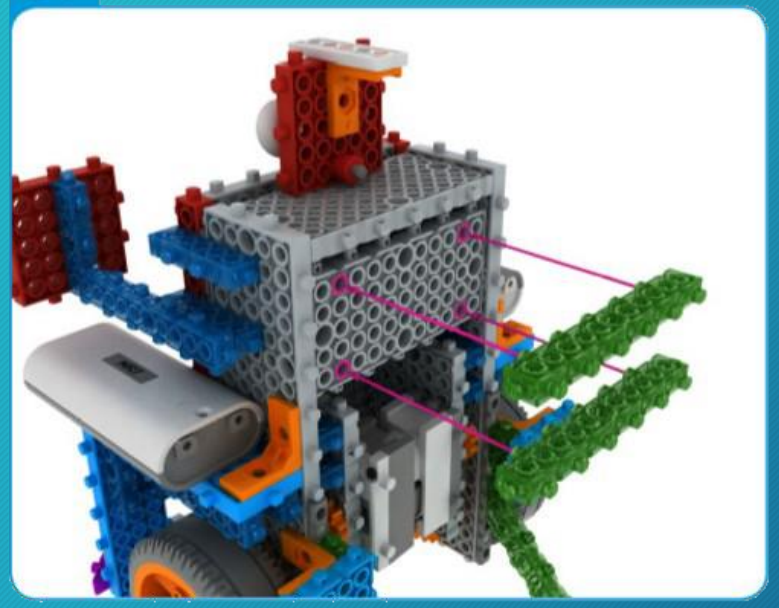

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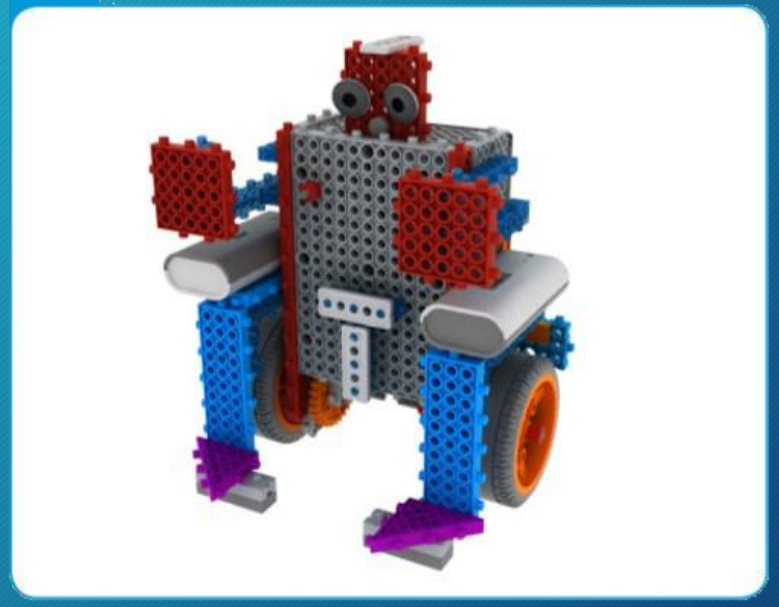
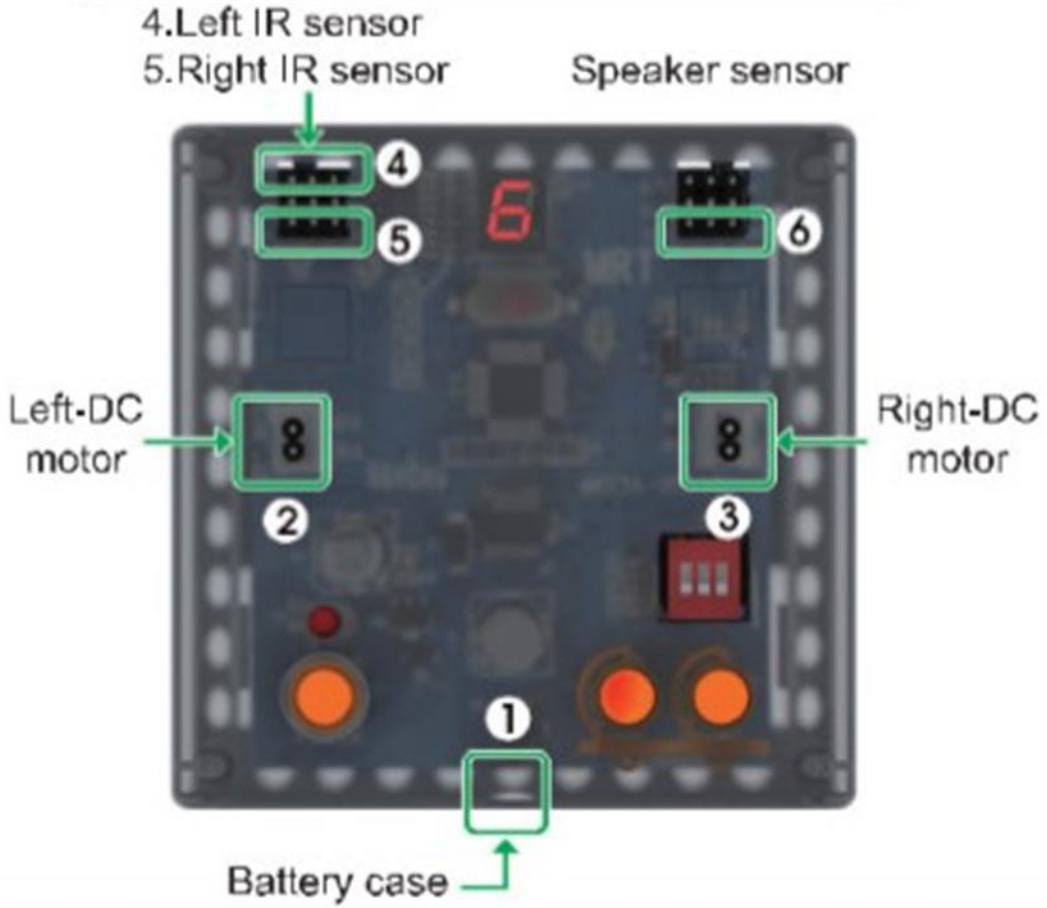


Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect Left-DC motor to Left-motor connector.
3. Connect Right-DC motor to Right-motor connector.
4. Connect Left IR sensor to R connector.
5. Connect Right IR sensor to R connector.
6. Comect speaker sensor to INZ connector.

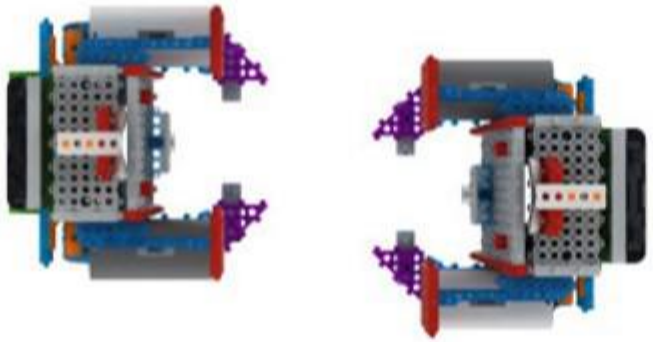
Setting mode

1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

MODE # 6		Drop Checker Mode

4. Select Remote ID.
5. Press the START button.

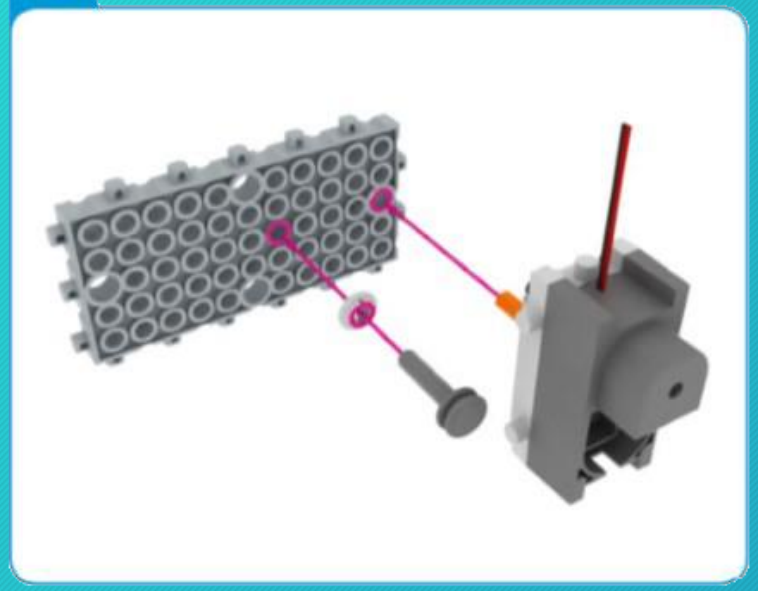
How to make it move?



※ play funny game with your friends.

Skier Man

1



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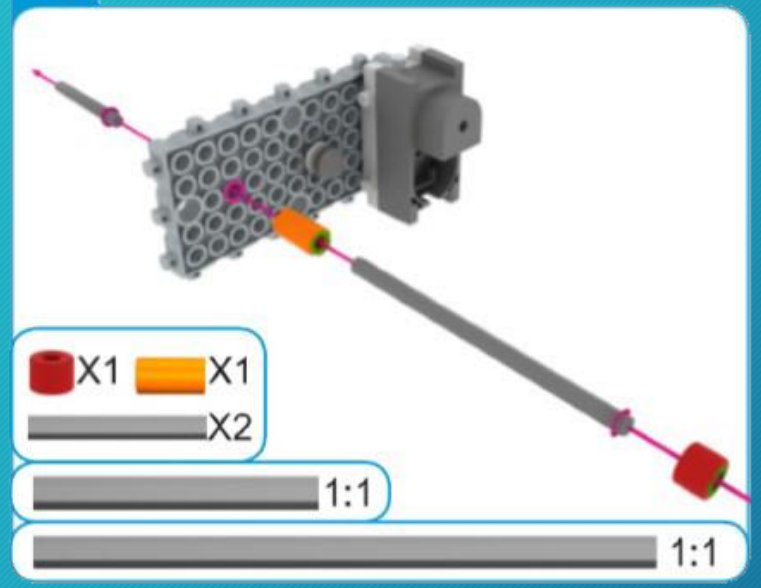

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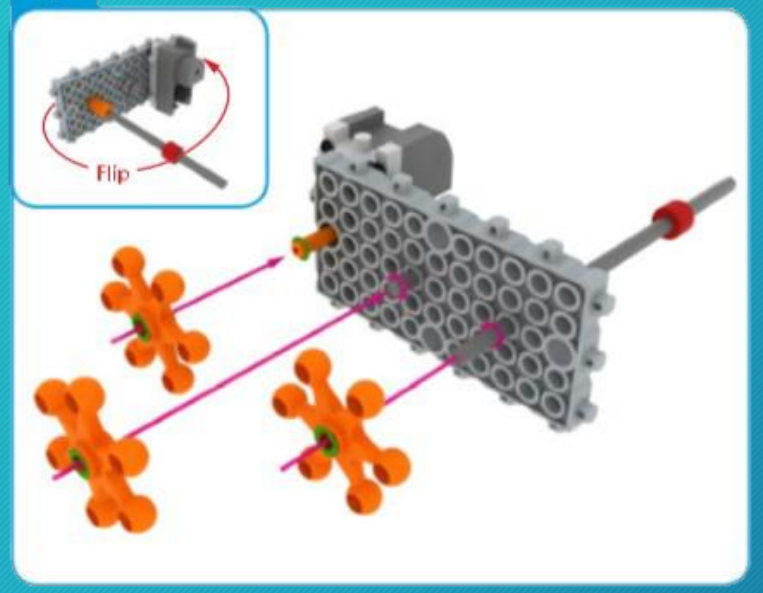

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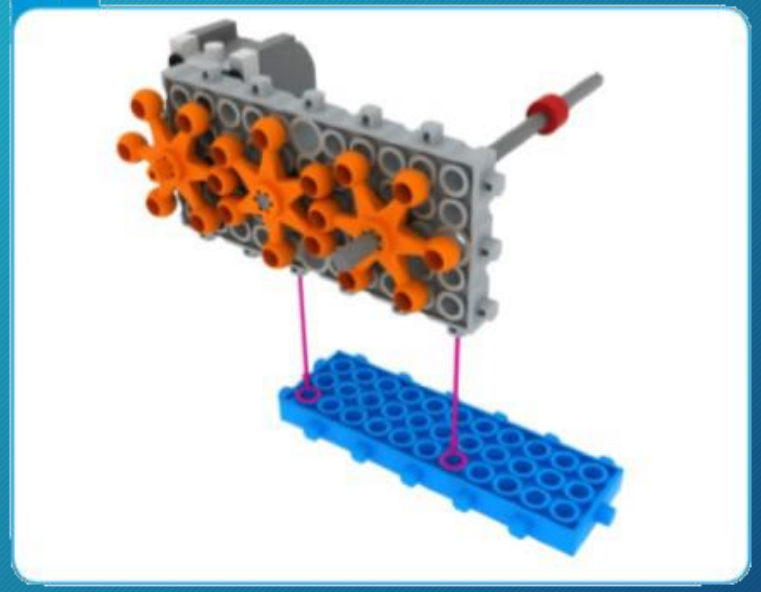

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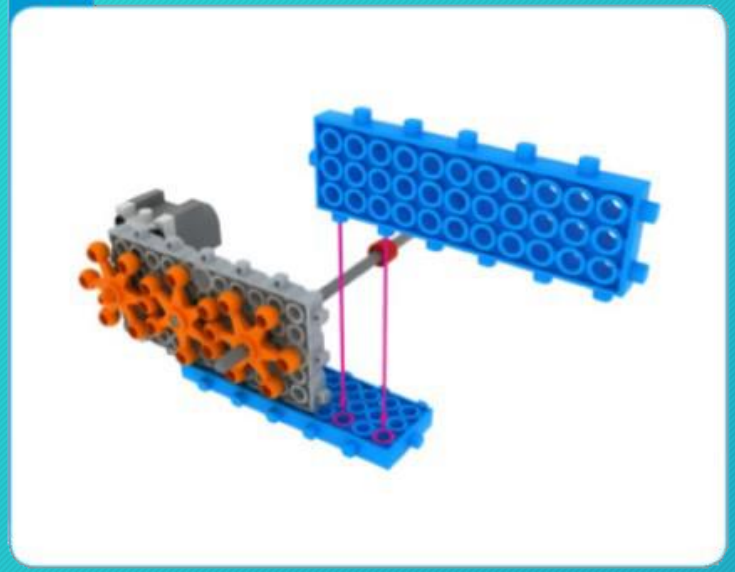

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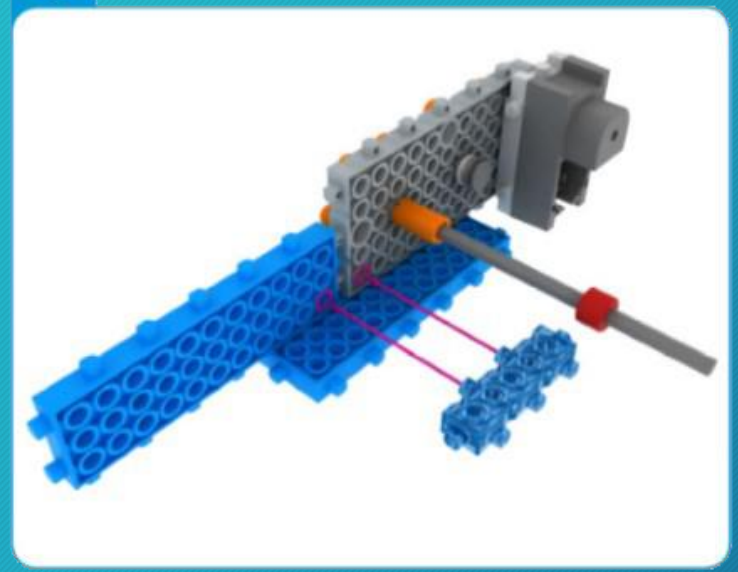

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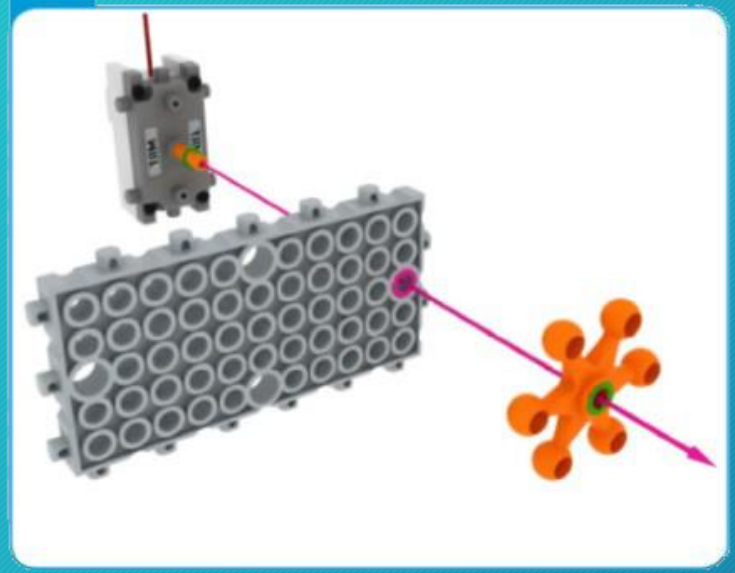

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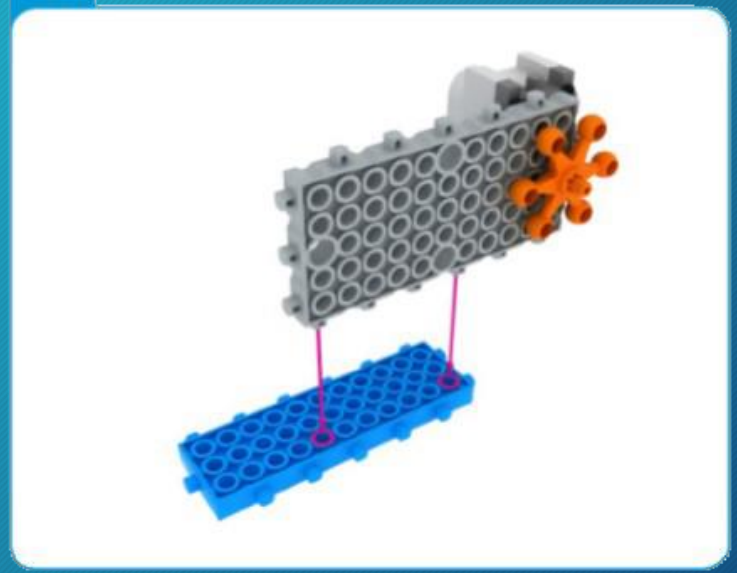

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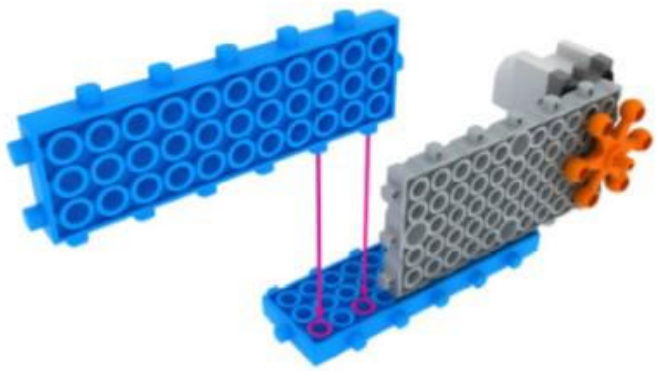

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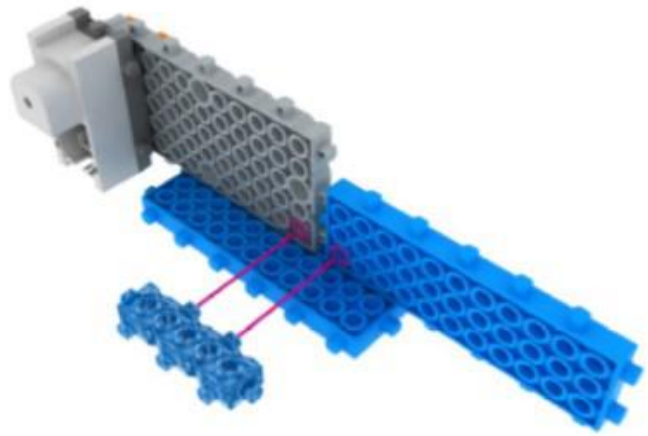

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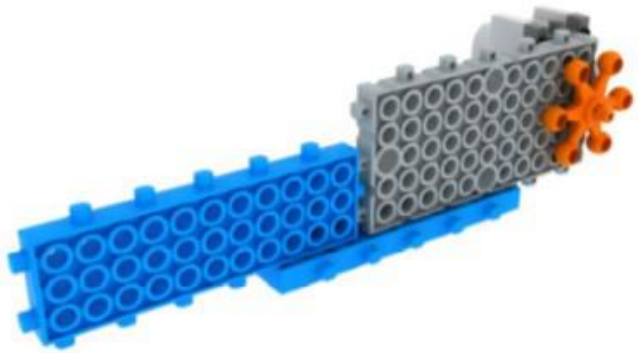

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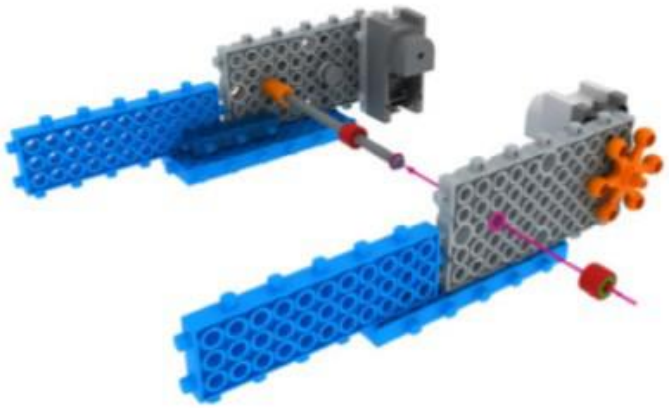

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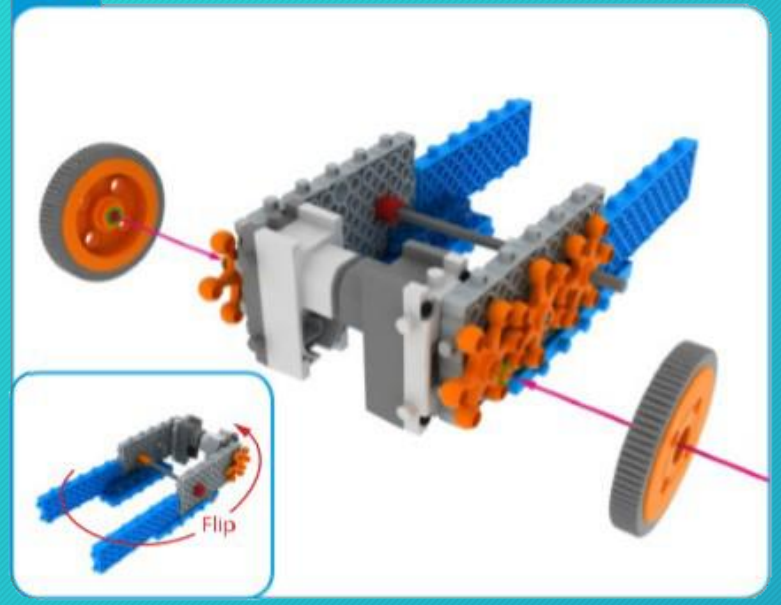

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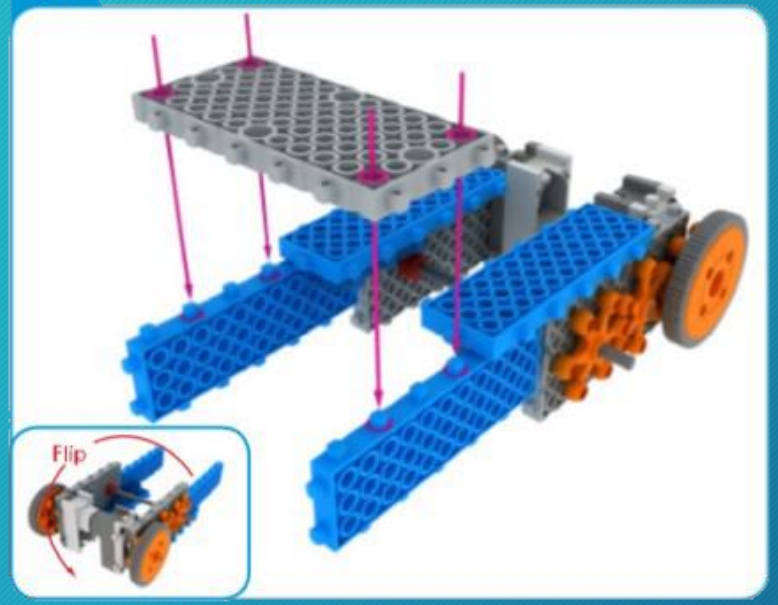

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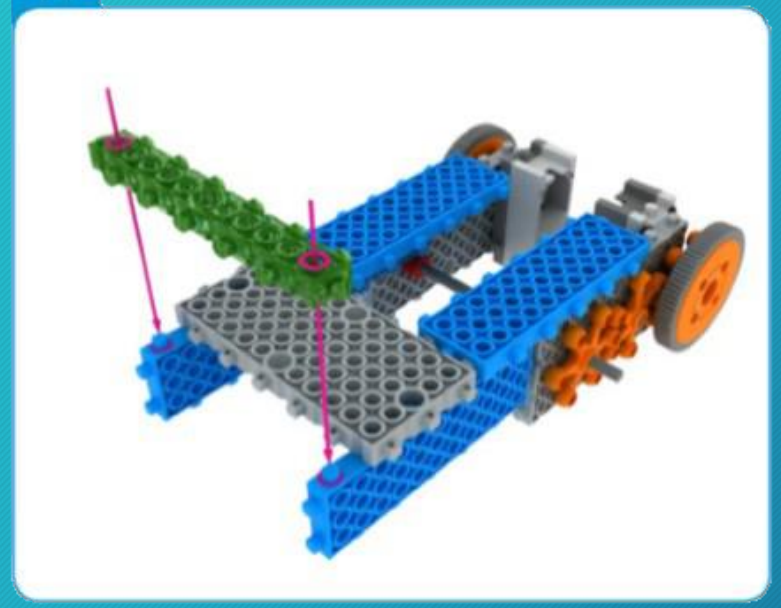

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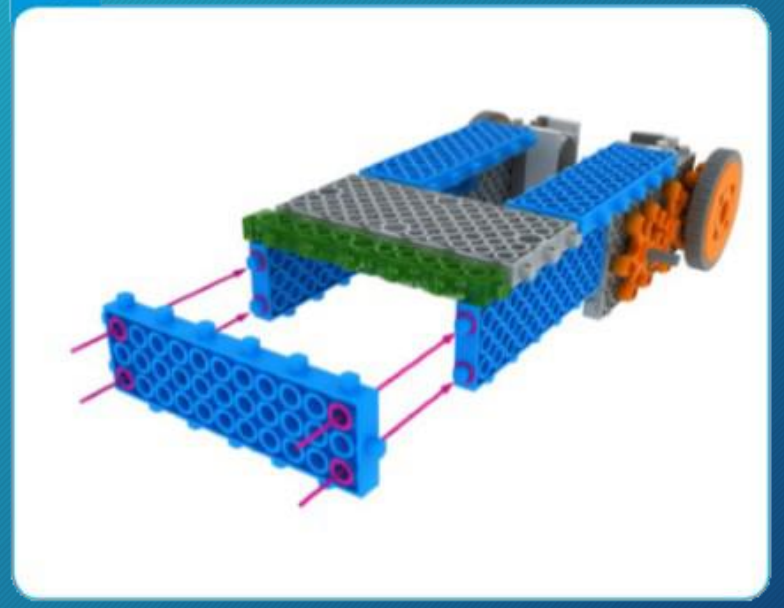

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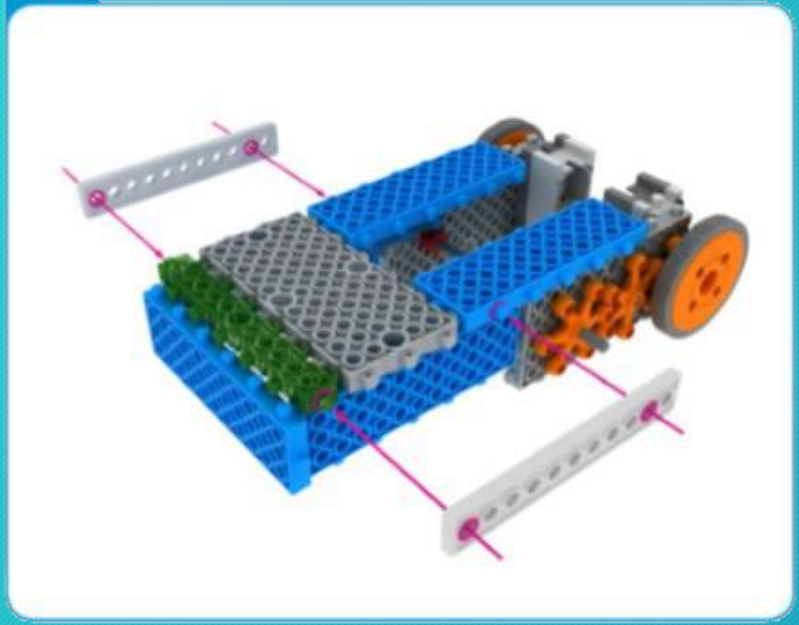

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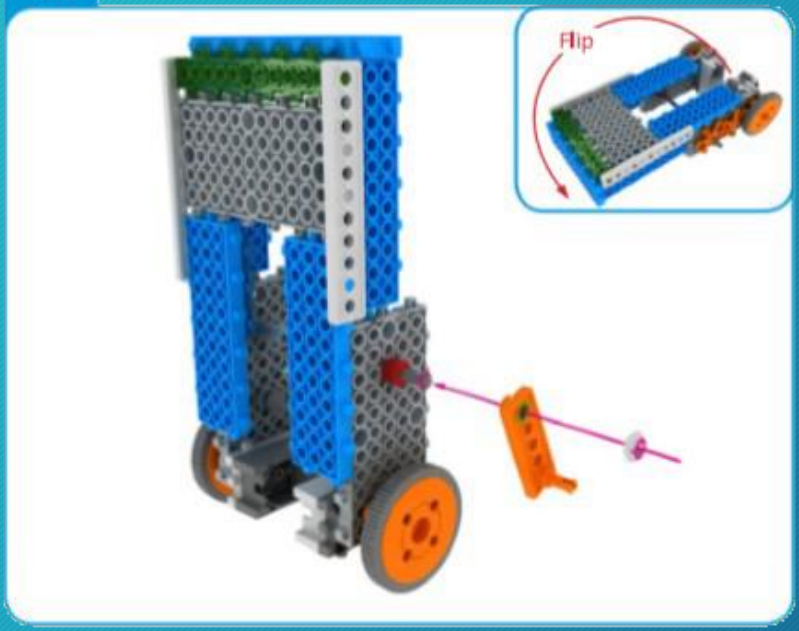

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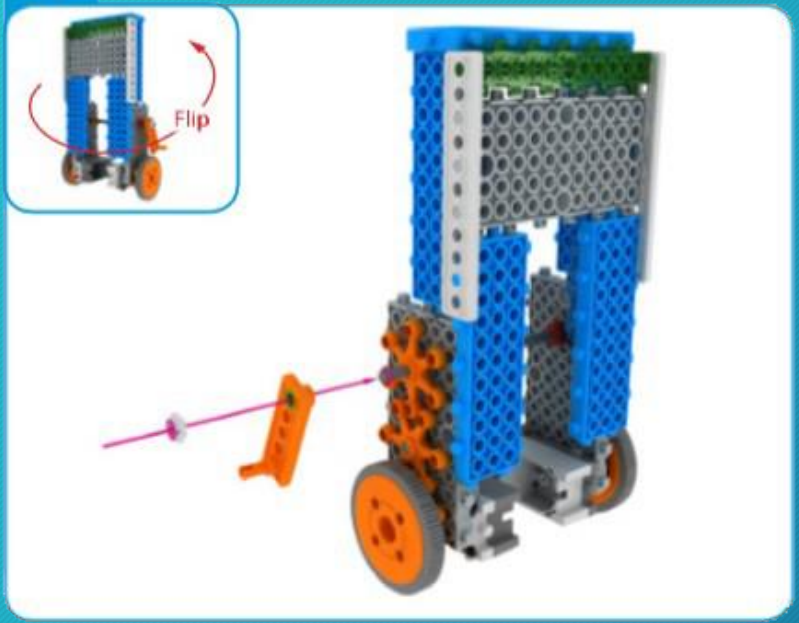

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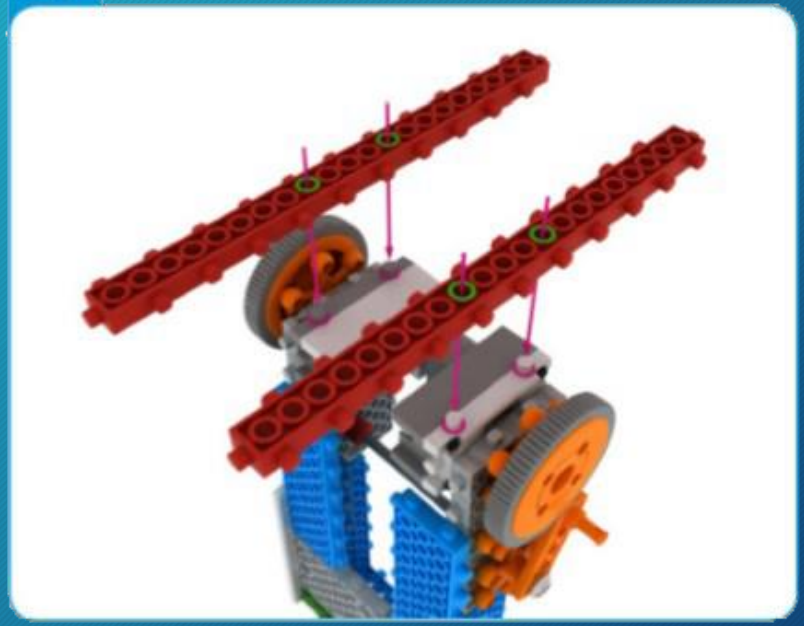

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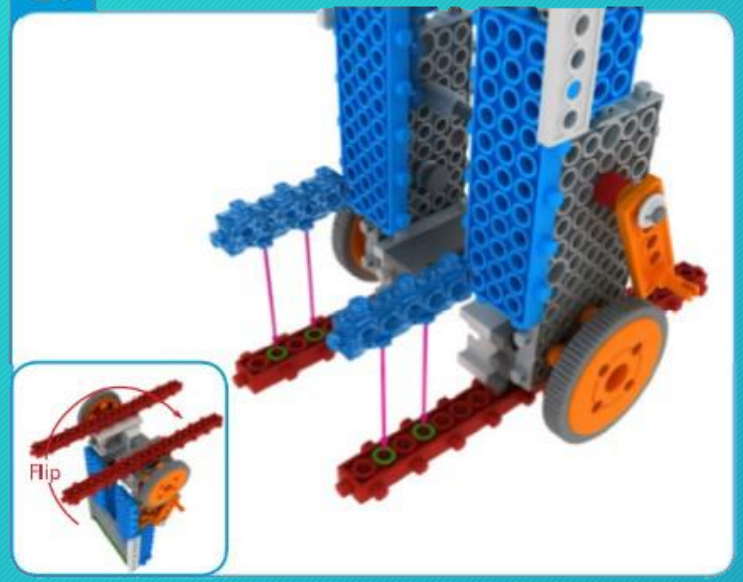

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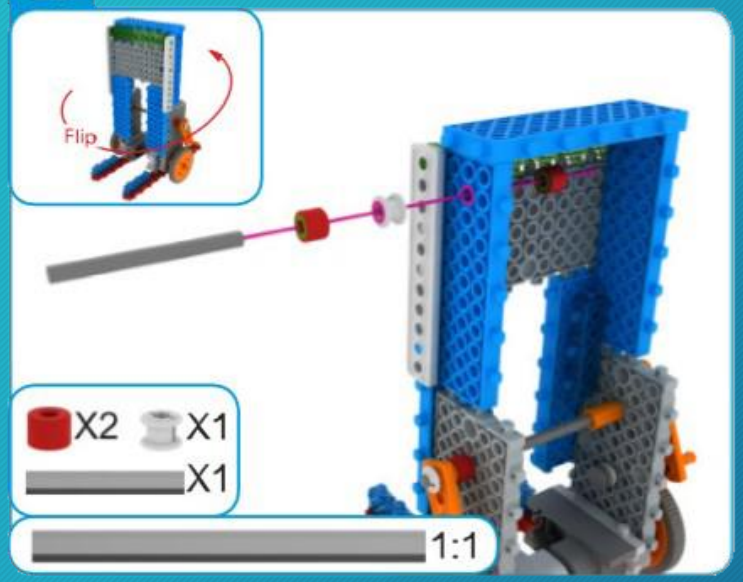

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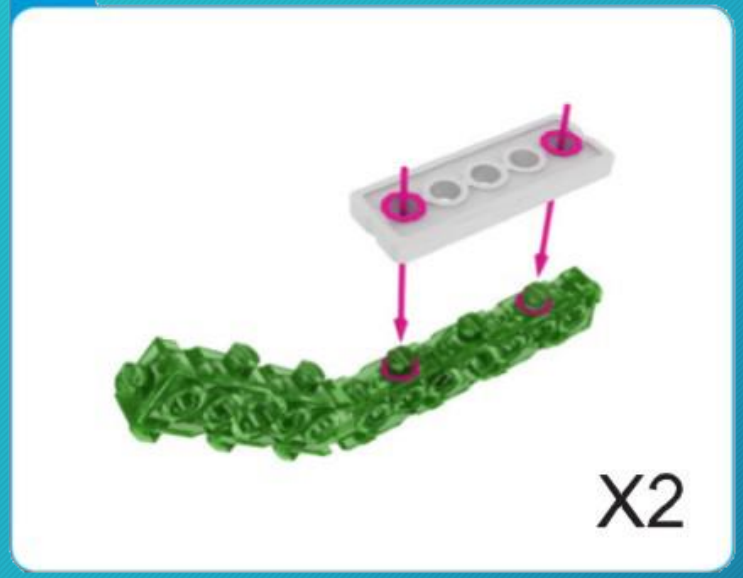

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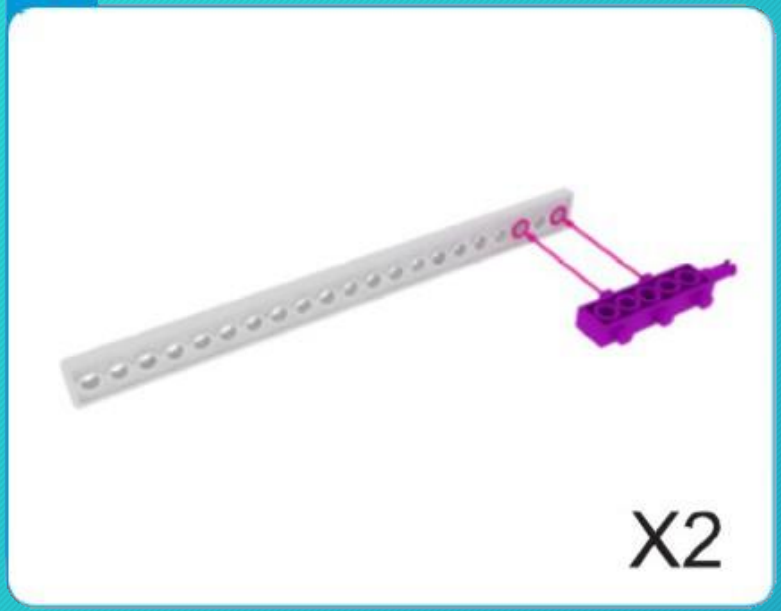

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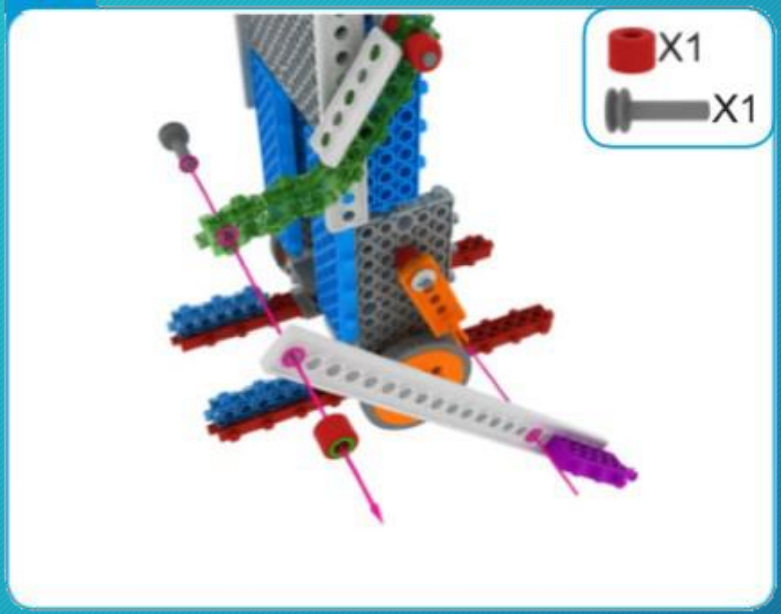

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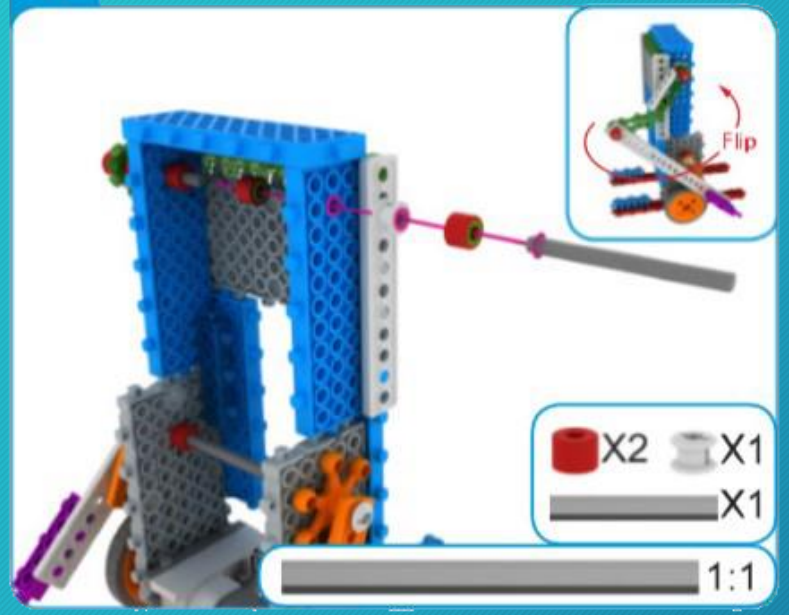

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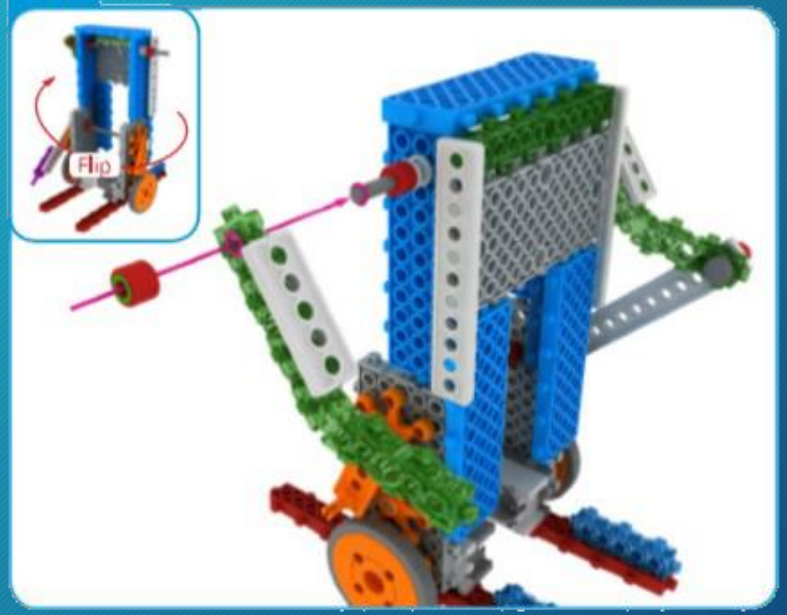

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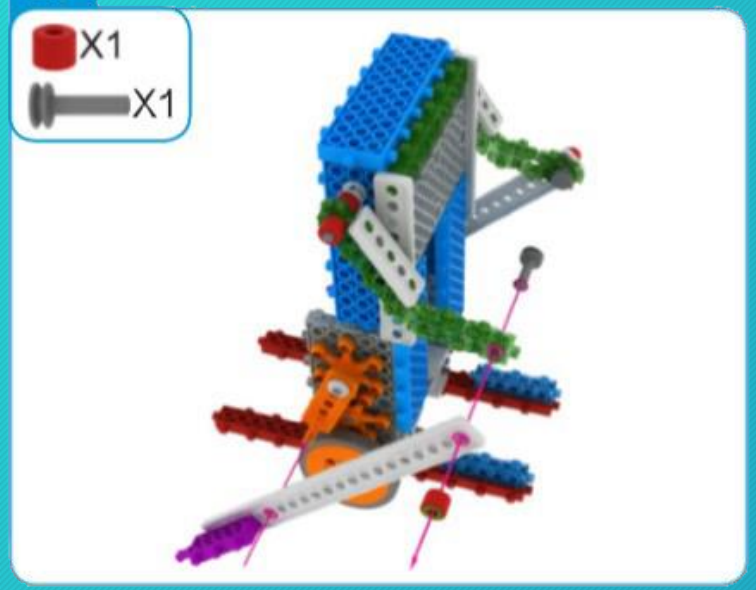

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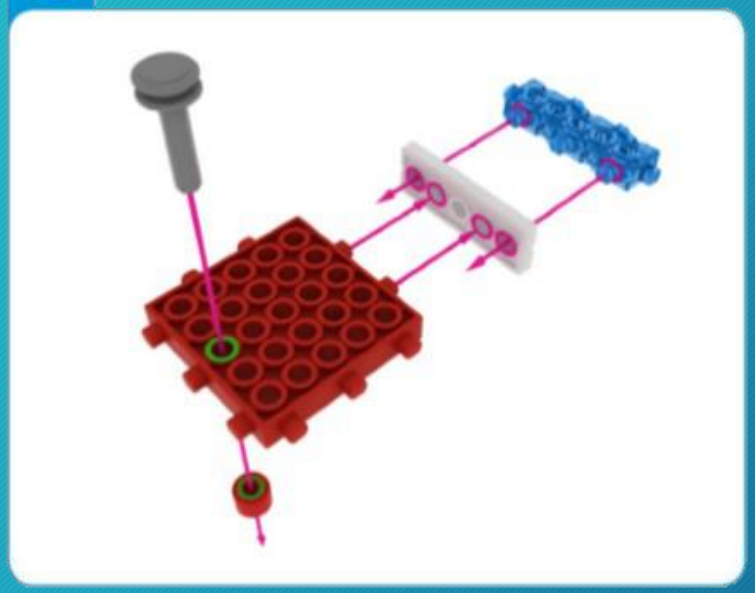

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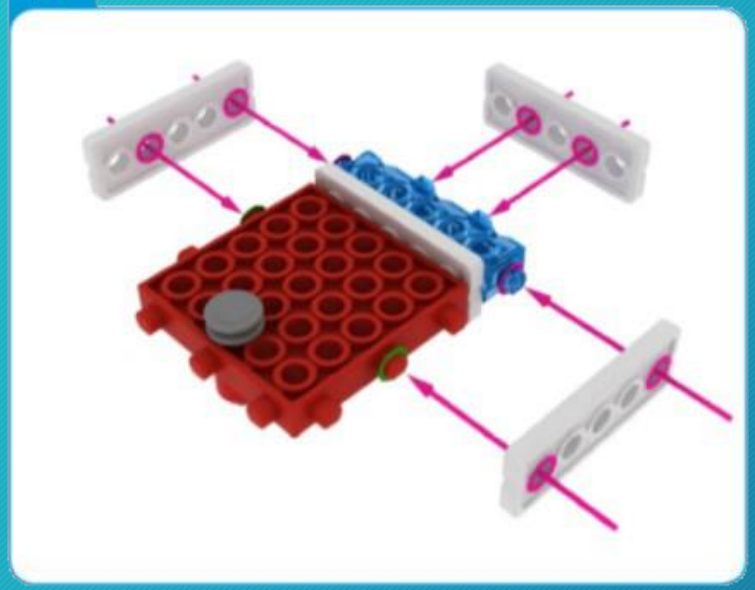

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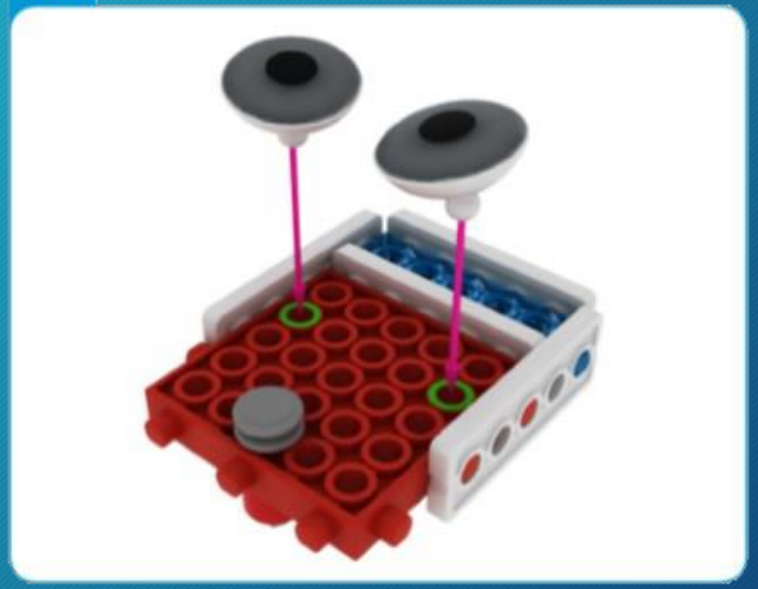

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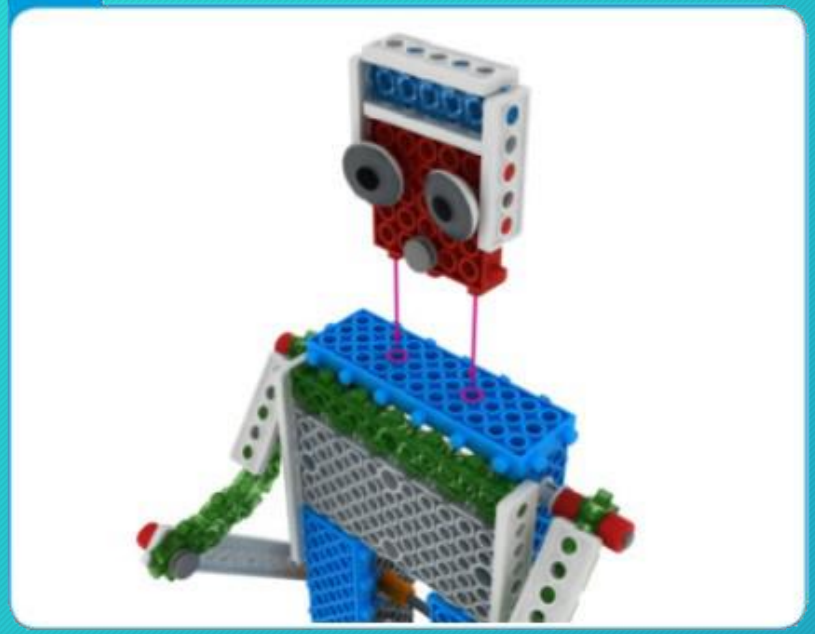

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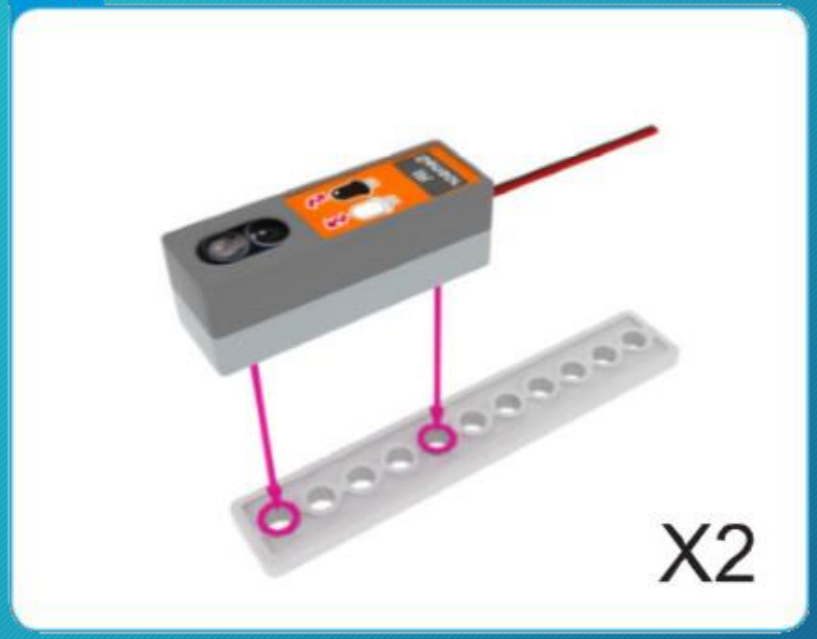

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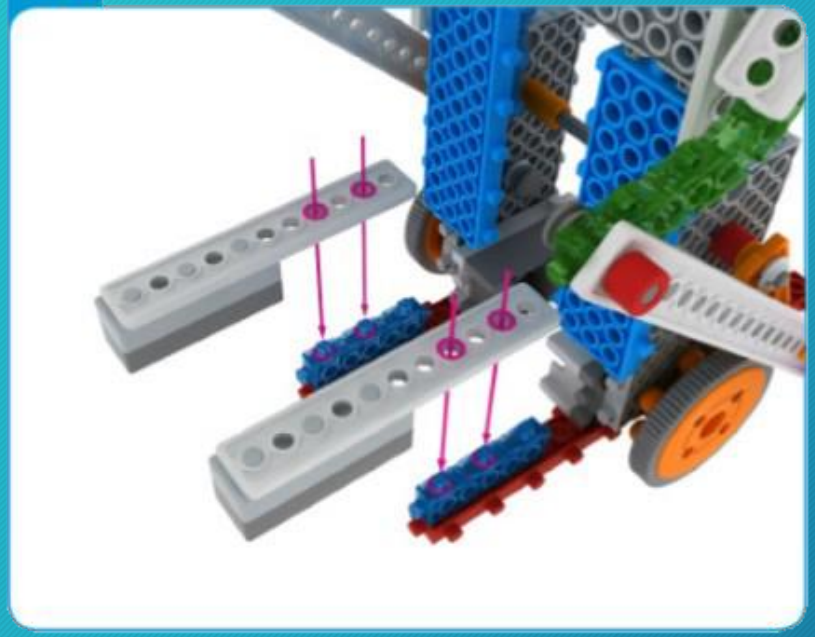

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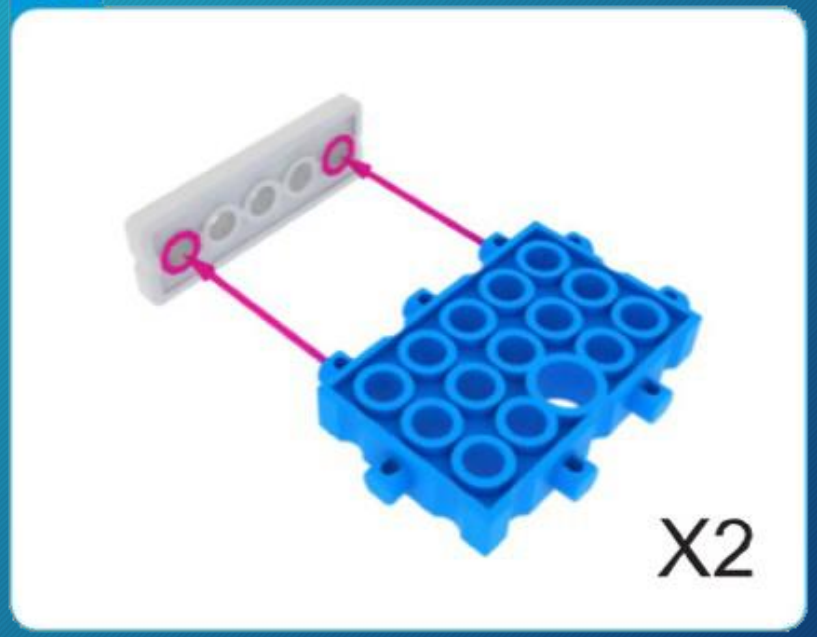

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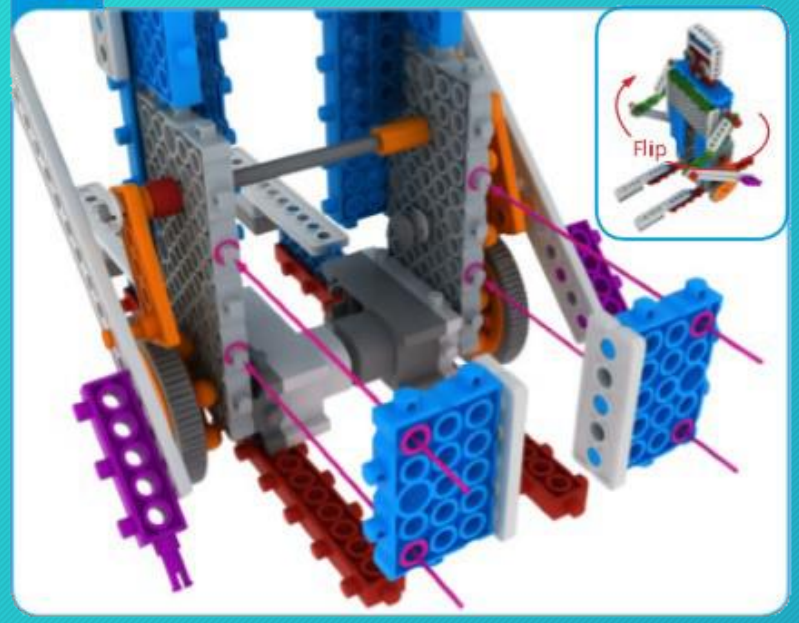

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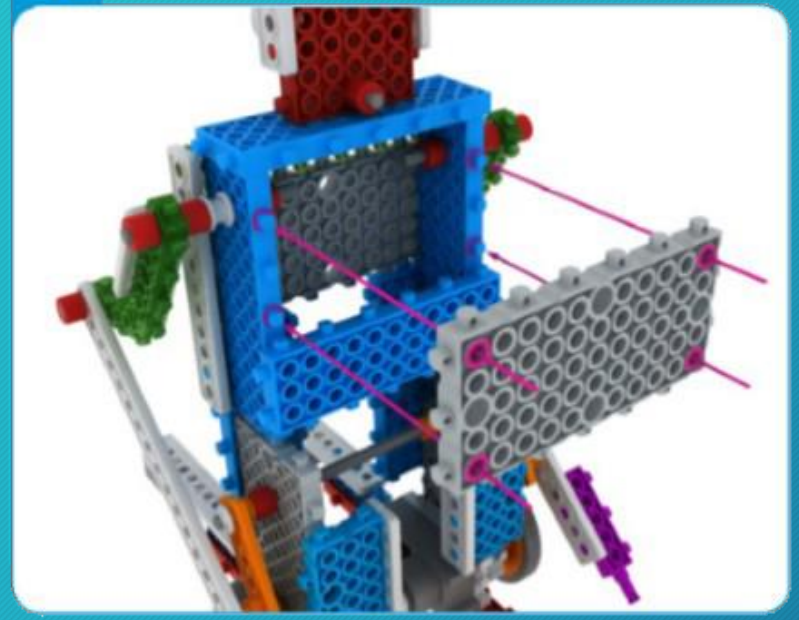

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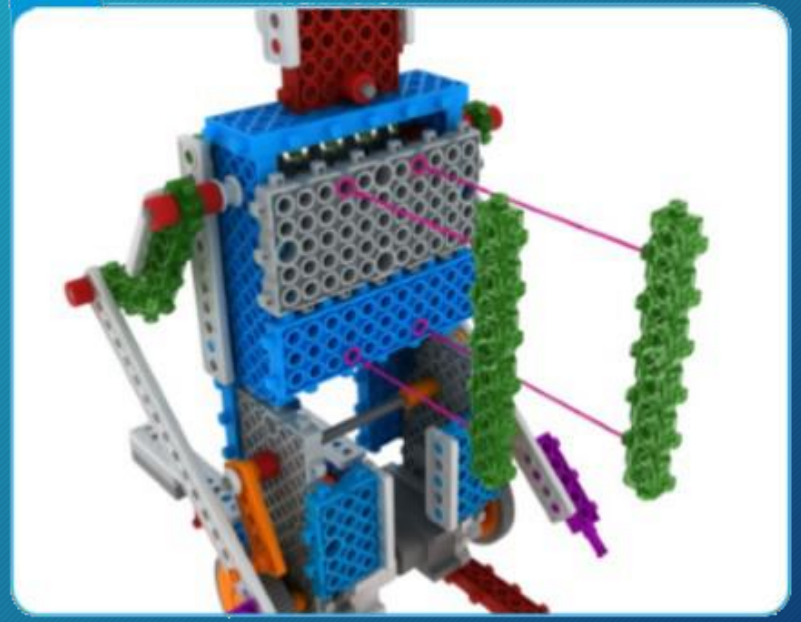

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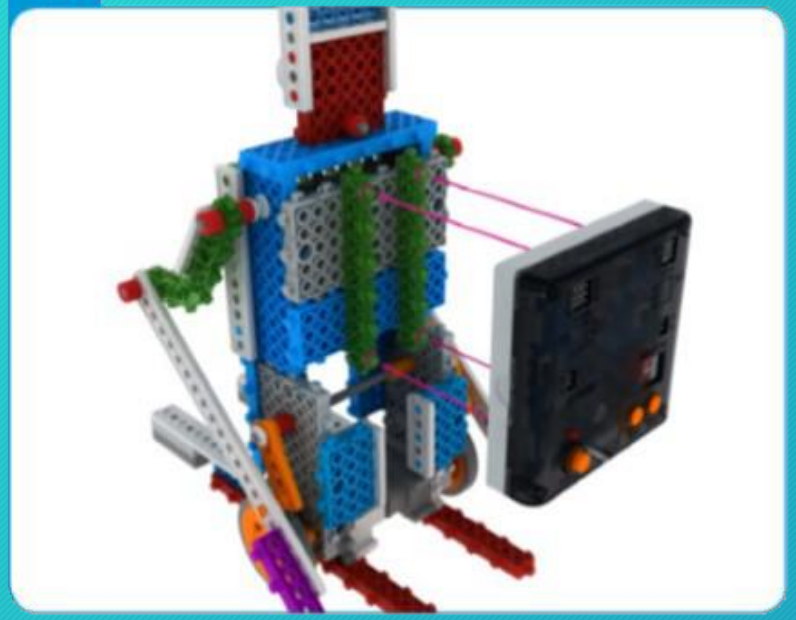

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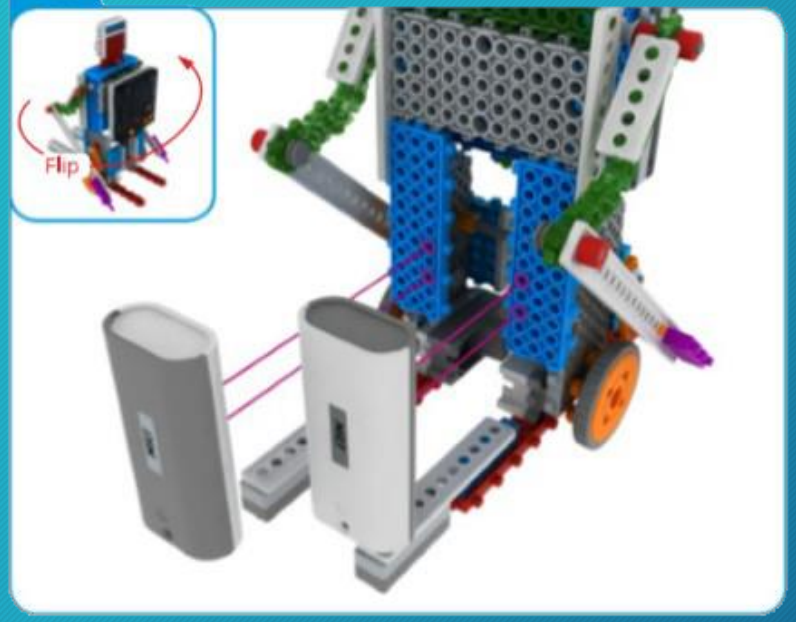

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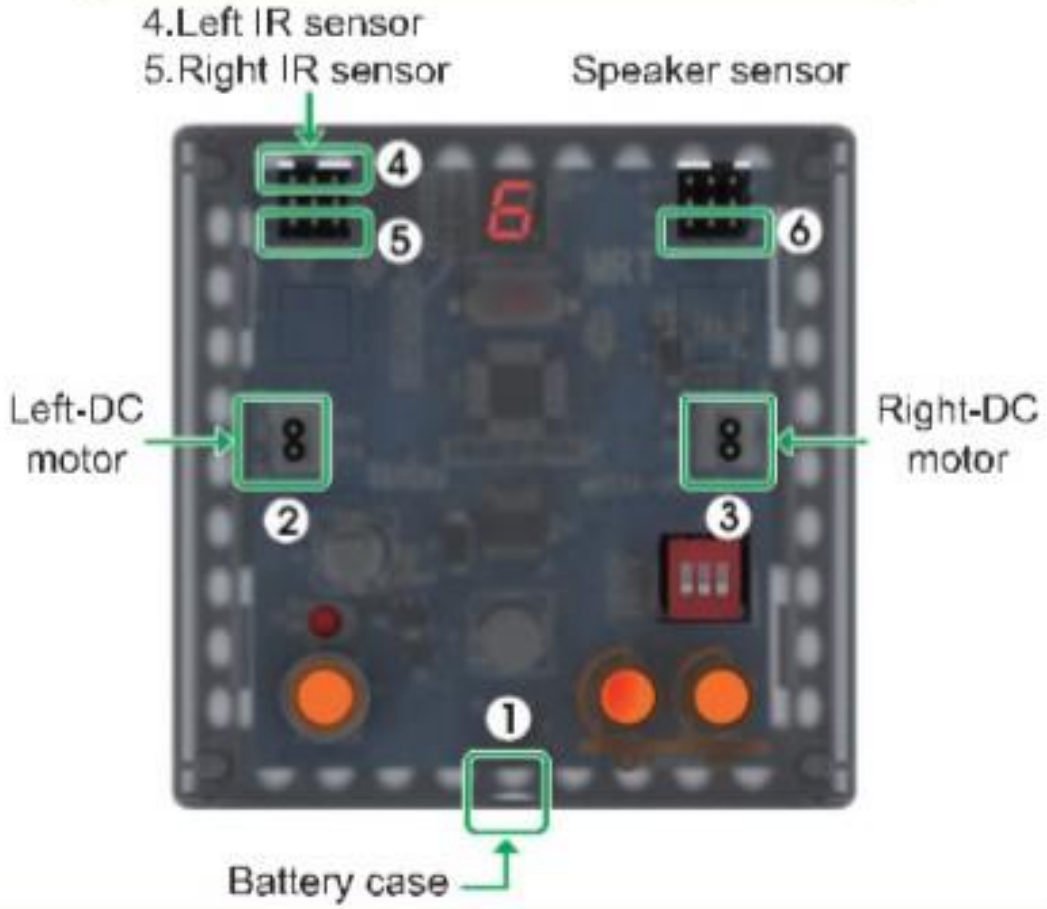
End

Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect Left-DC motor to Left-motor connector.
3. Connect Right-DC motor to Right-motor connector.
4. Connect Left IR sensor to R connector.
5. Connect Right IR sensor to R connector.
6. Comect speaker sensor to INZ connector.

Setting mode

1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

MODE # 6		Drop Checker Mode

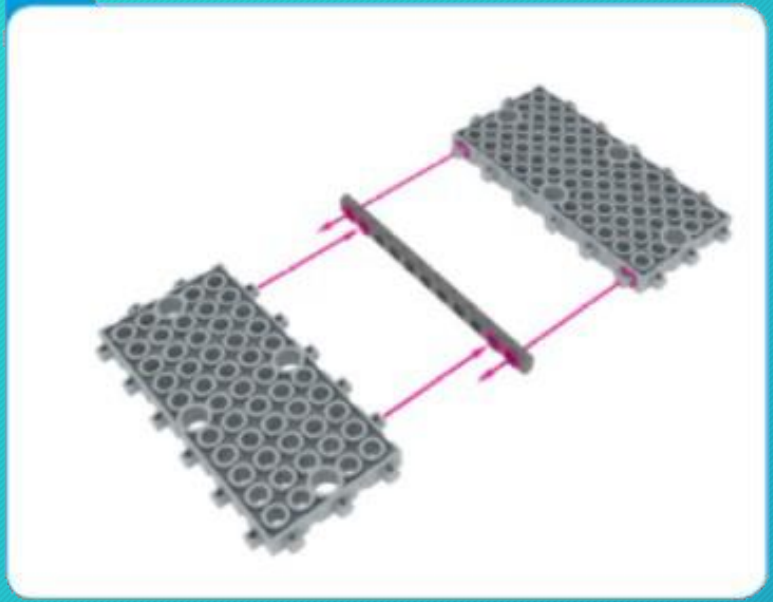
4. Select Remote ID.
5. Press the START button.

How to make it move?

※ Start the Skier robot on a bright surface desk, it can recognize the edge and avoid from falling down,with screaming.

Huna -E

1



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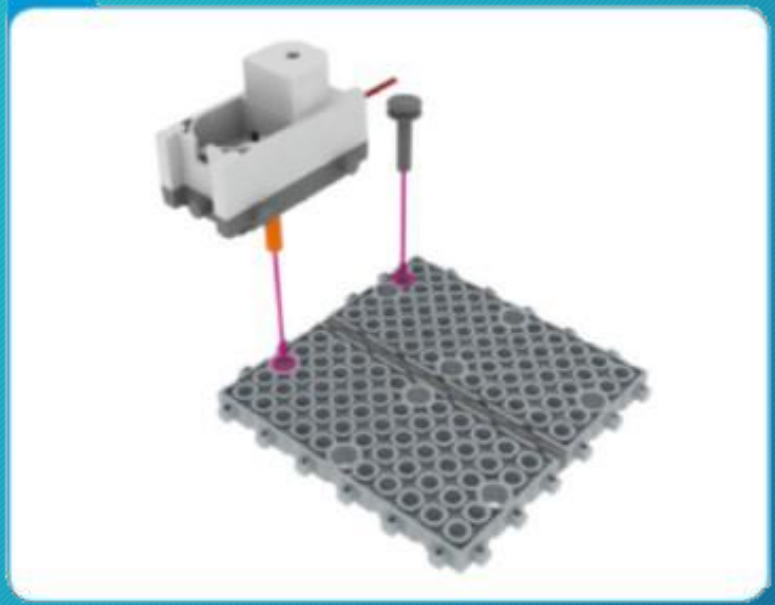

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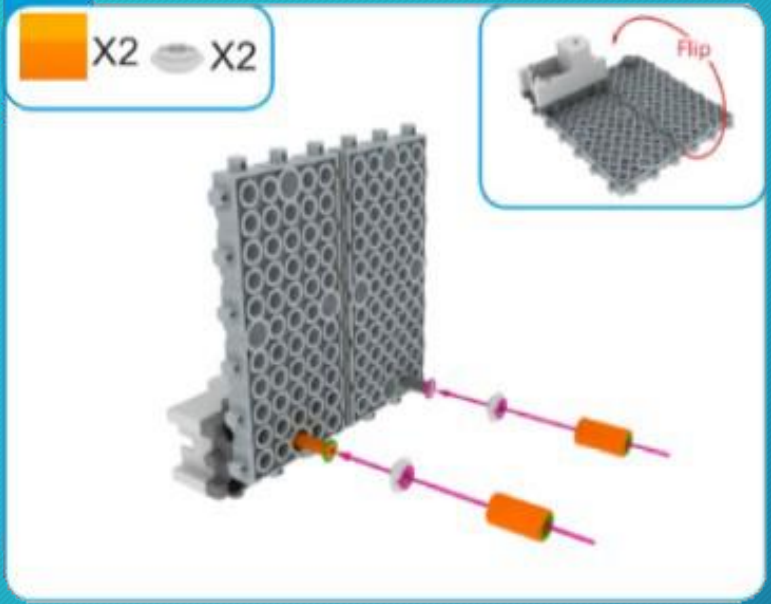

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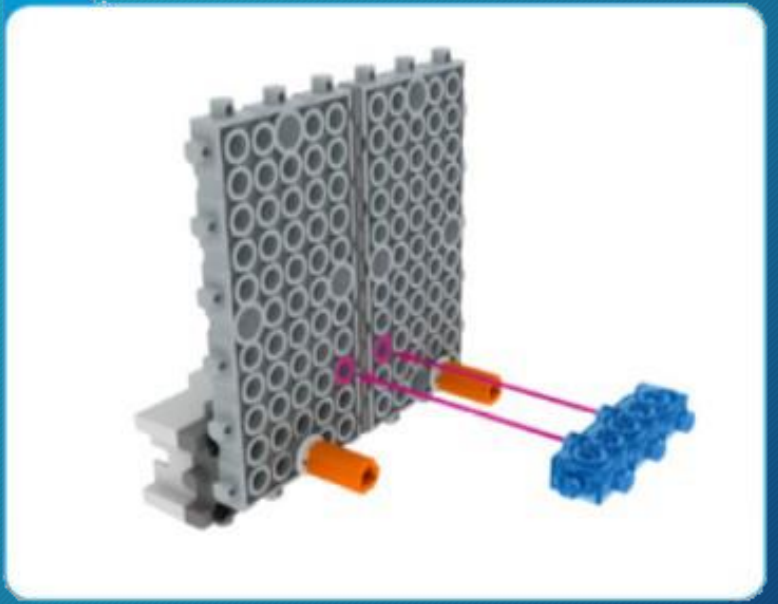

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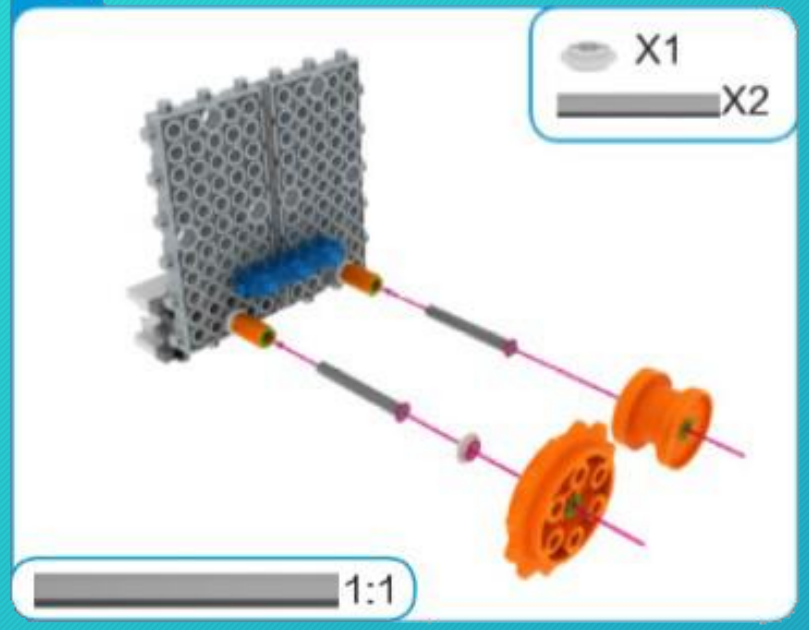

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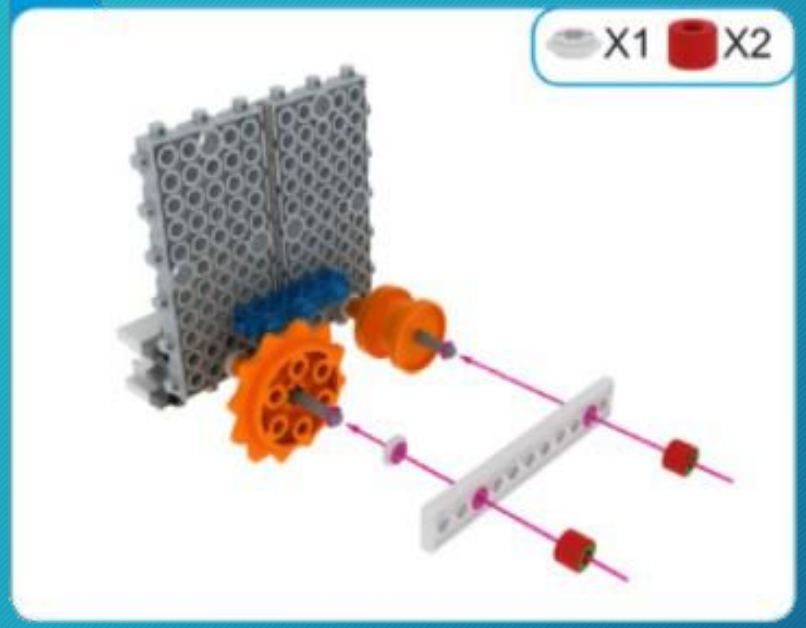

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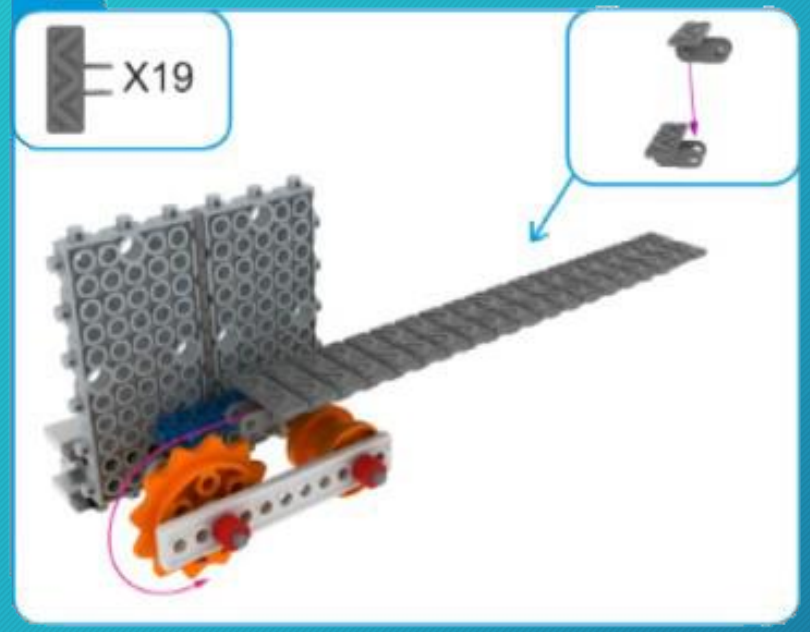

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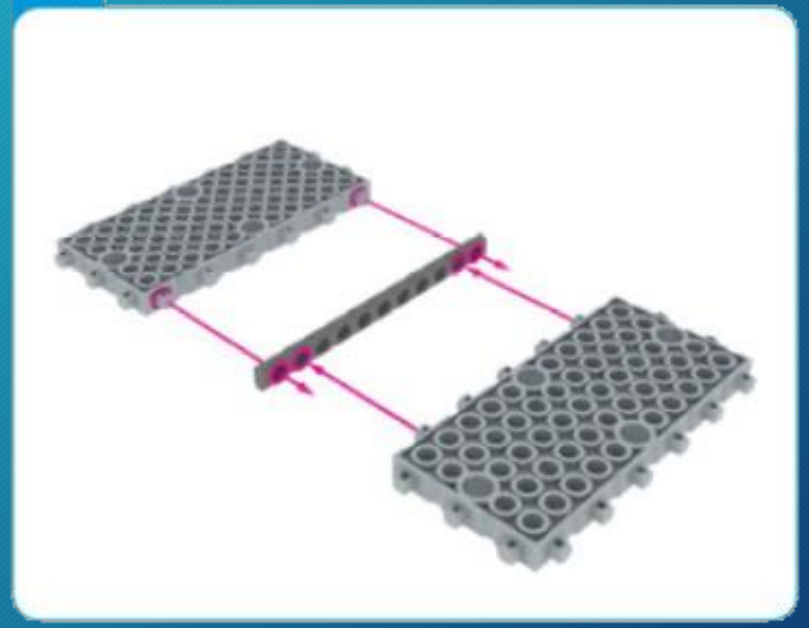

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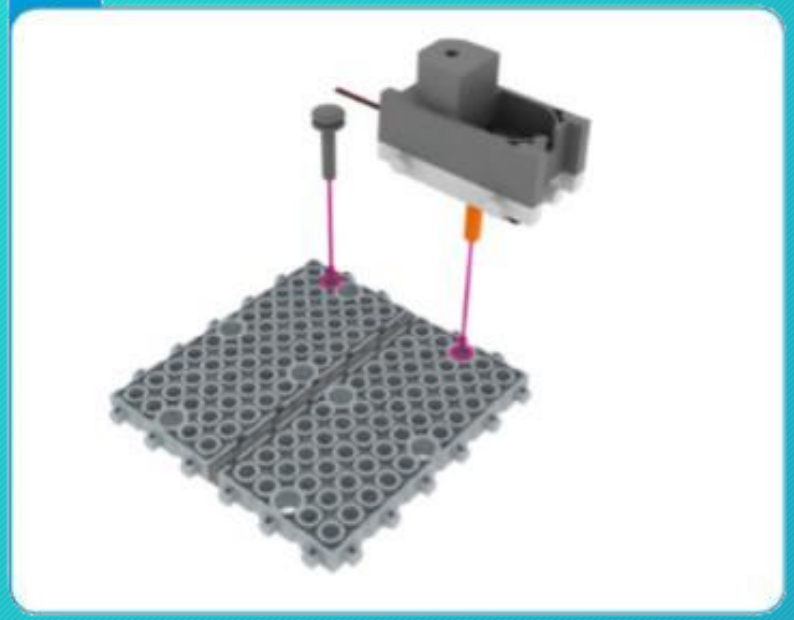

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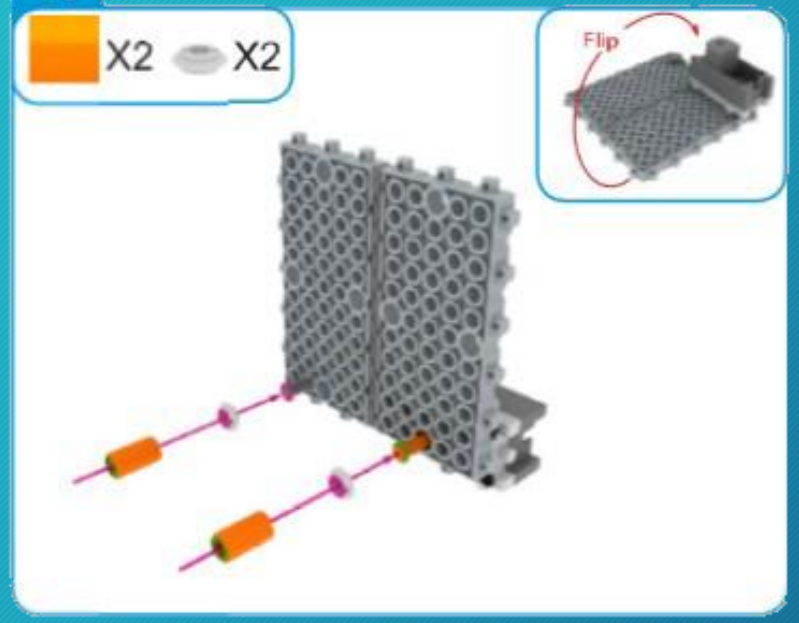

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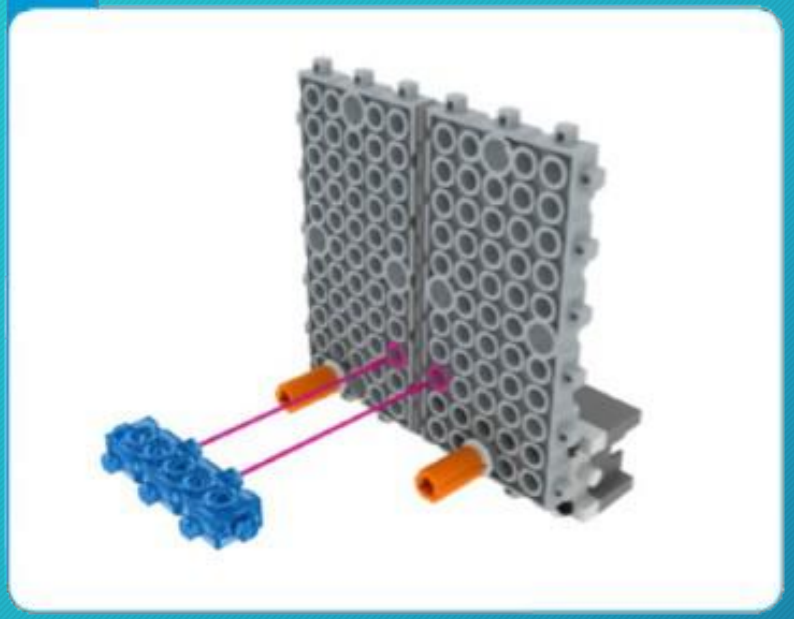

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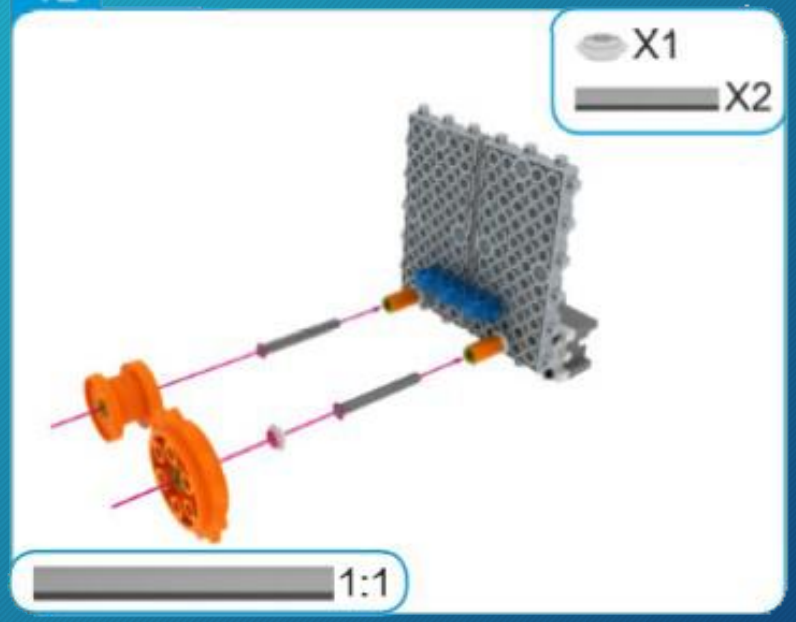

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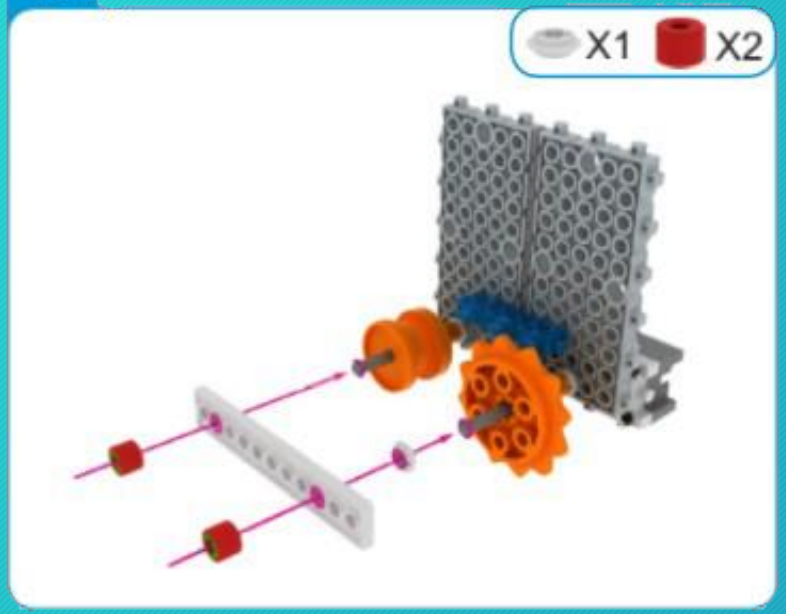

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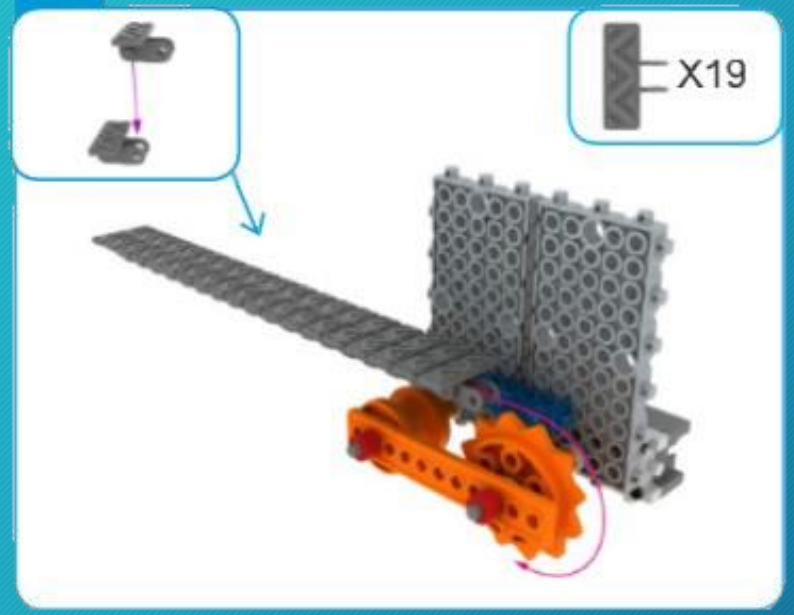

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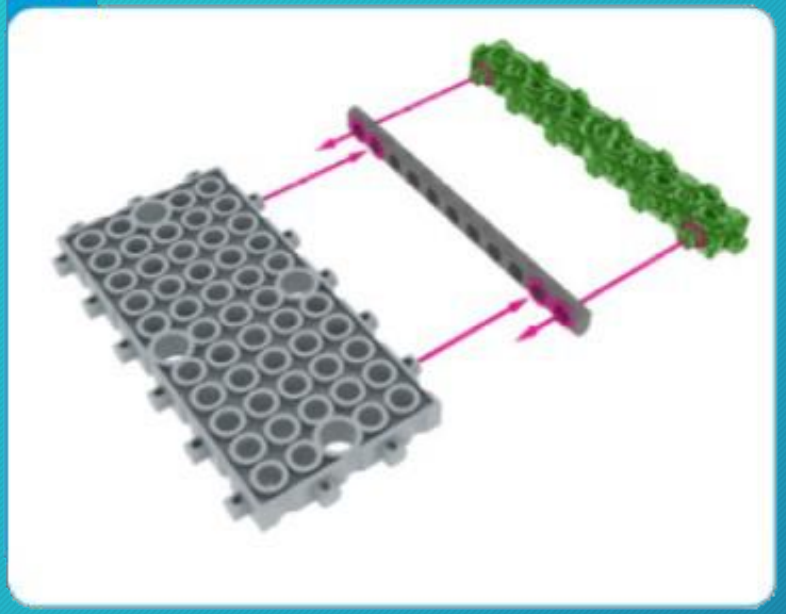

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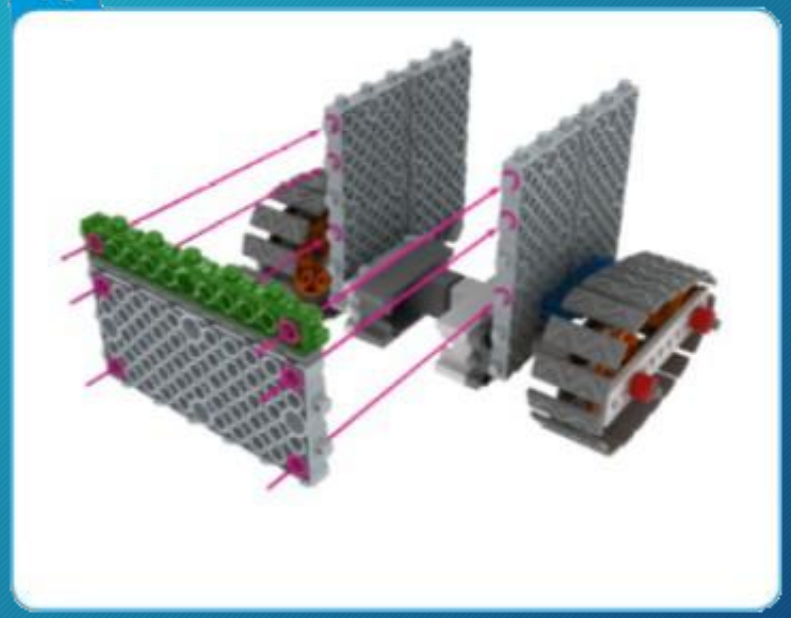

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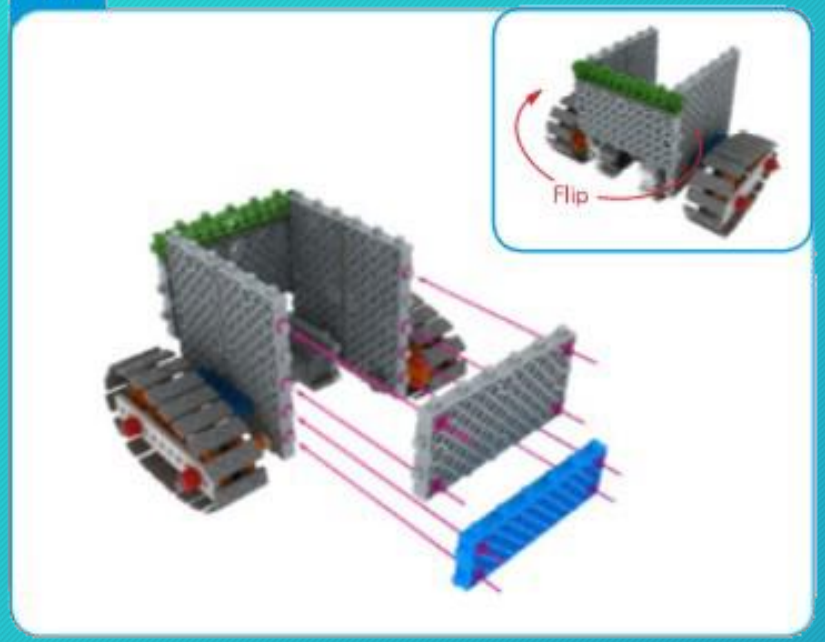

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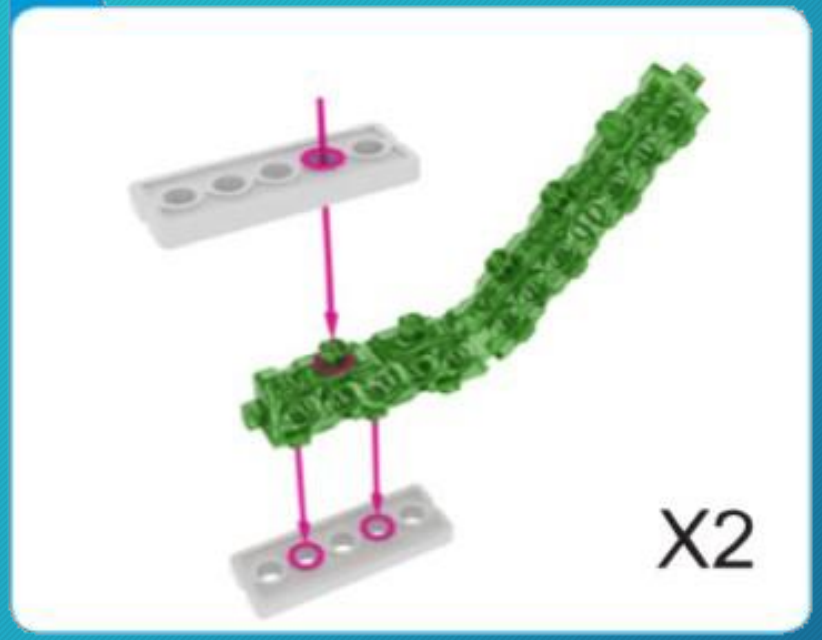

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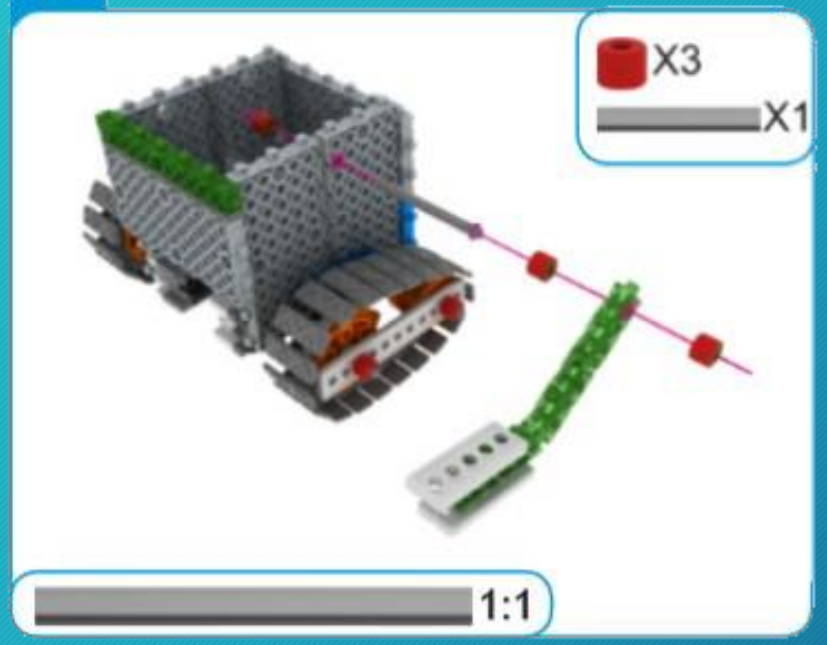

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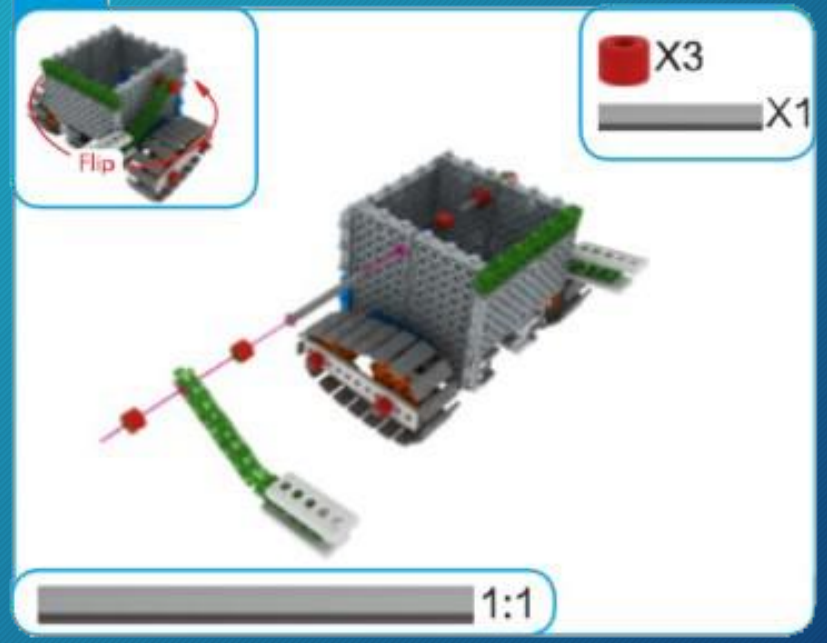

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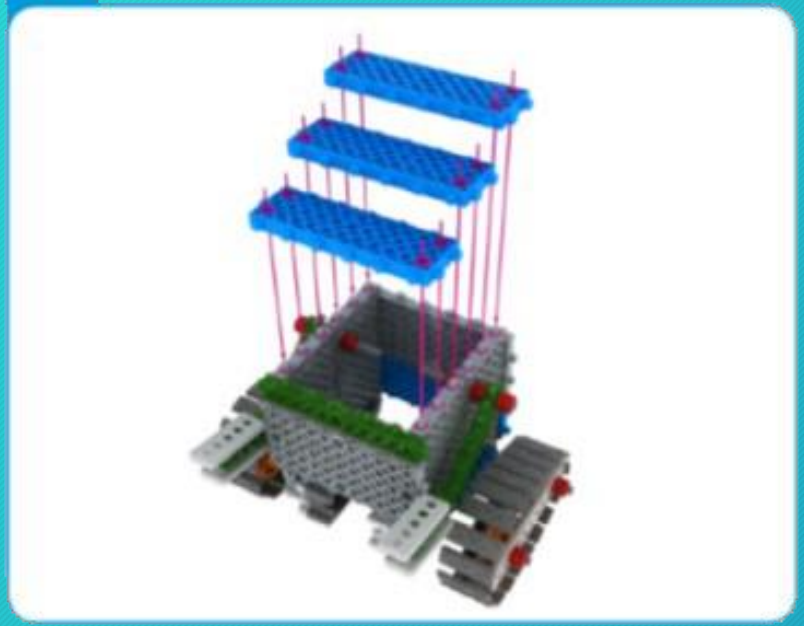

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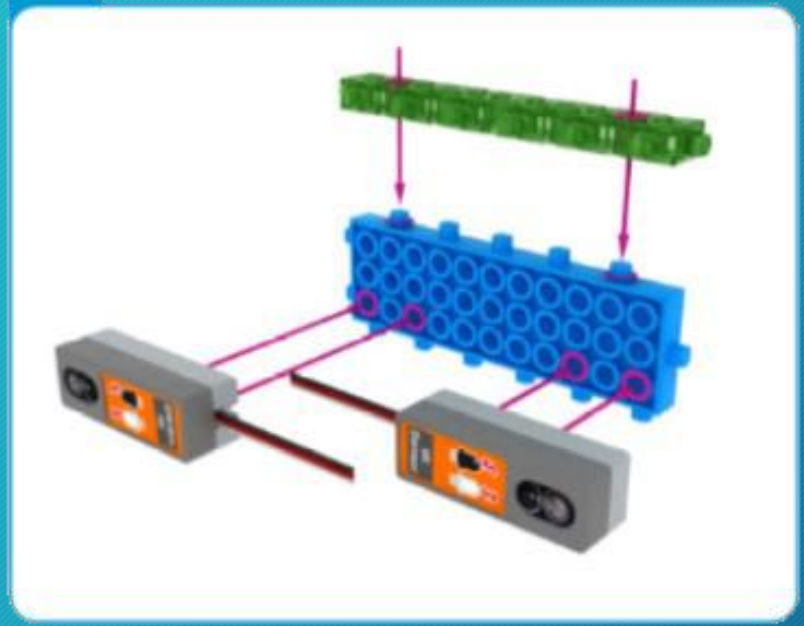

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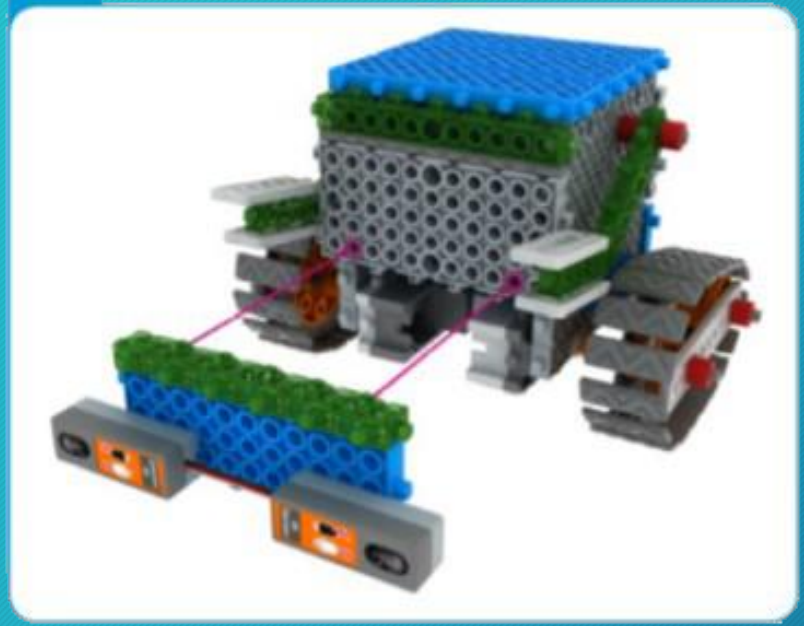

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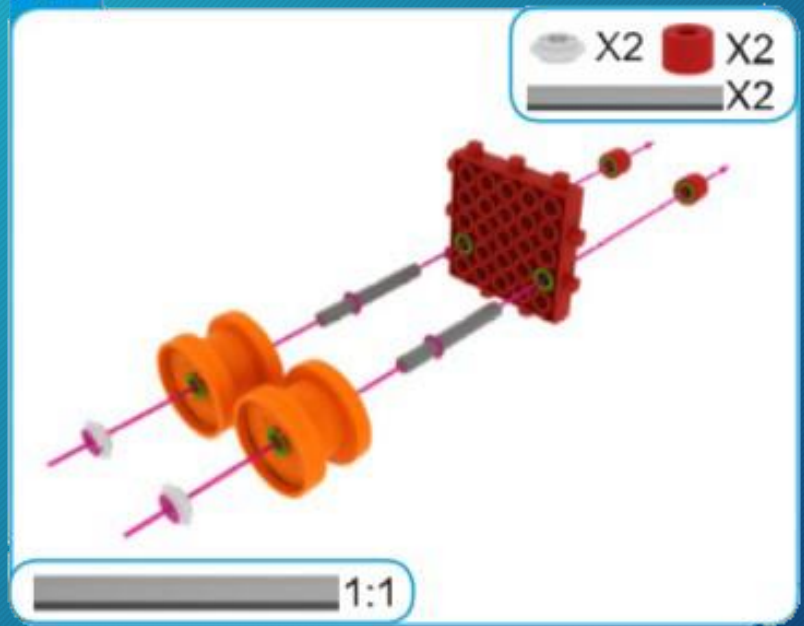

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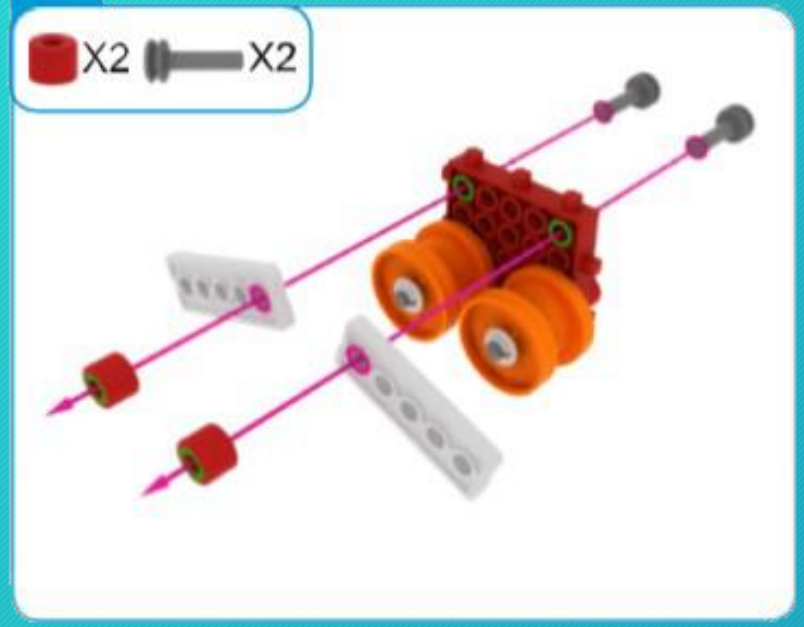

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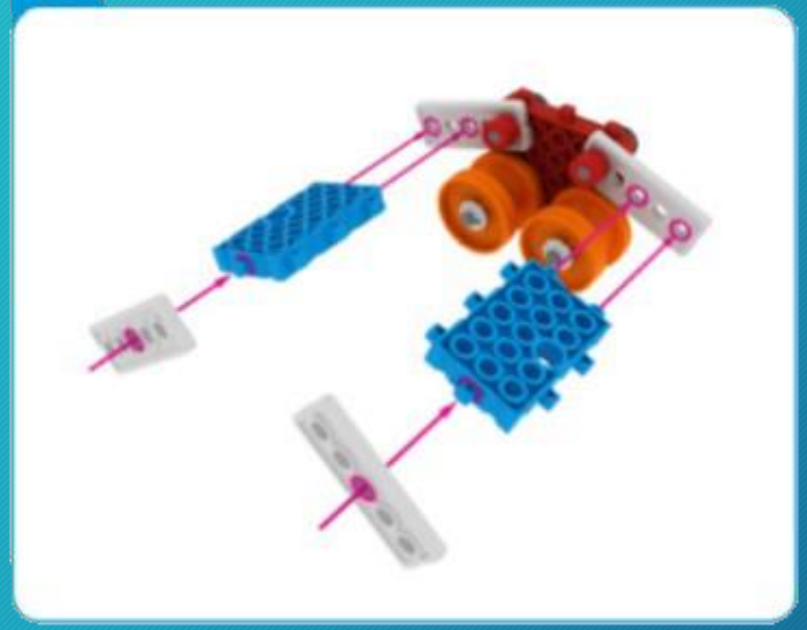

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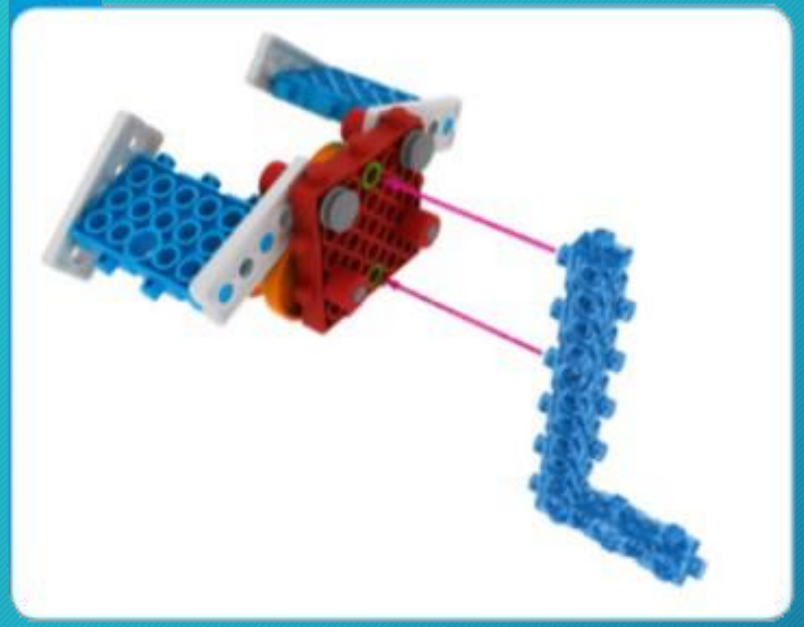

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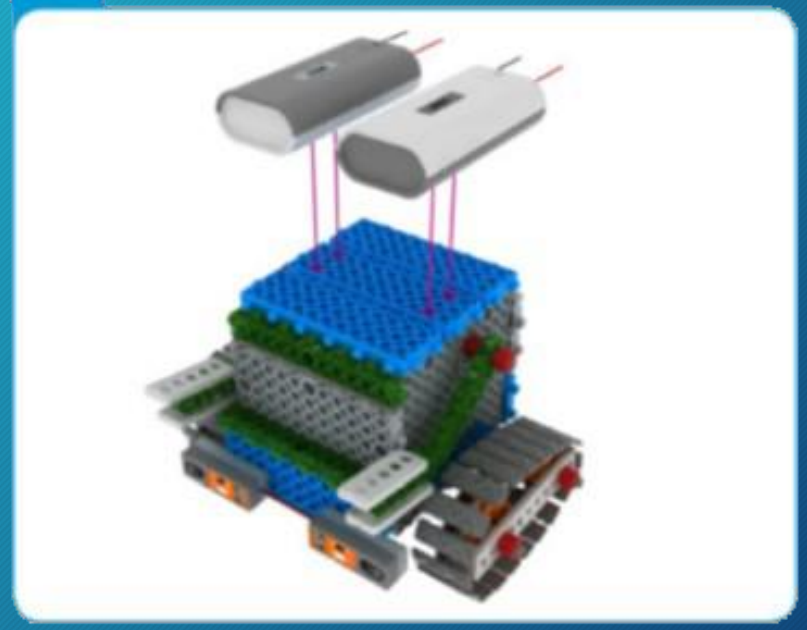

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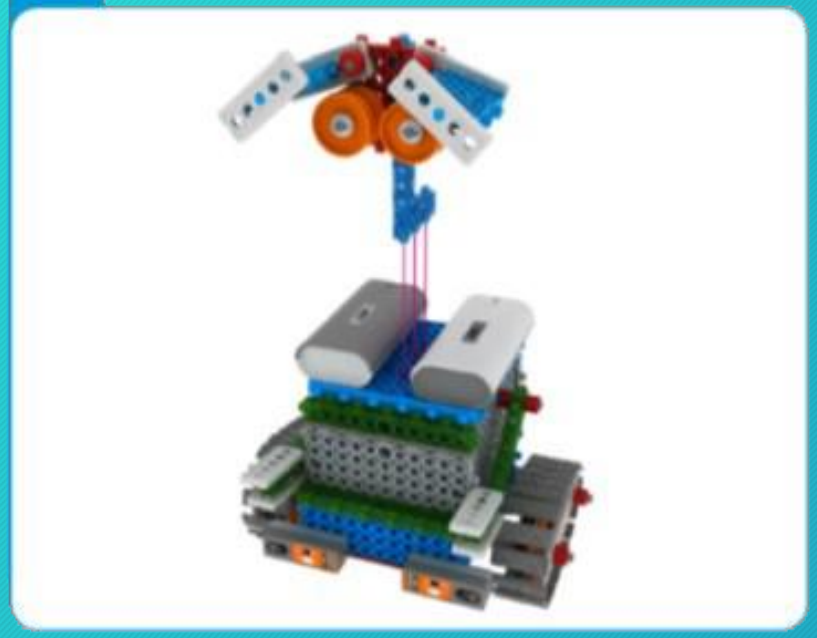

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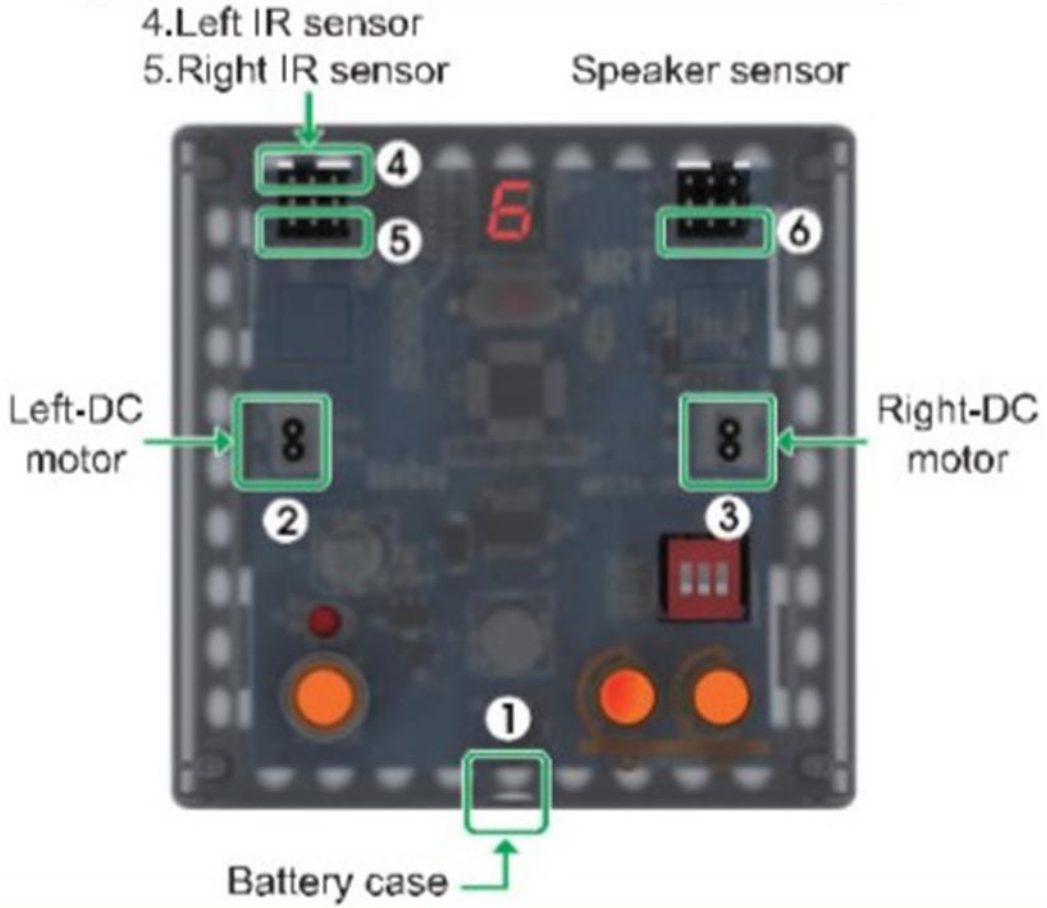
End

Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect Left-DC motor to Left-motor connector.
3. Connect Right-DC motor to Right-motor connector.
4. Connect Left IR sensor to R connector.
5. Connect Right IR sensor to R connector.
6. Comect speaker sensor to INZ connector.

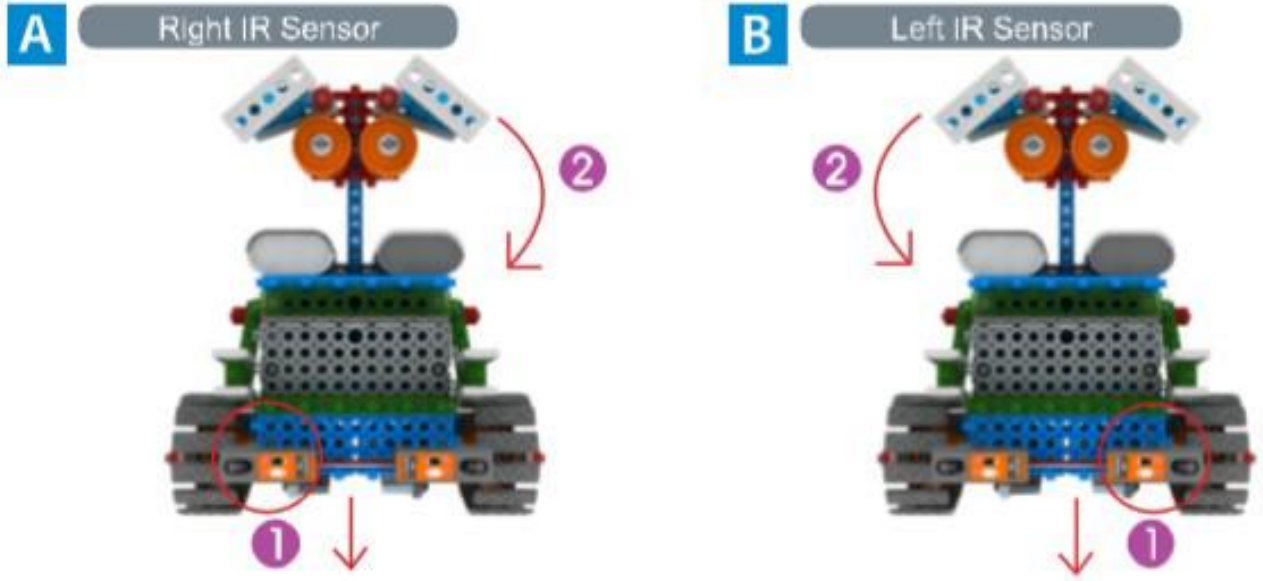
Setting mode

1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

MODE # 4		Avoider Mode

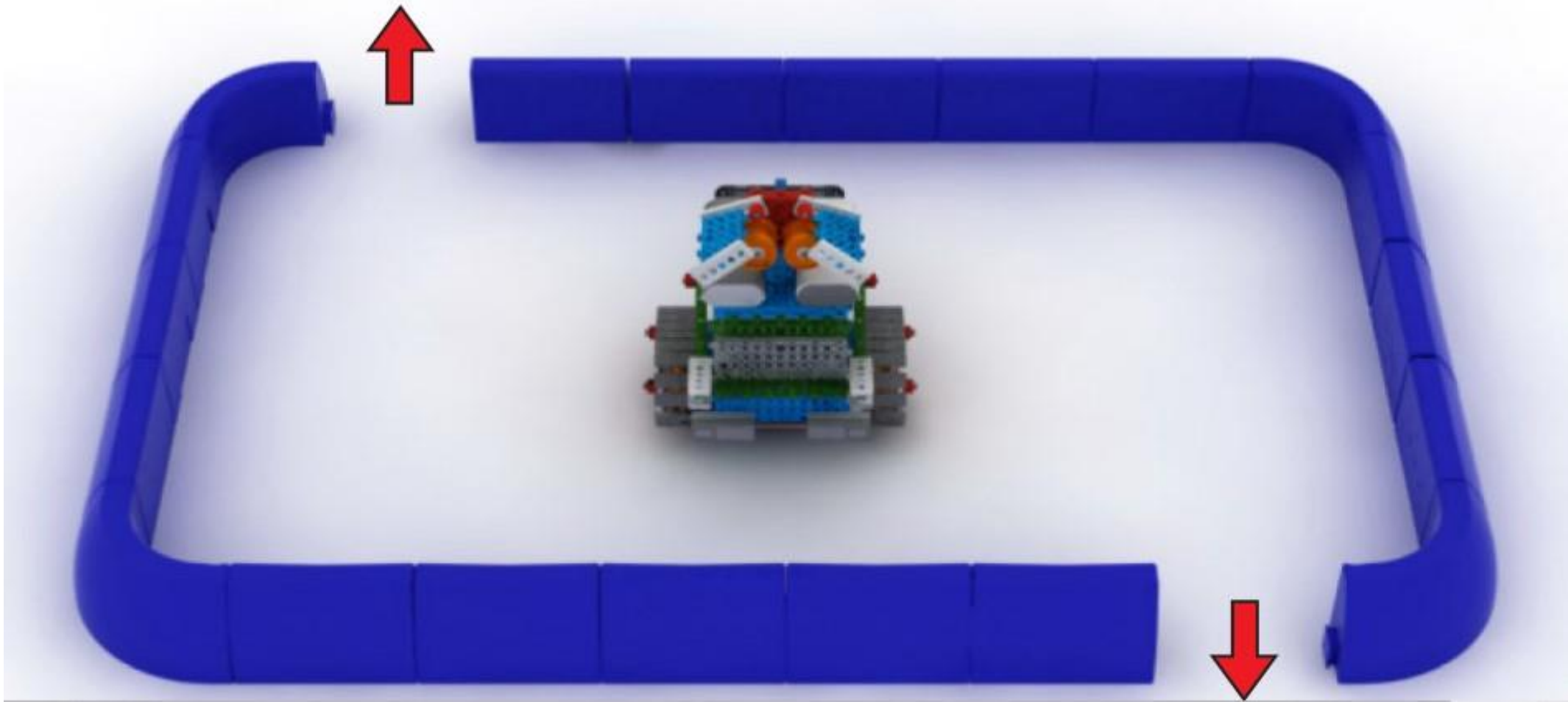
4. Select Remote ID.
5. Press the START button.

How to make it move?

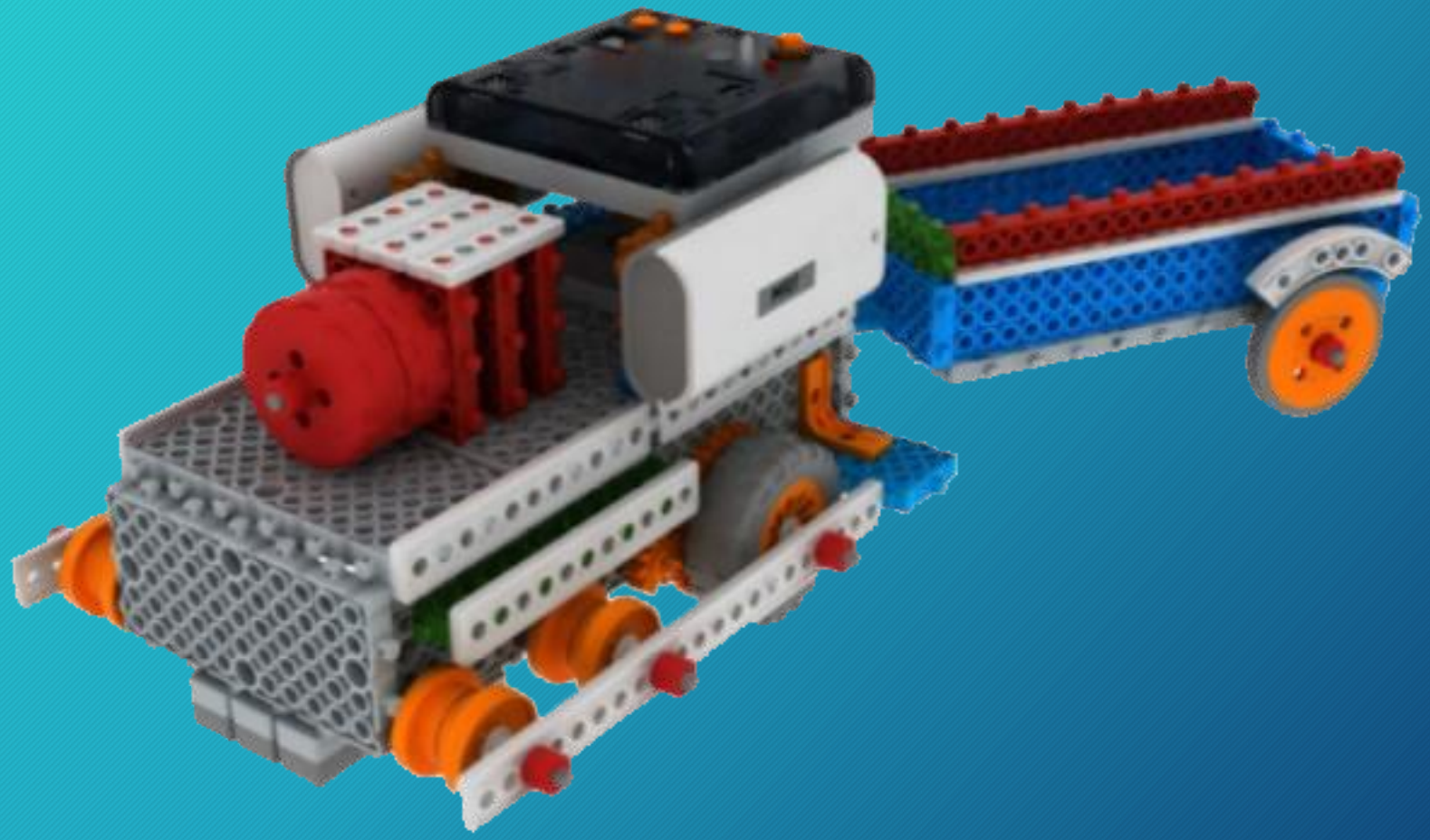


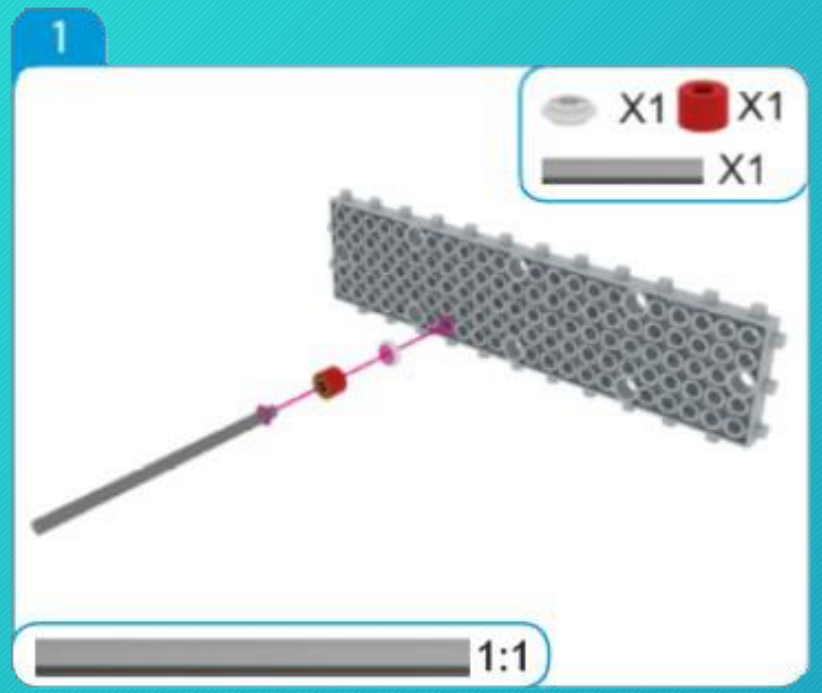
1. Recognize right IR sensor: Backward, then follow left side.
2. Recognize left IR sensor: Backward, then follow right side.

Let's make another shape of Huna-E robot avoid object.



Line Tracer Train

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X1
X1
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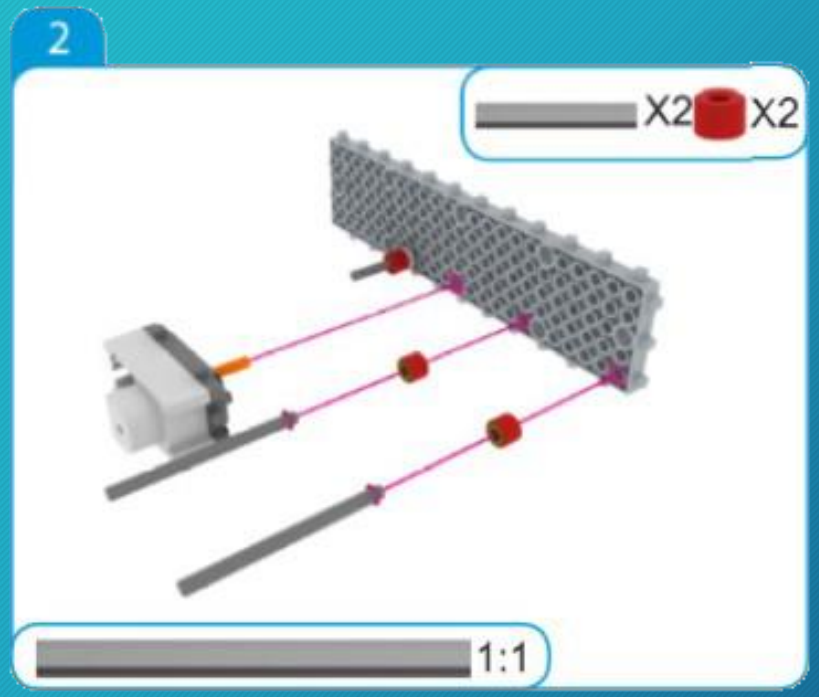
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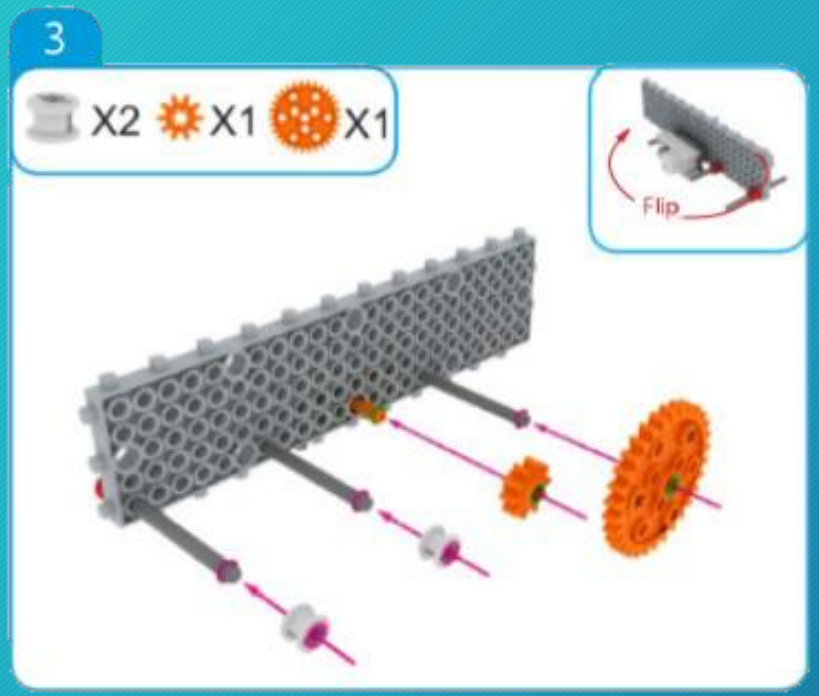
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X2
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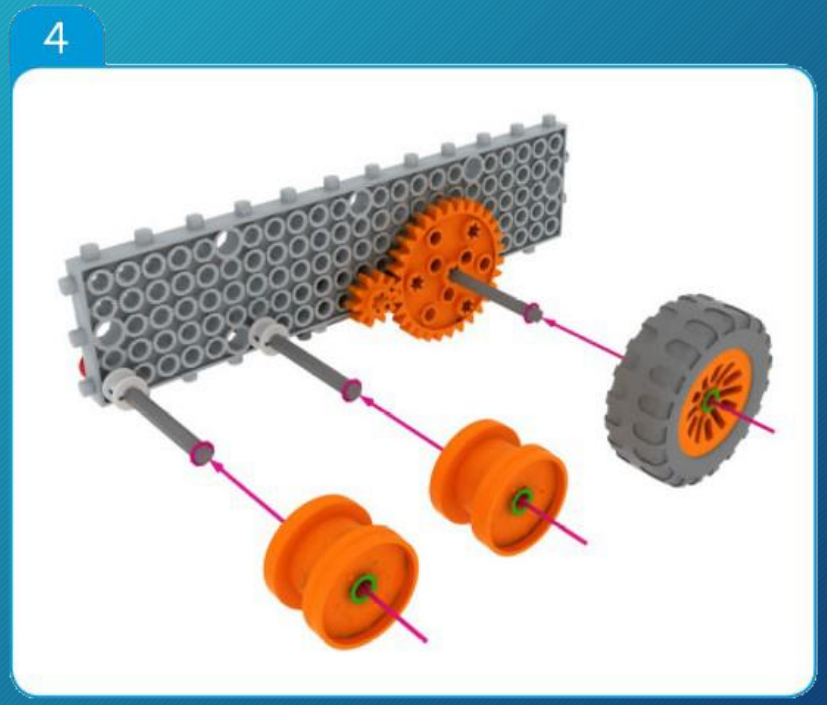
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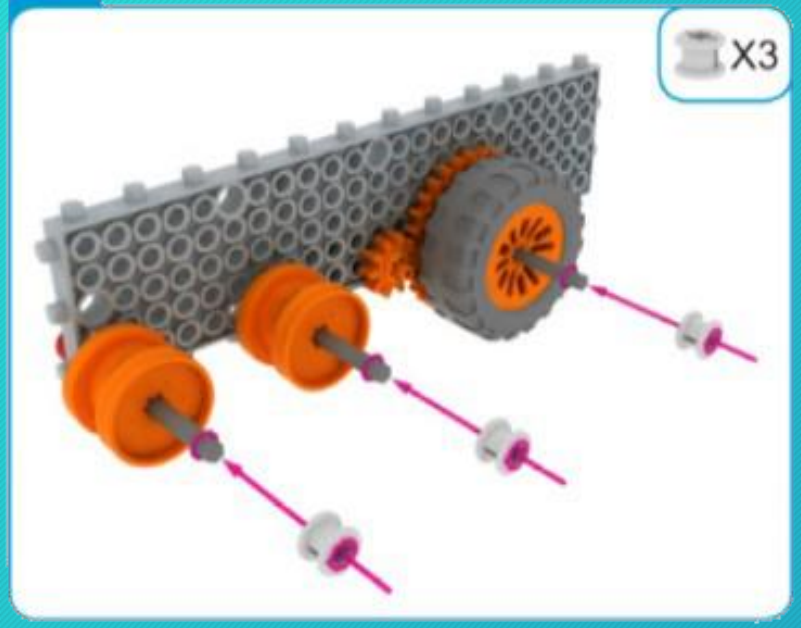

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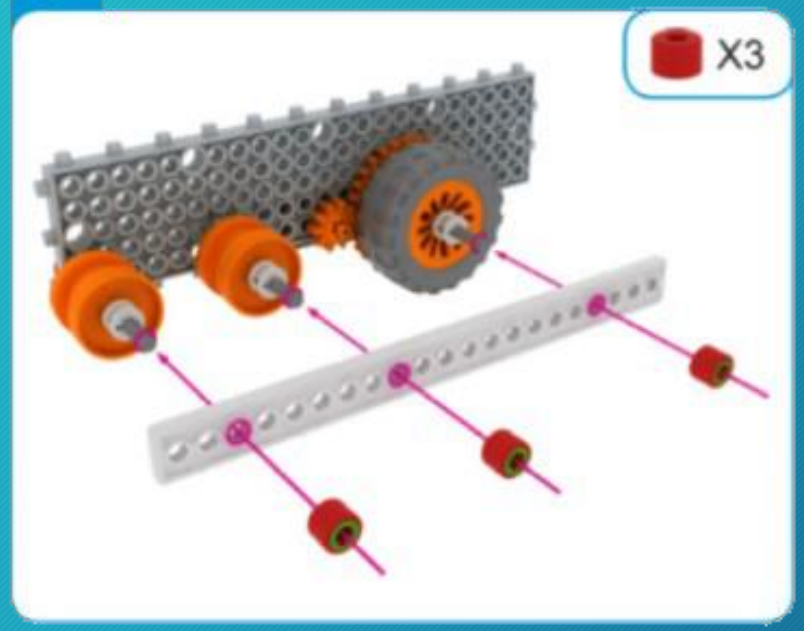

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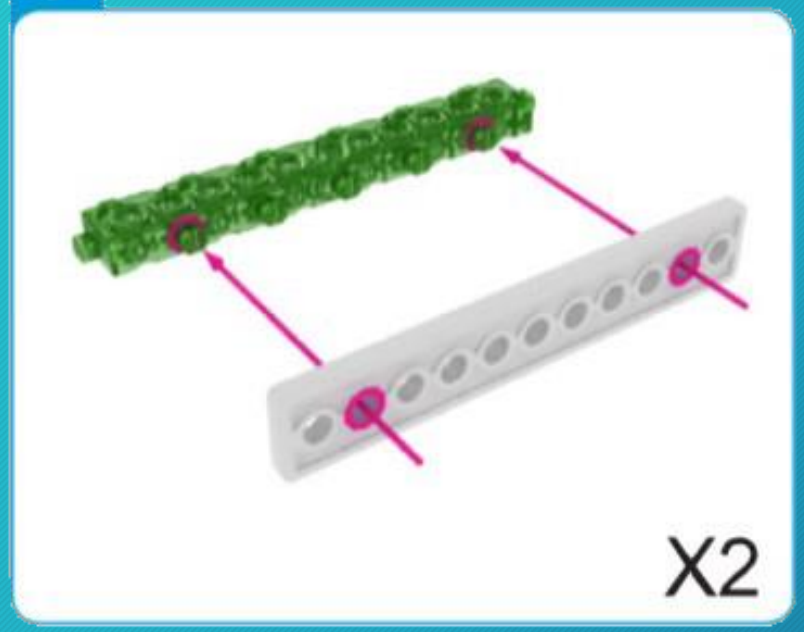

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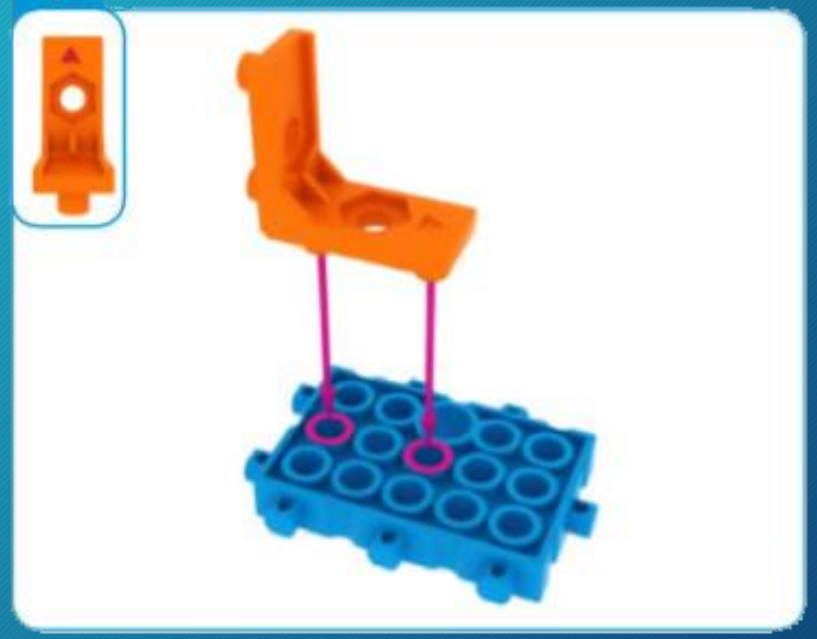

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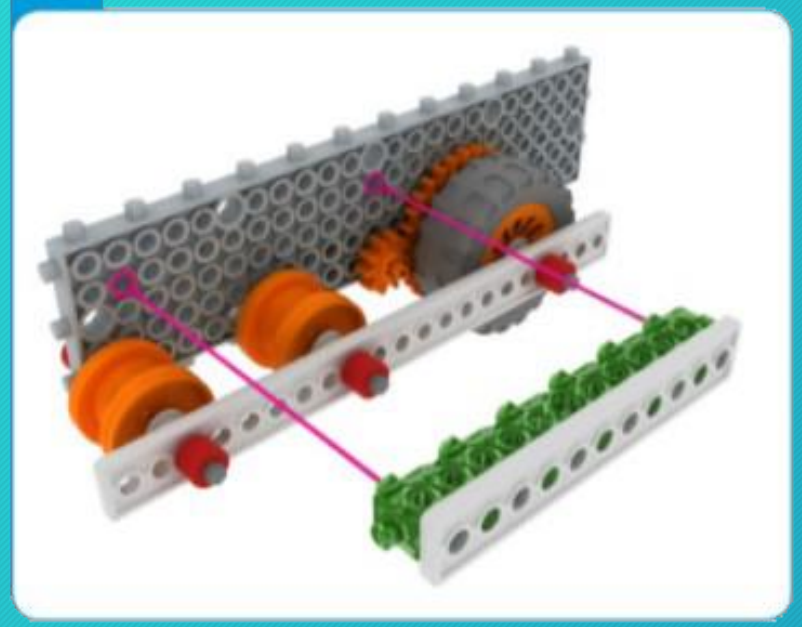

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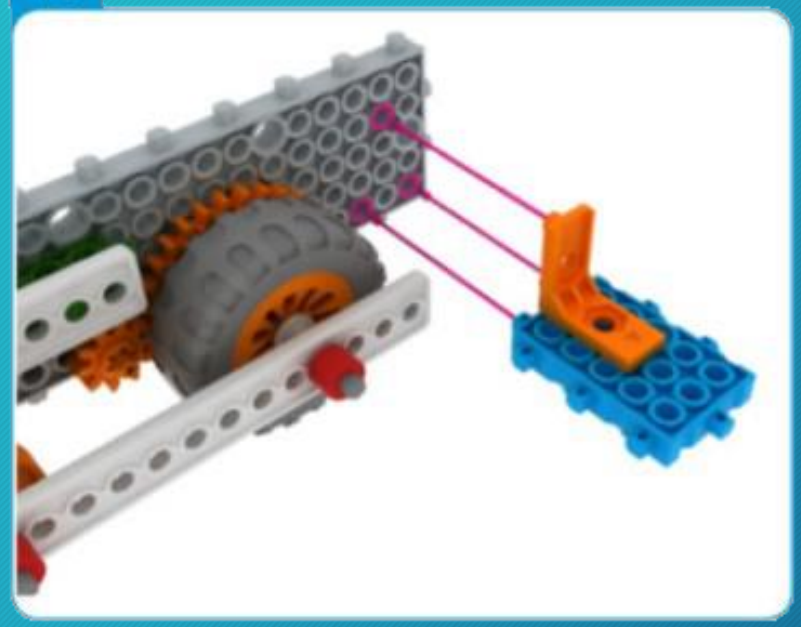

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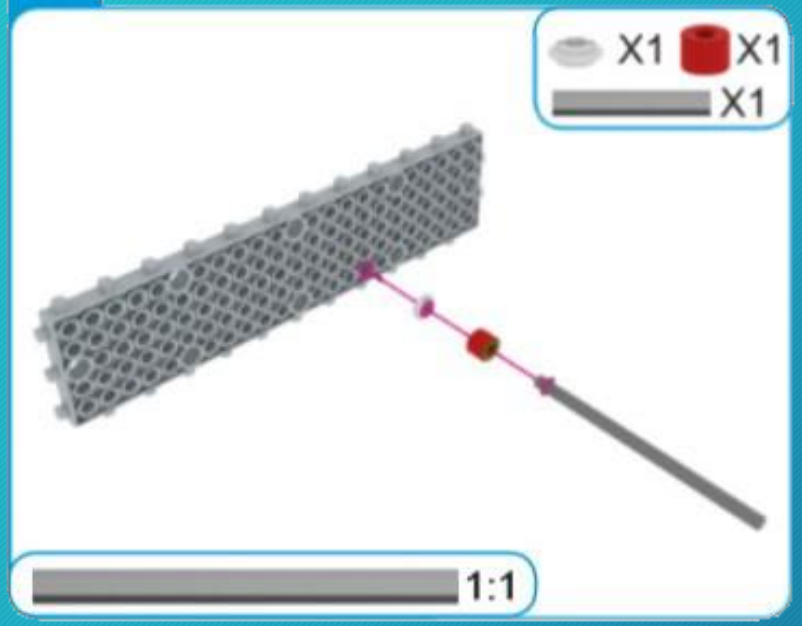

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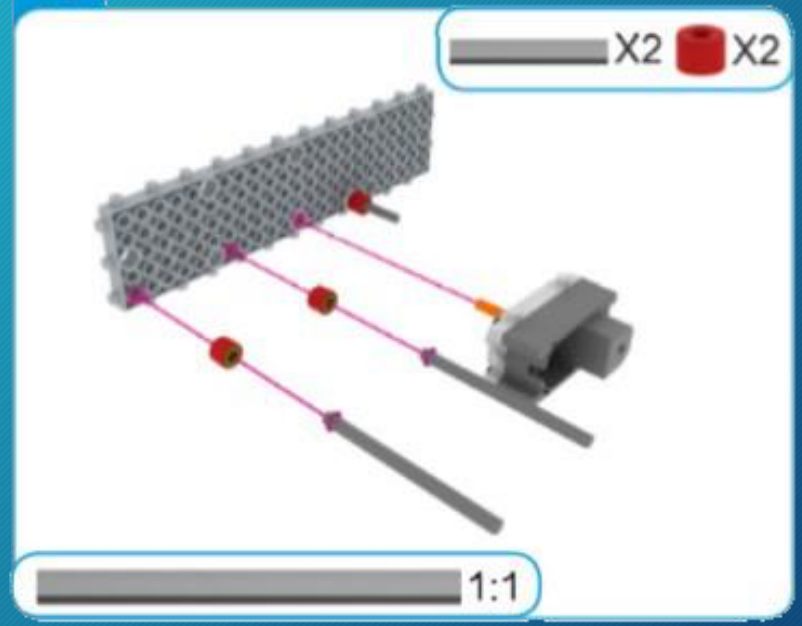

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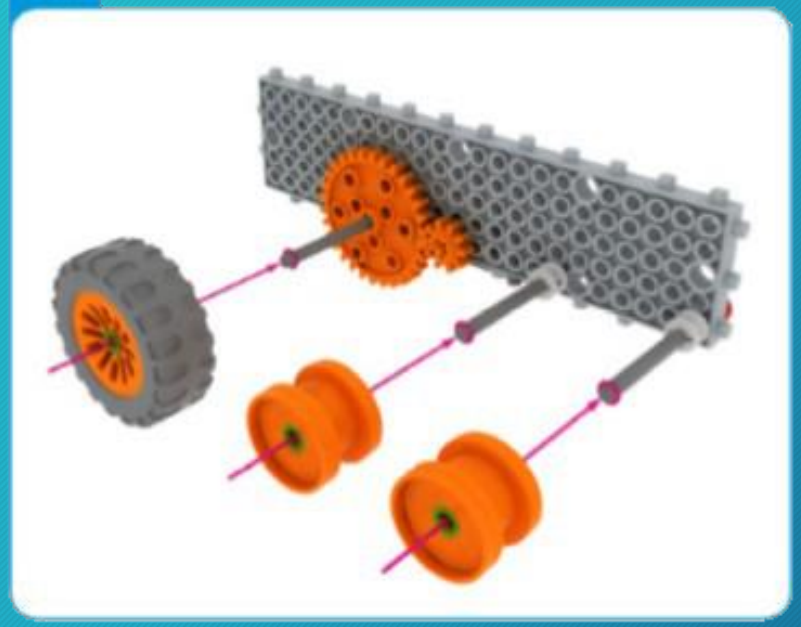

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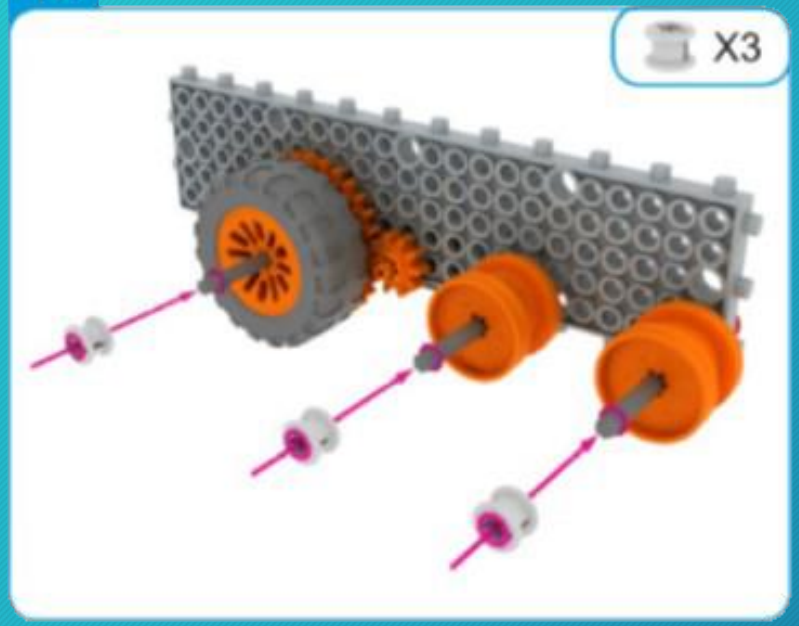

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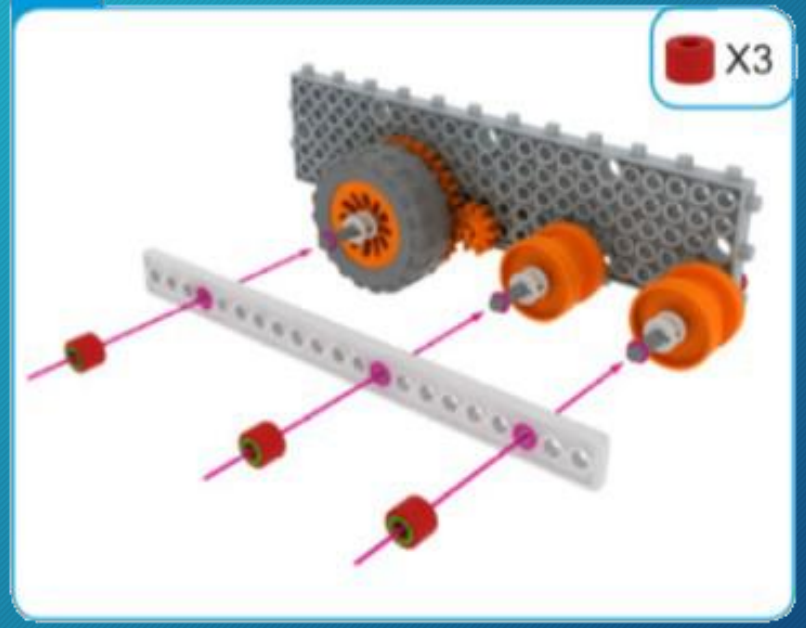

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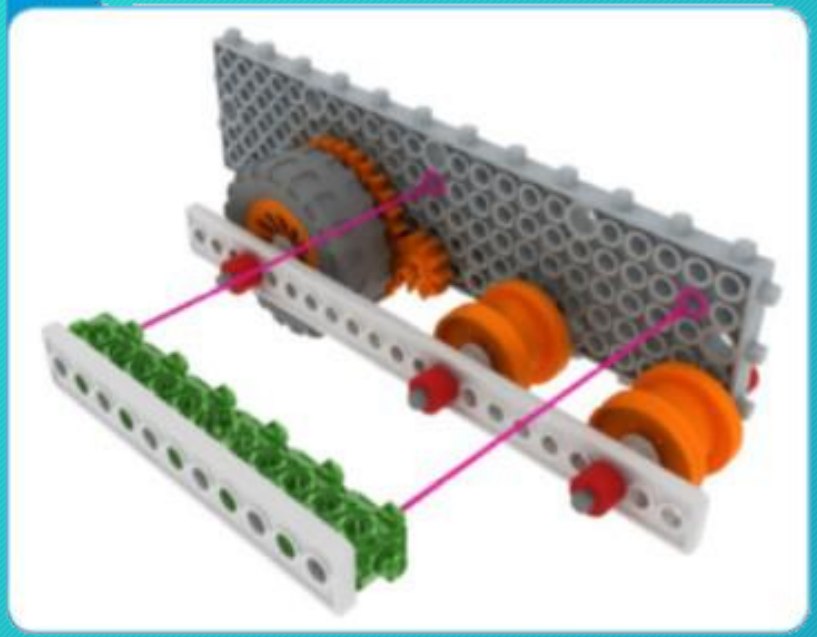

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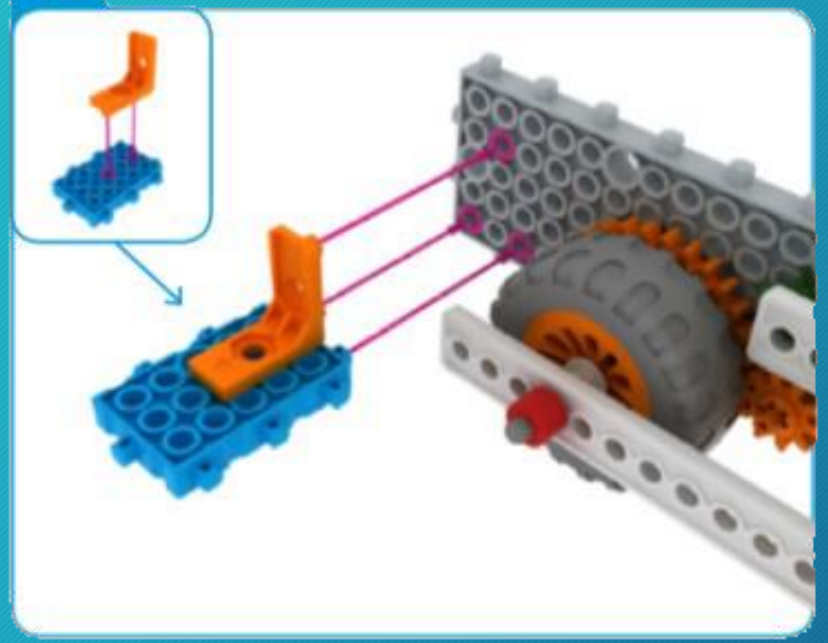

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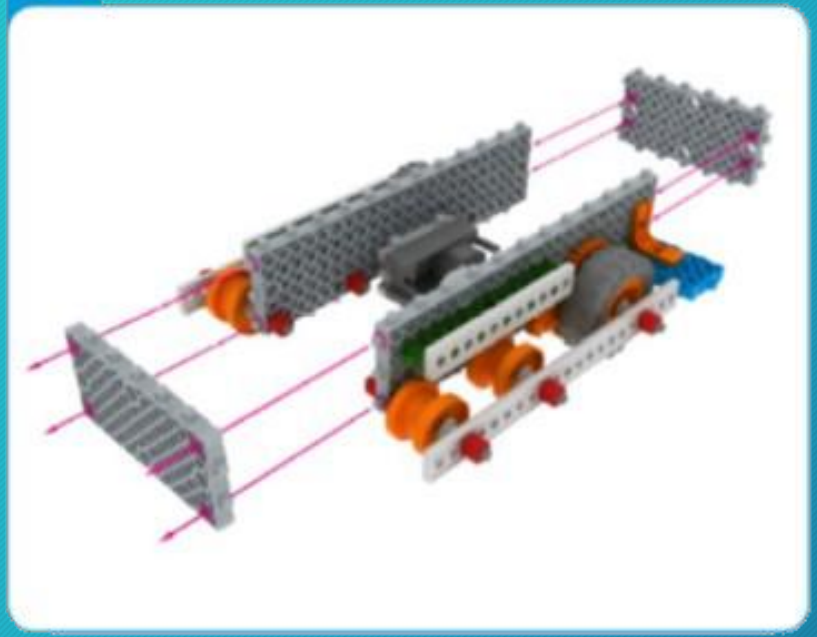

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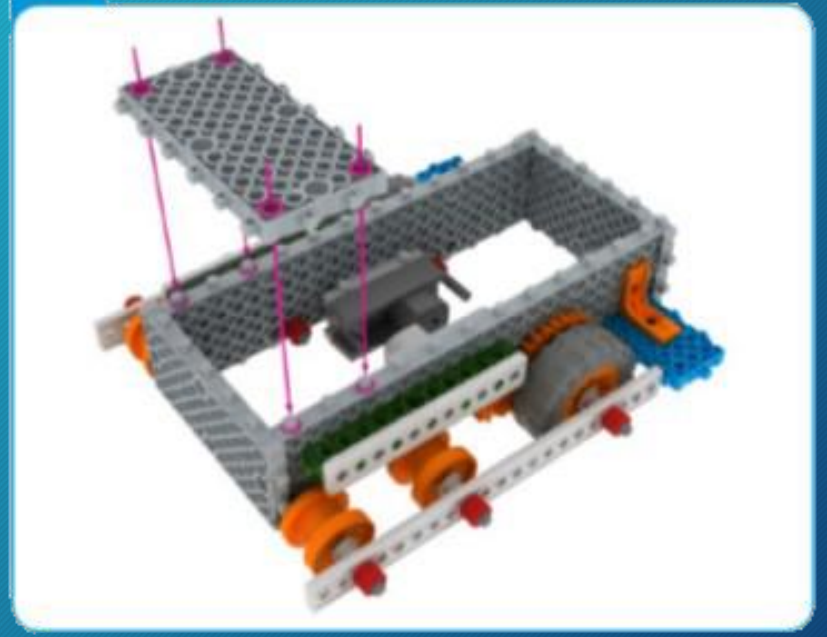

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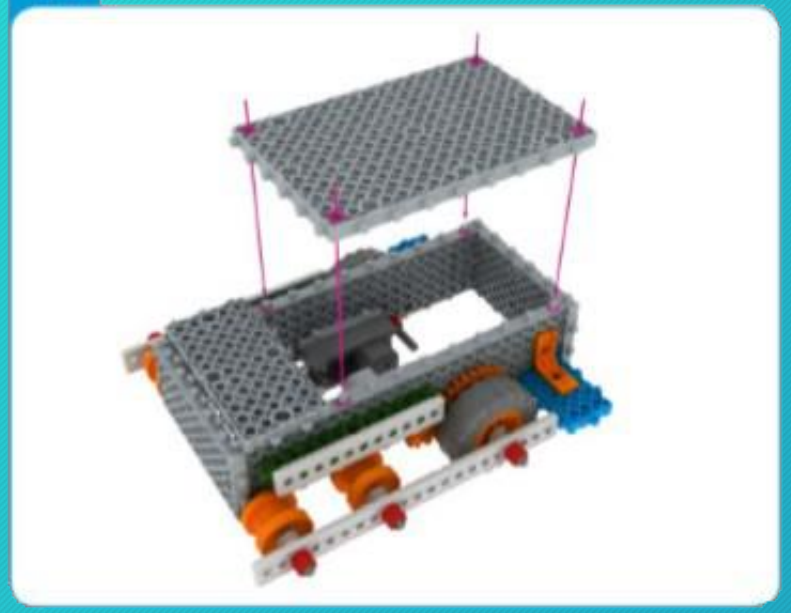

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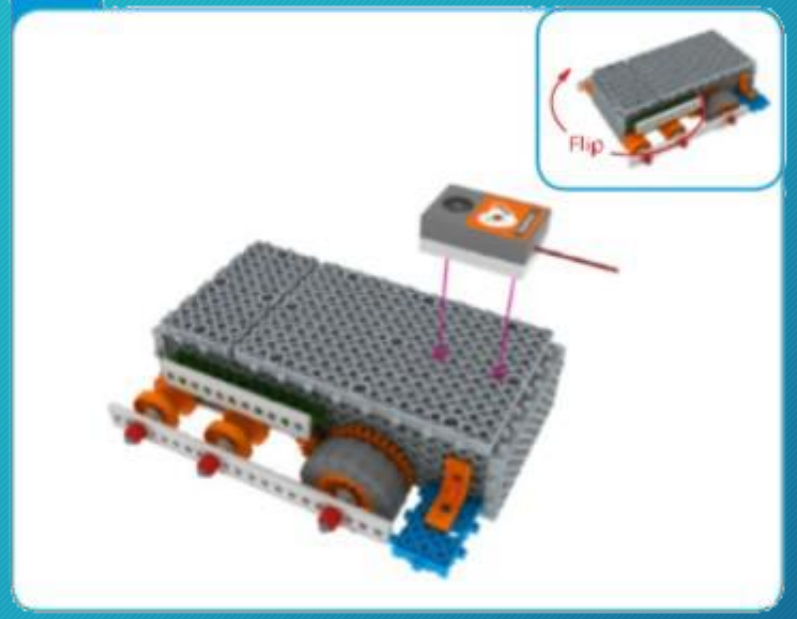

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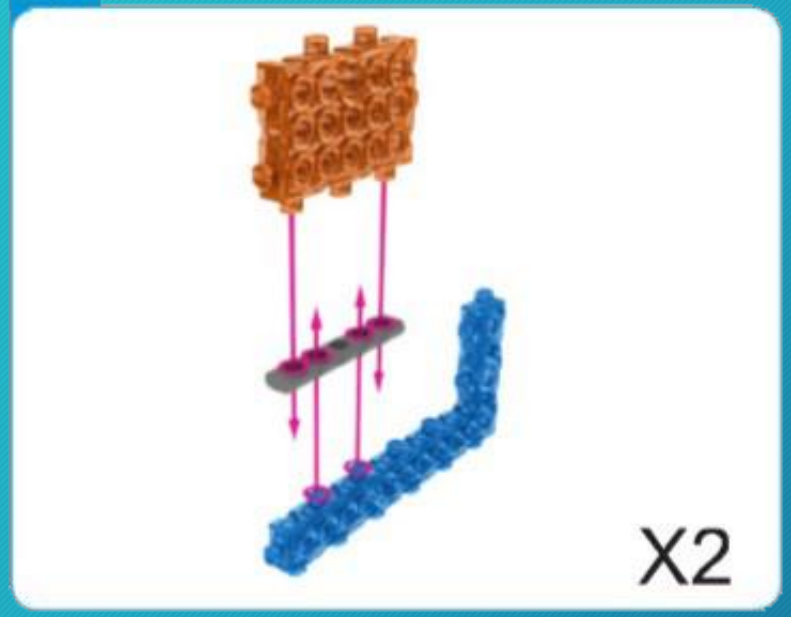

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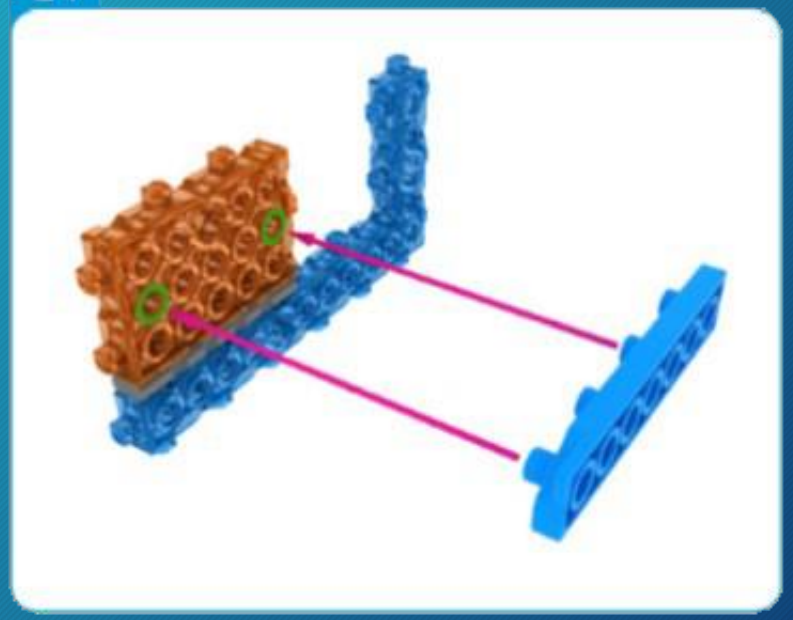

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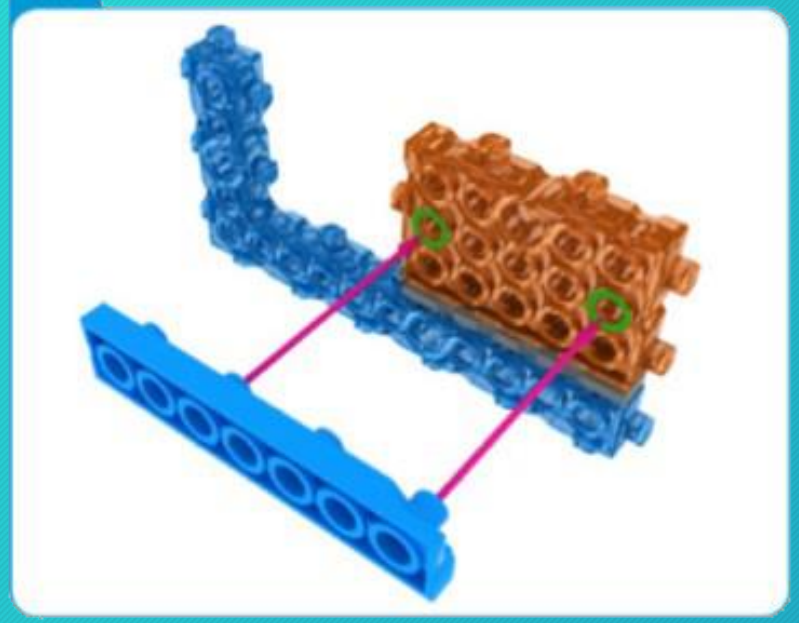

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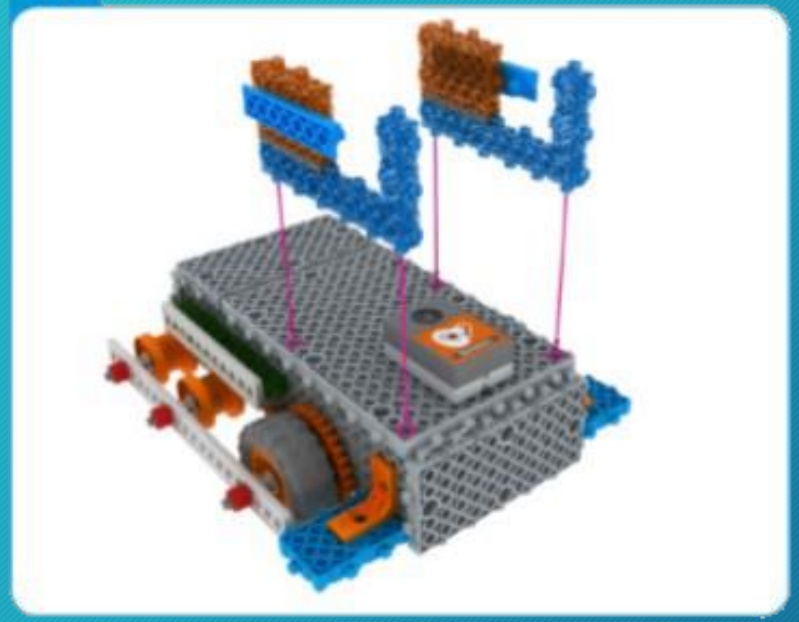

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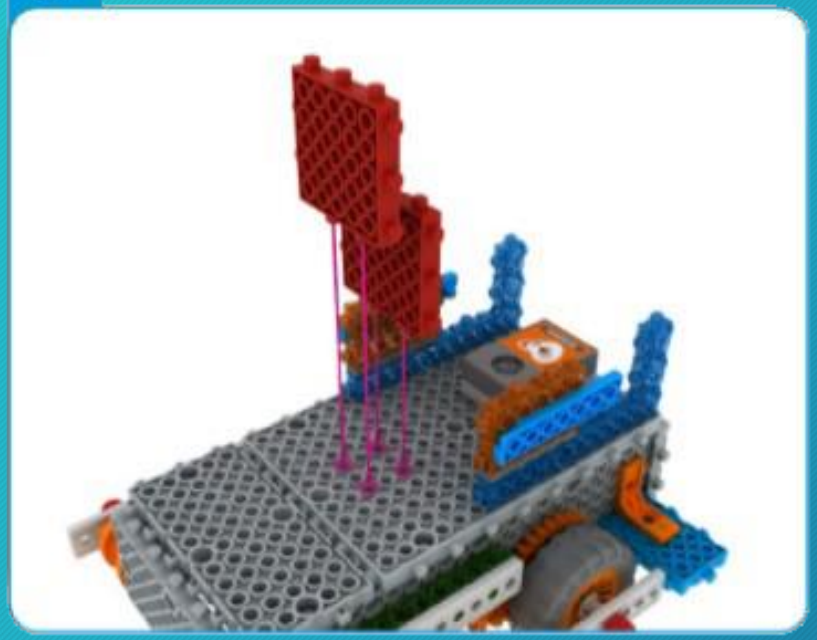

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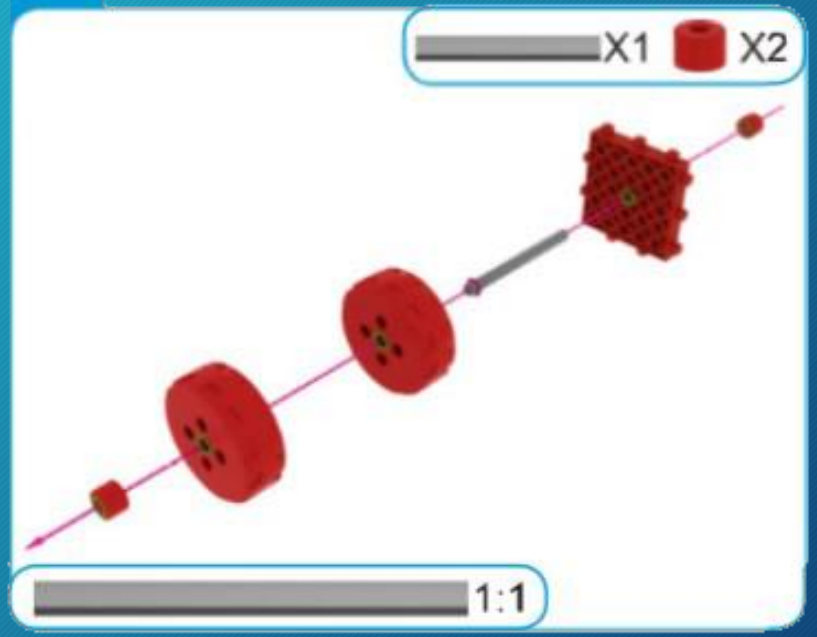

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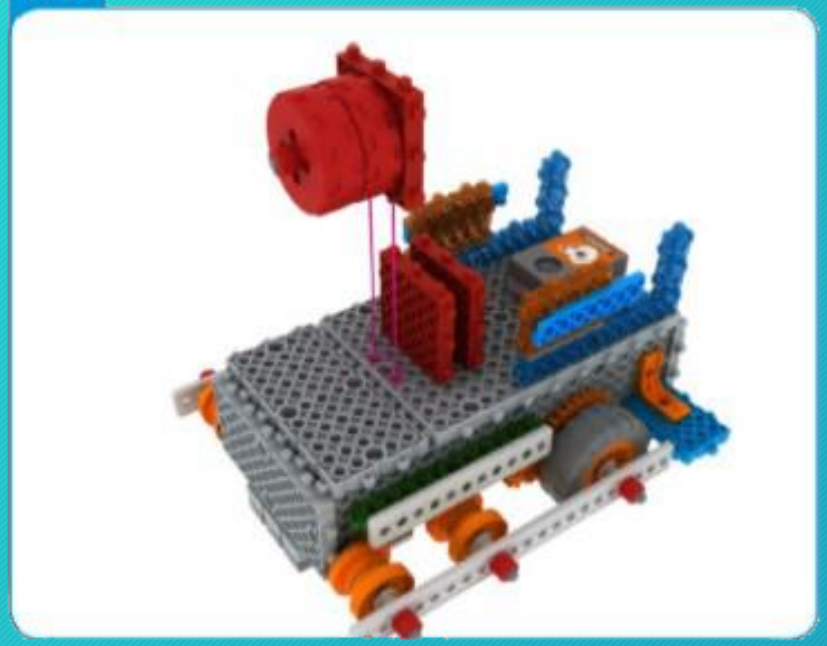

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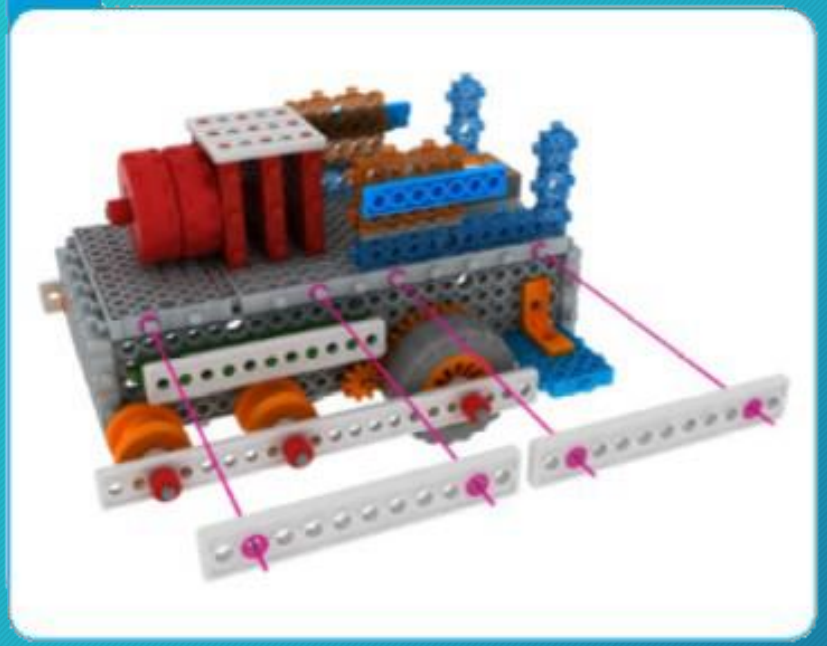

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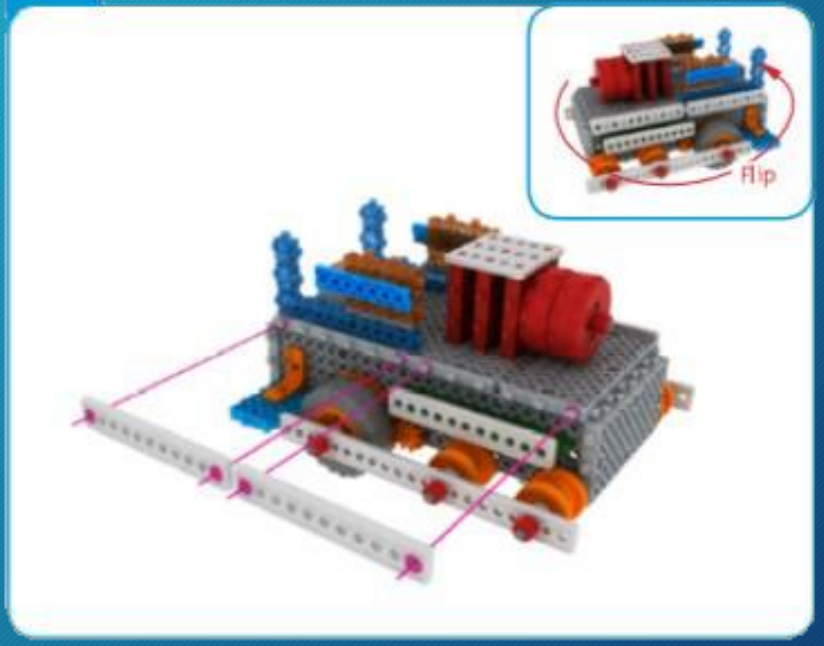

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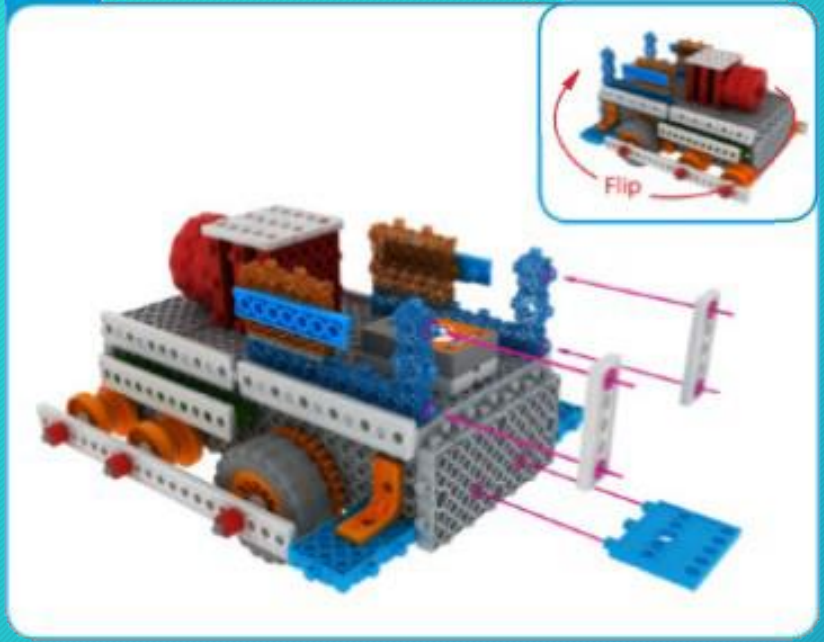

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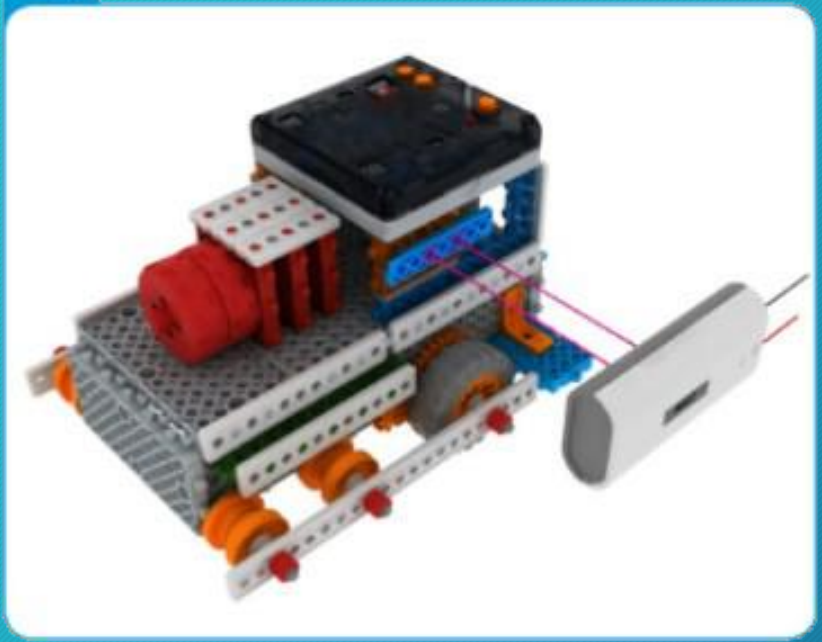

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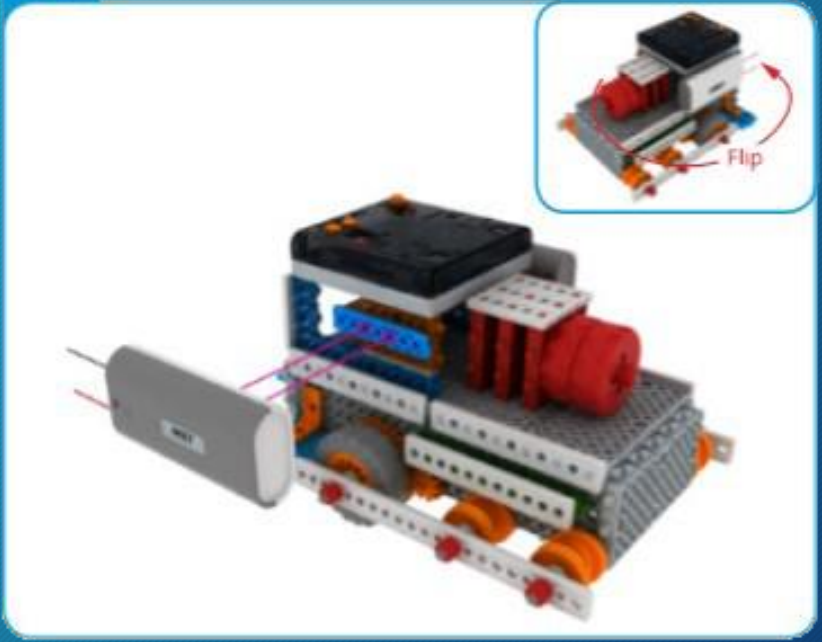

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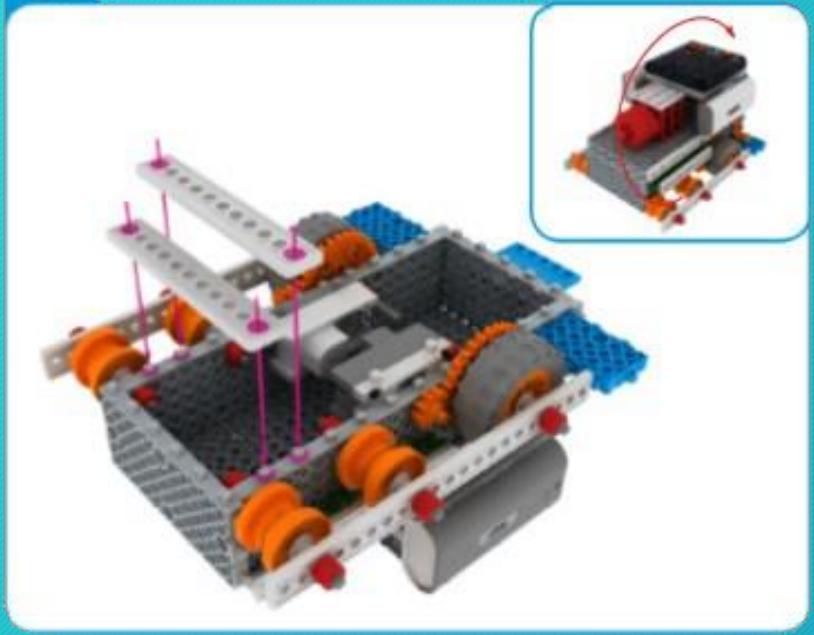

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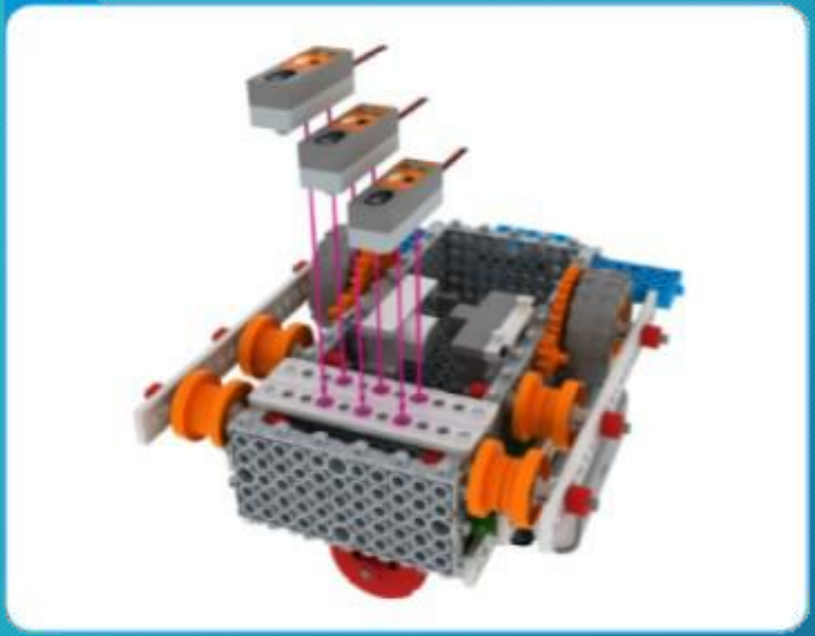

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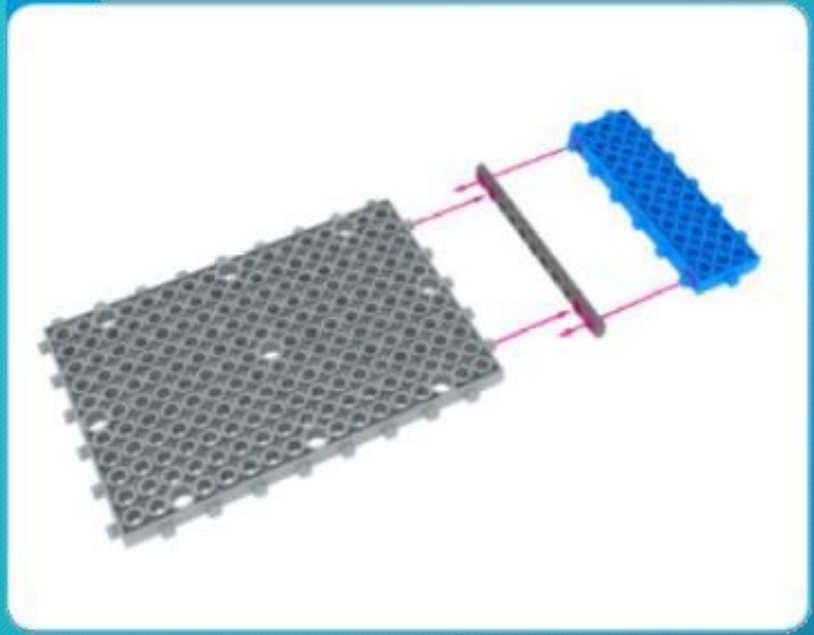

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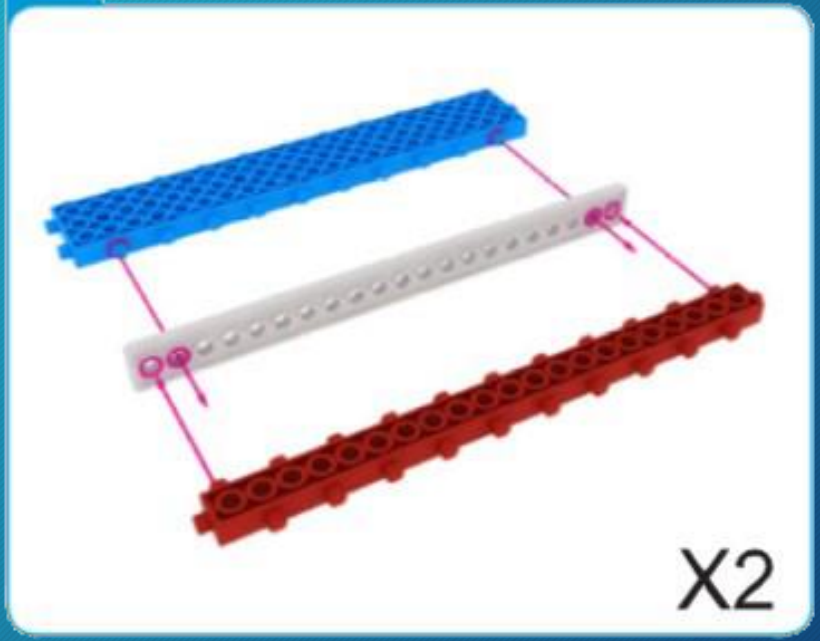

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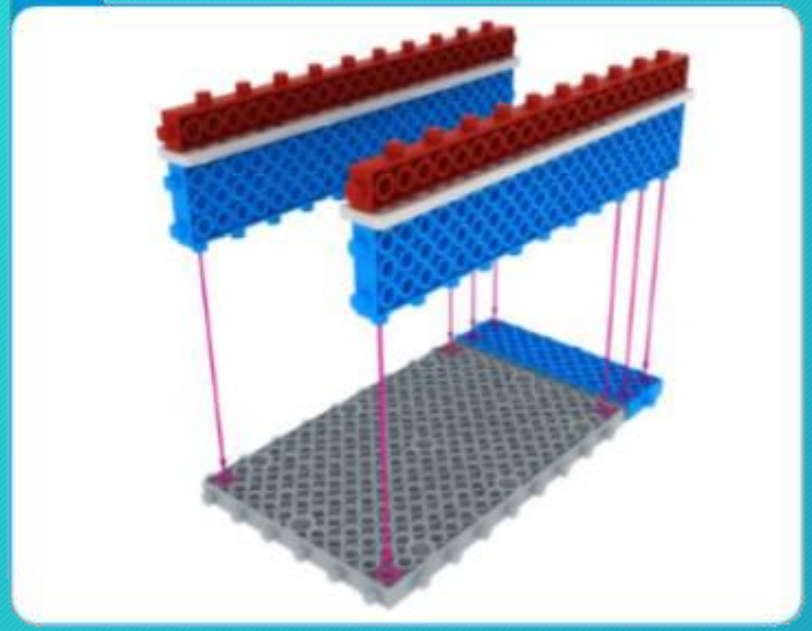

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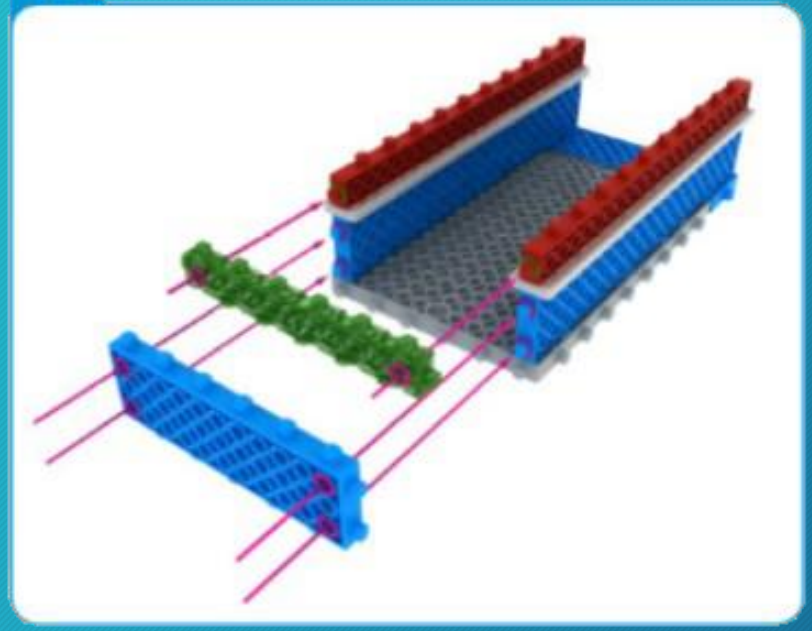

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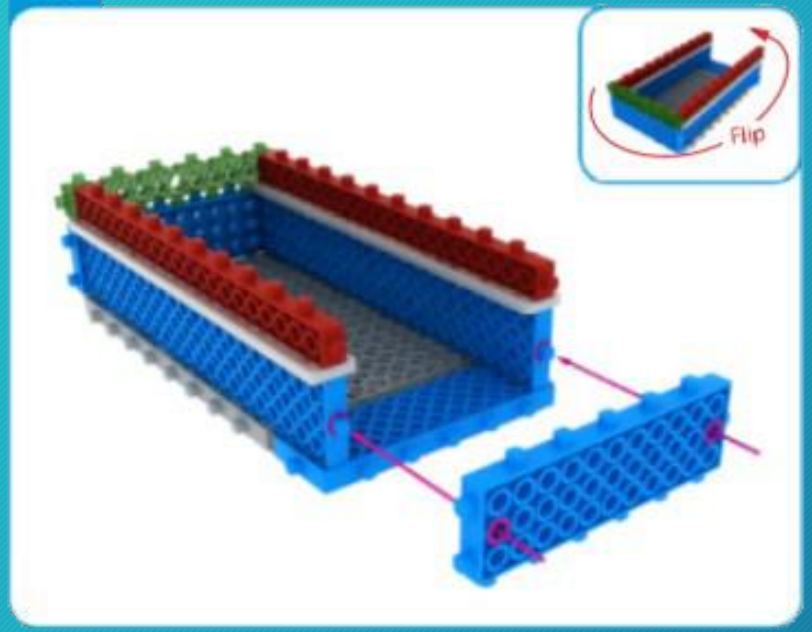

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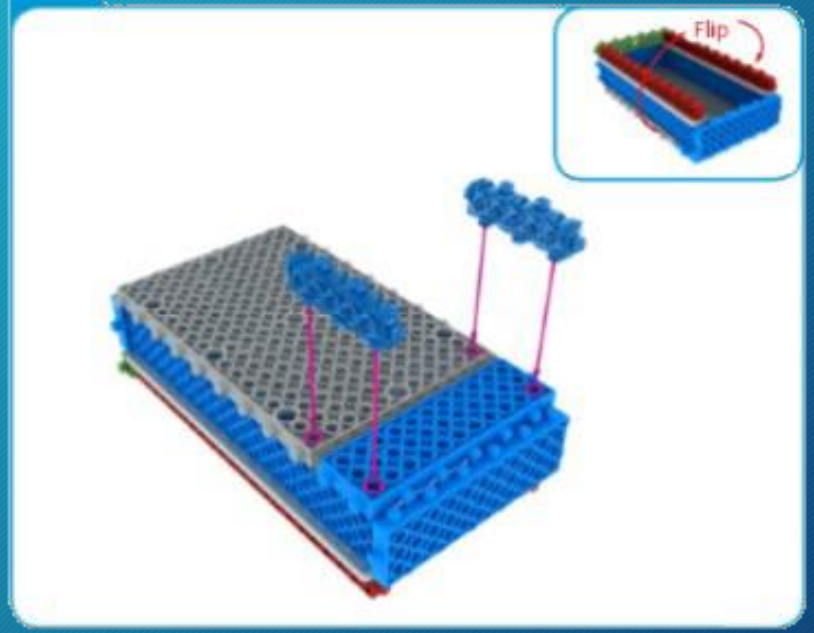

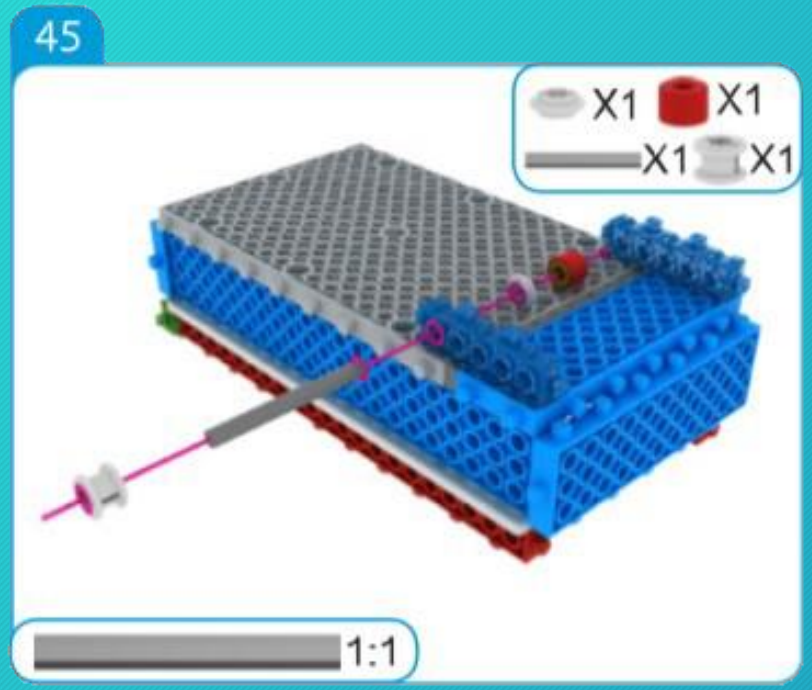
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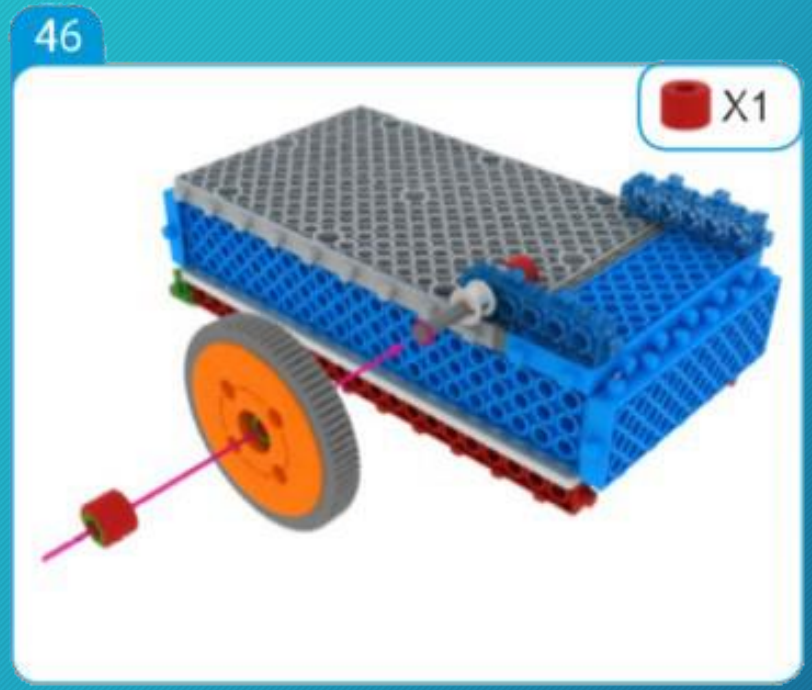
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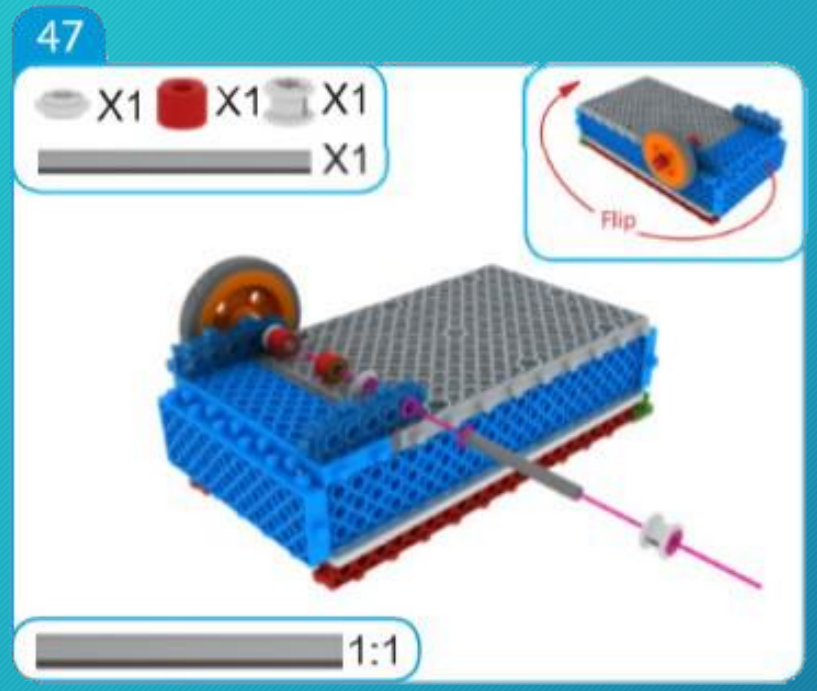
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X1
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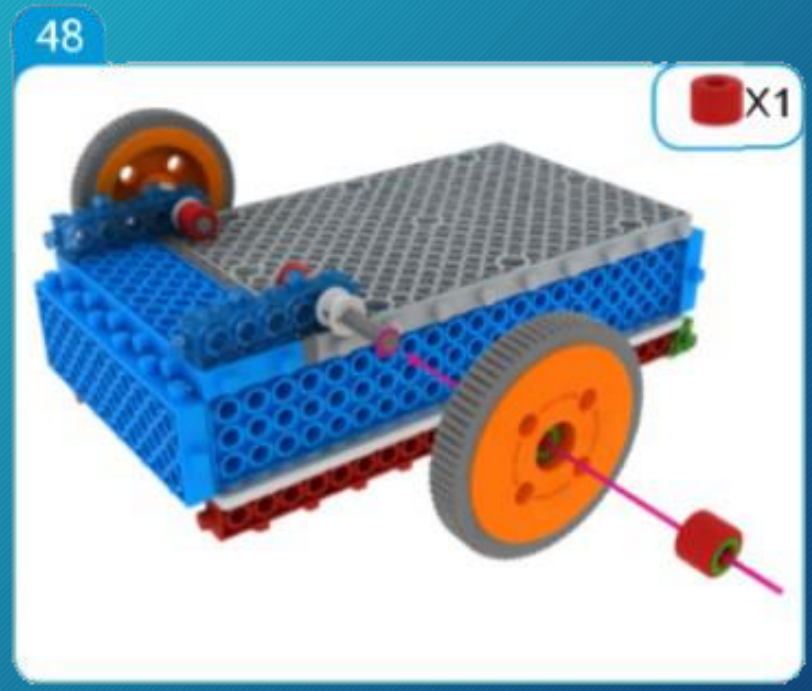
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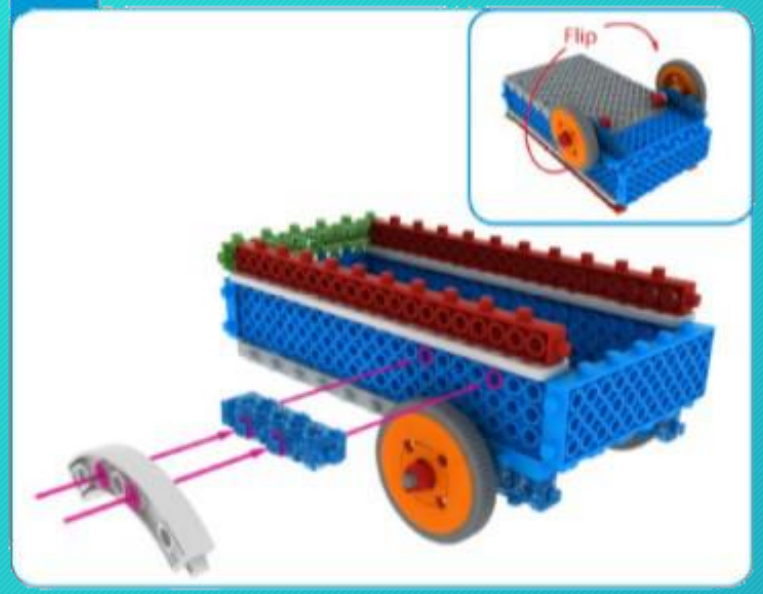

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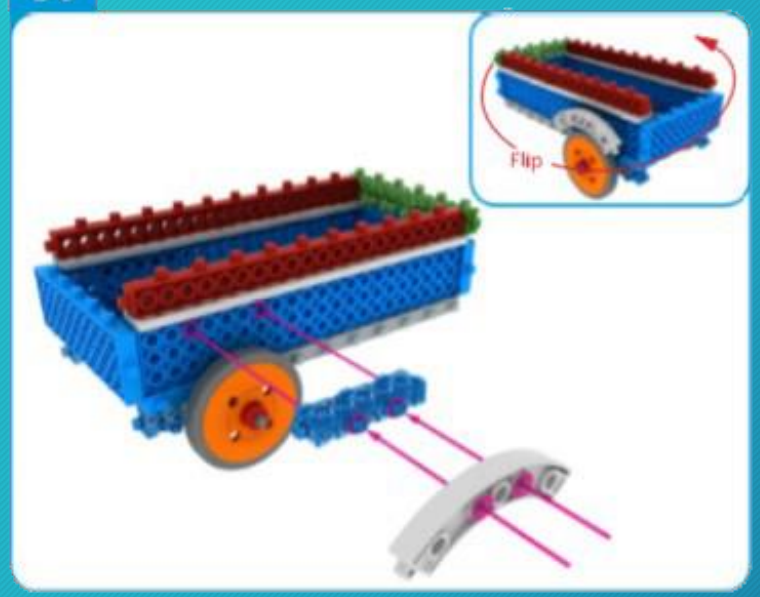

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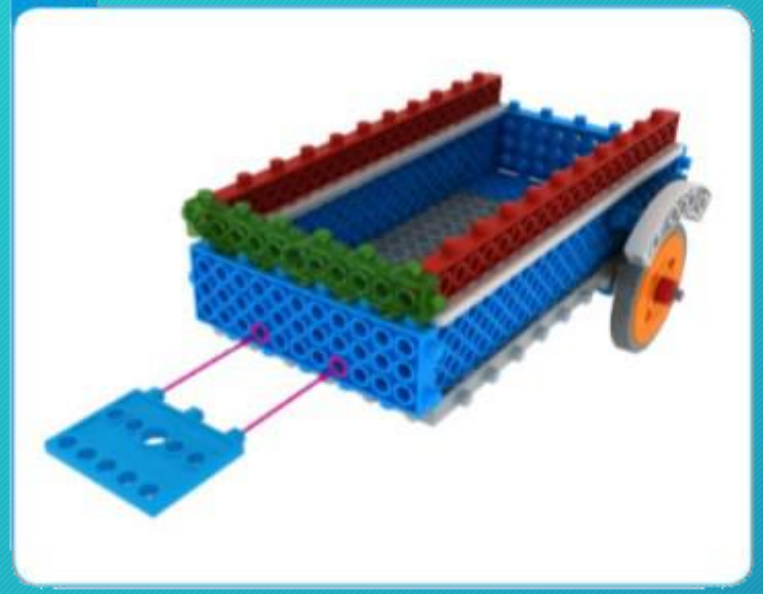

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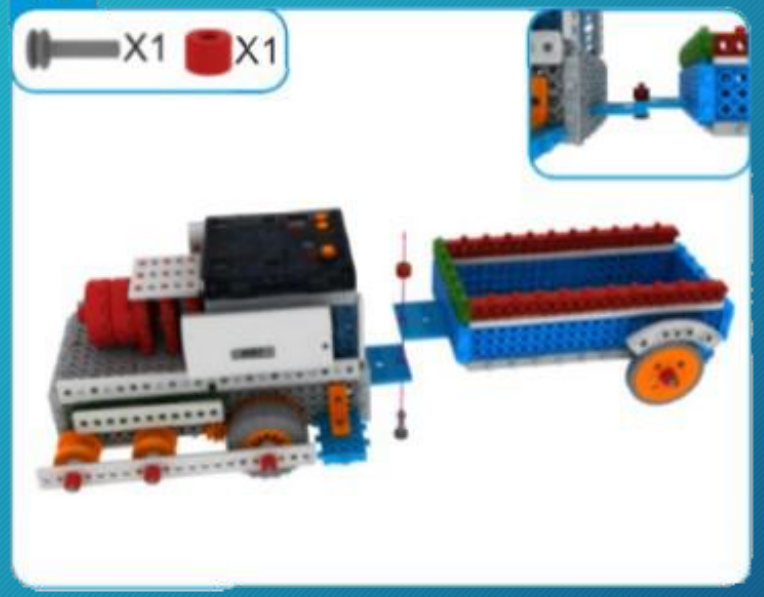
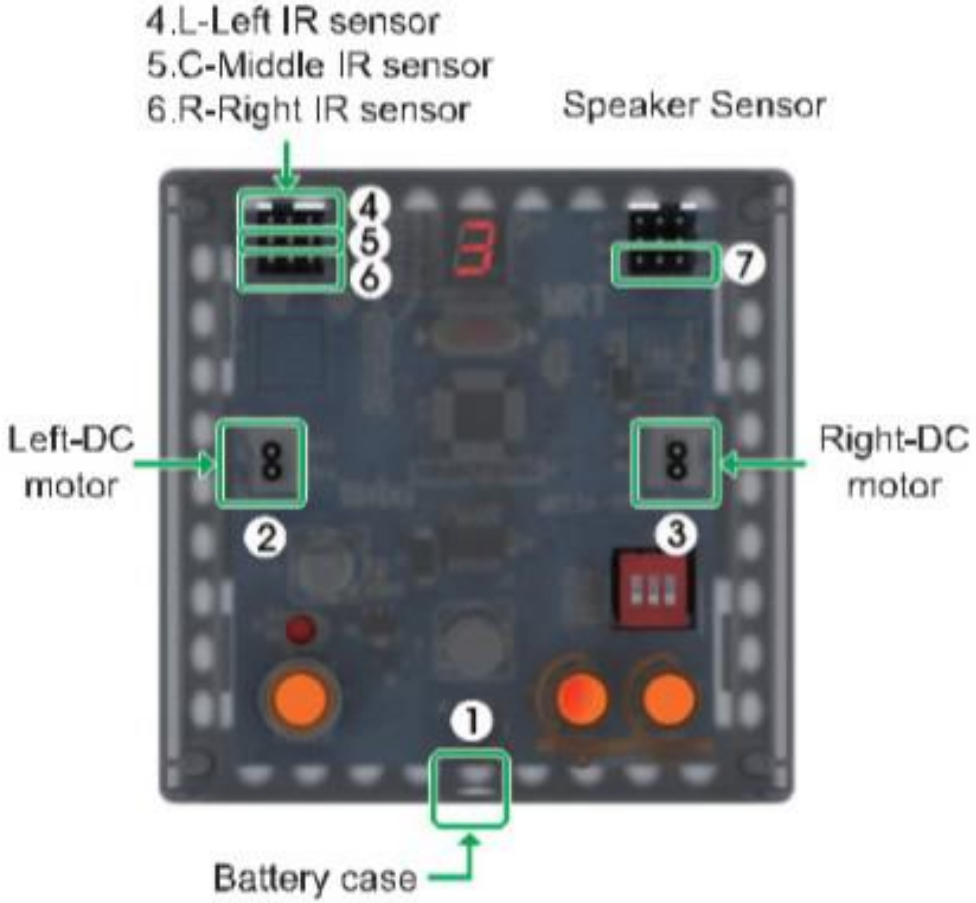


Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect Left-DC motor to Left-motor connector.
3. Connect Right-DC motor to Right-motor connector.
4. Connect Left IR sensor to L connector.
5. Connect Middle IR sensor to C connector.
6. Connect Right IR sensor to R connector.
7. Connect the Speaker Sensor to IN2 connector.

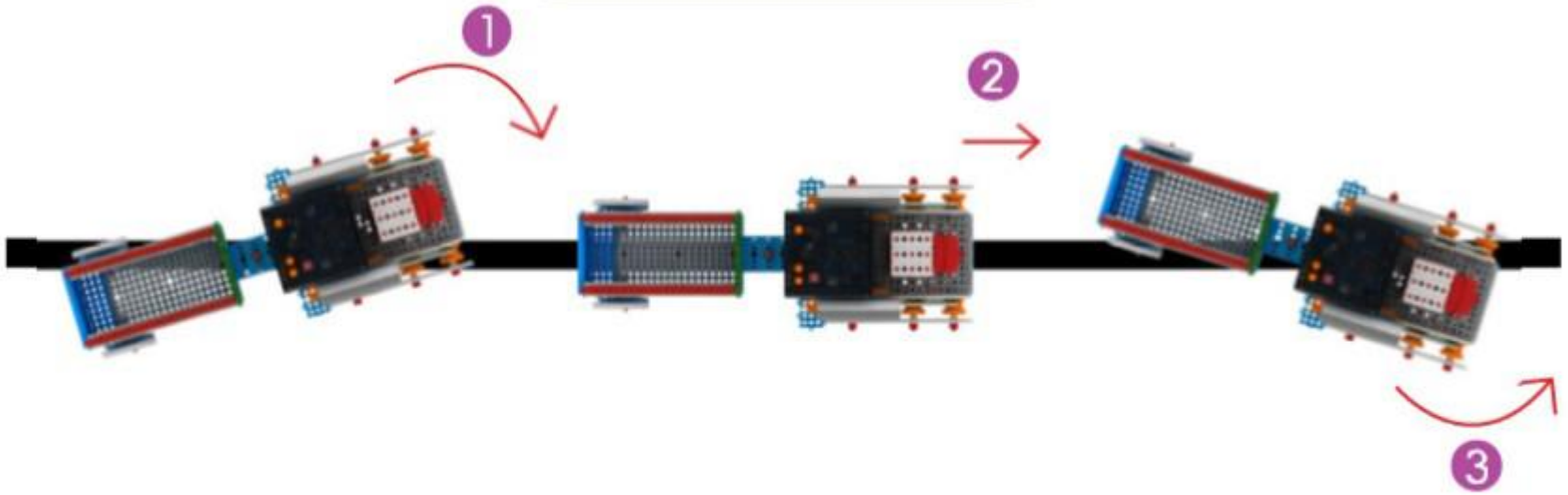
Setting mode

1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

MODE # 3		3		Line tracer Mode

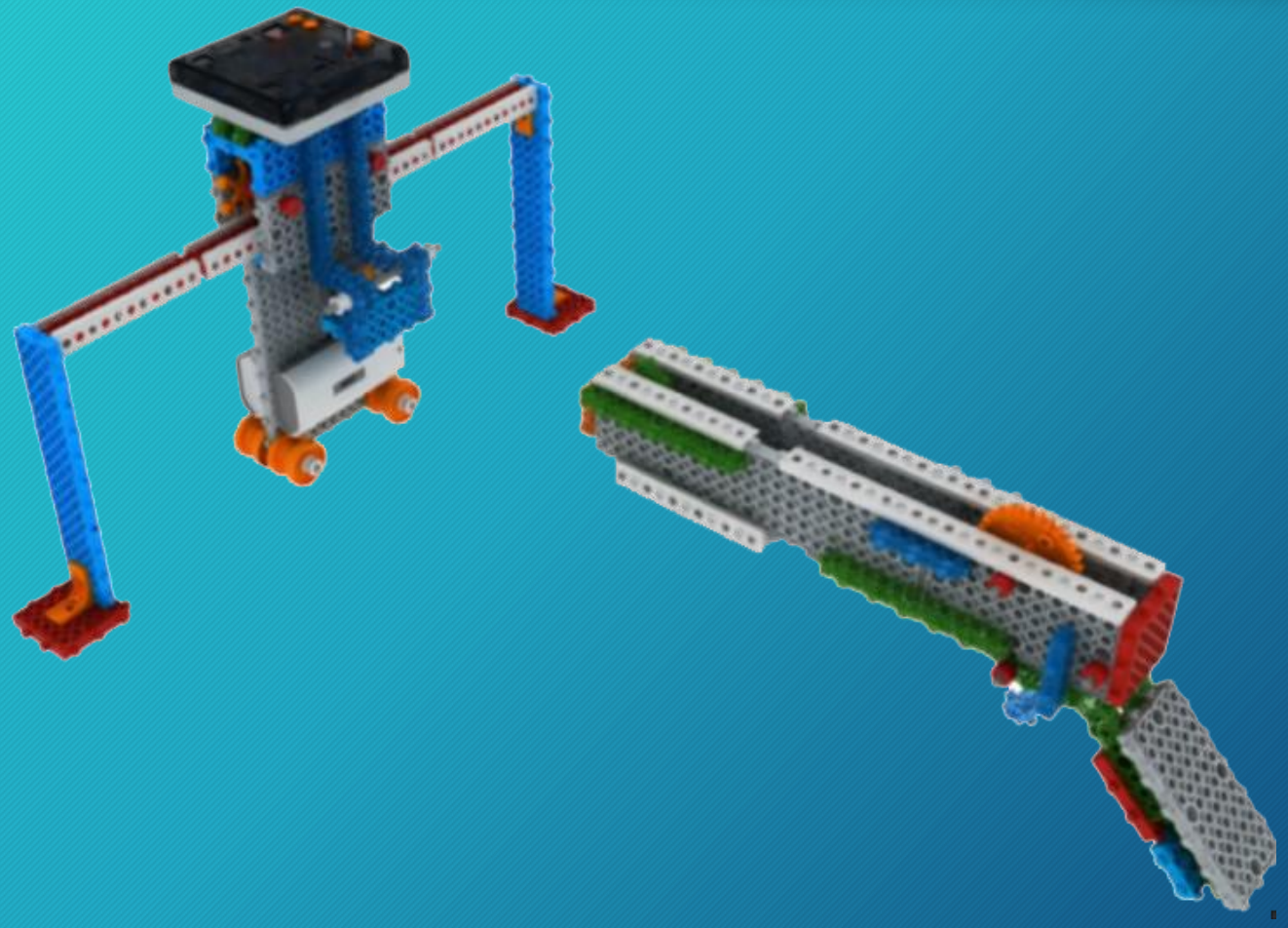
4. Select Remote ID.
5. Press the START button.

How to make it move?

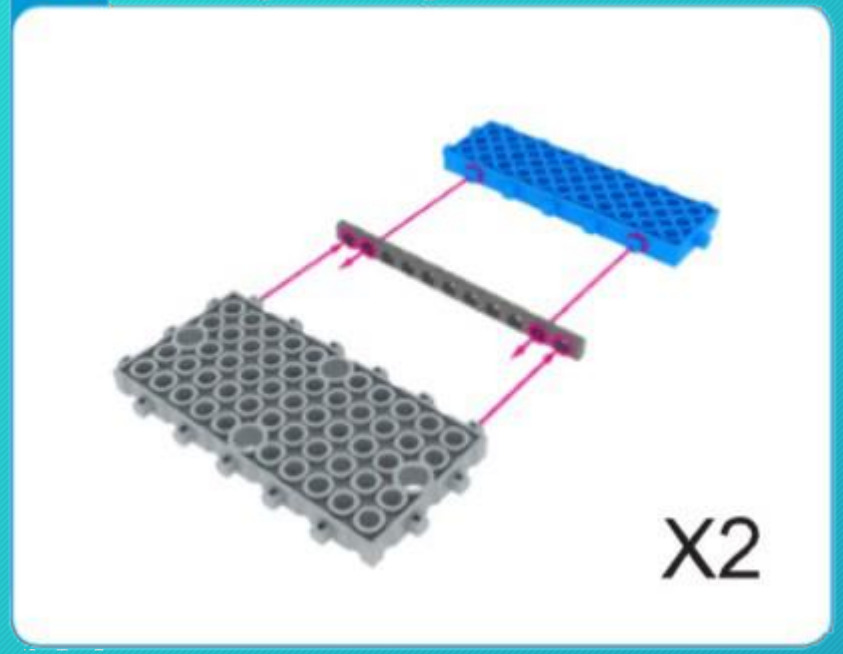


1. When the train separates from the line on the left, it automatically turns right.
2. Straight movement..
3. When the train separates from the line on the right, it automatically turns left.

Target Shooting Game



1 Making the target



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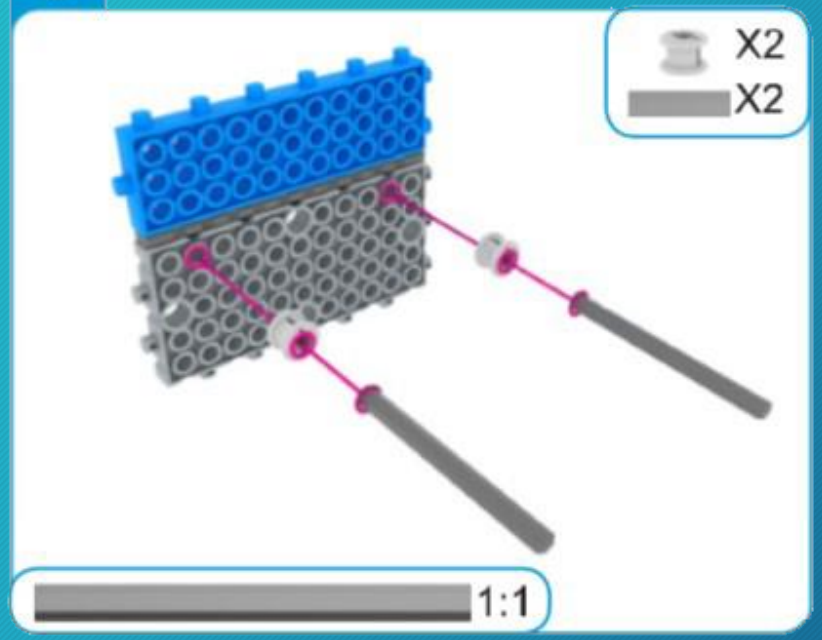

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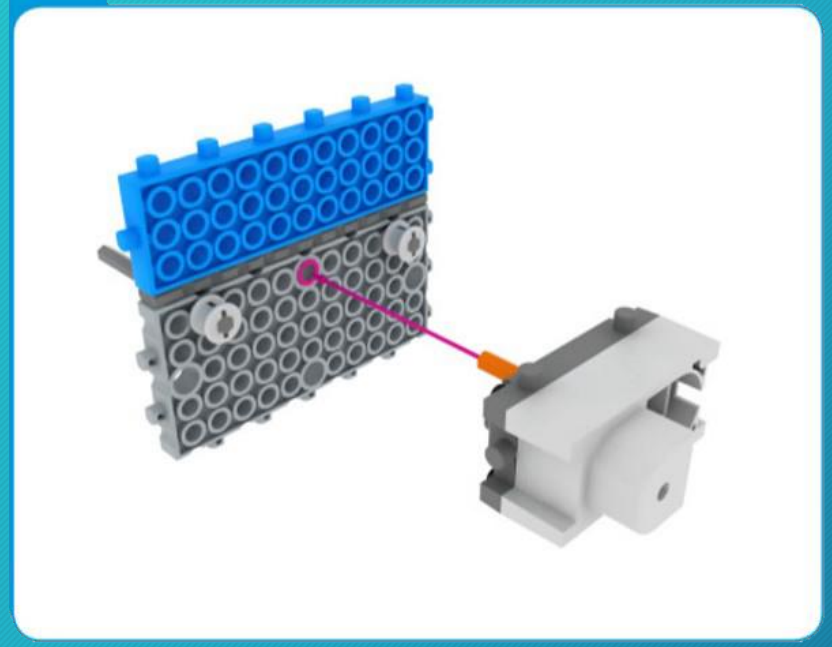

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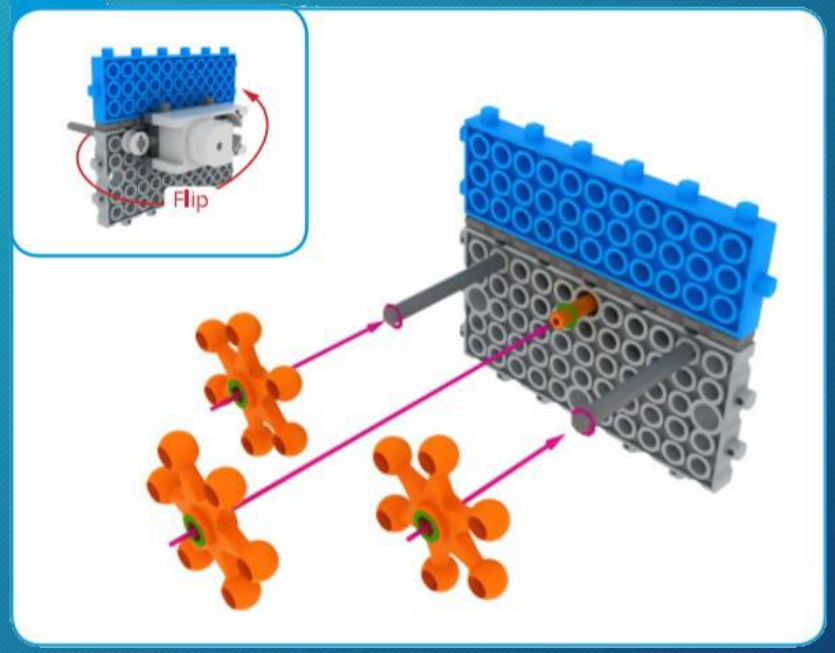

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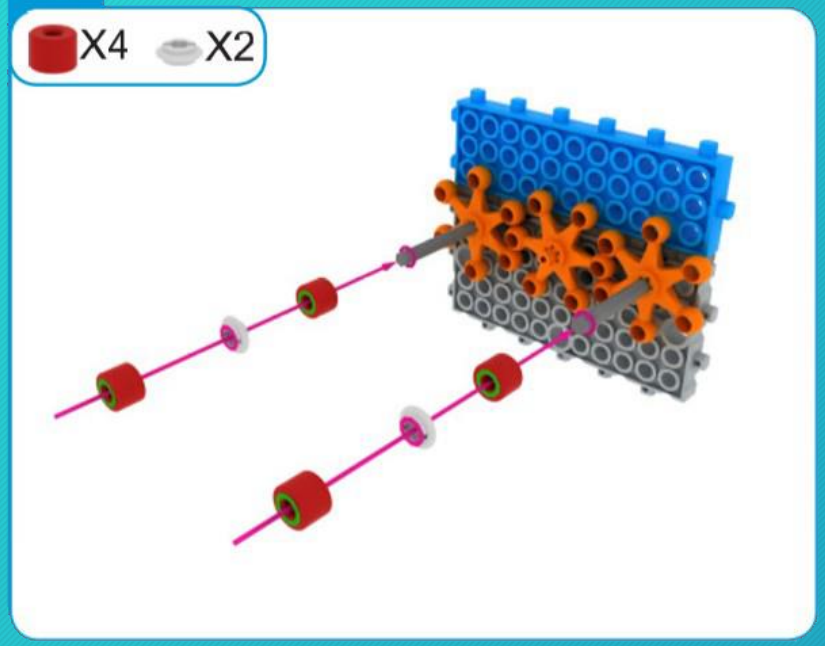

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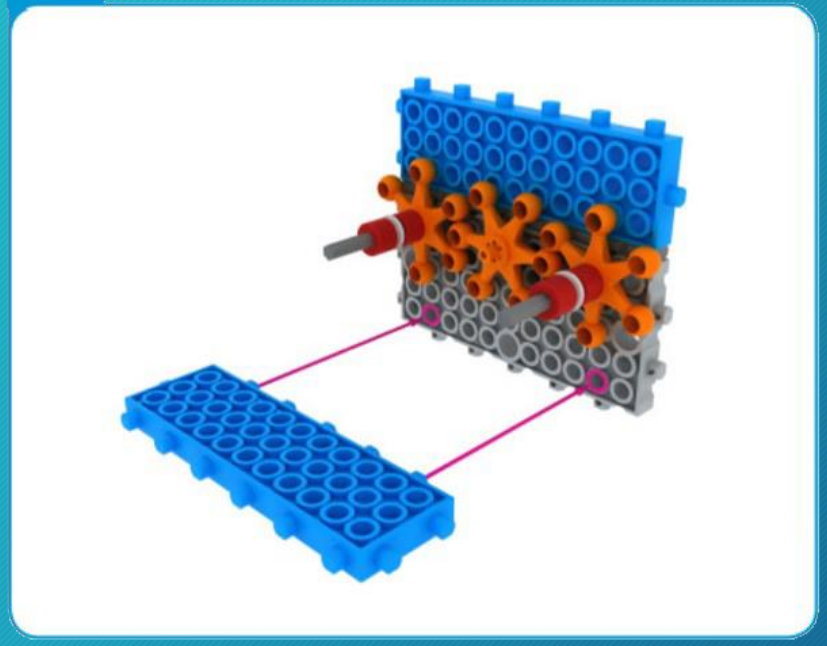

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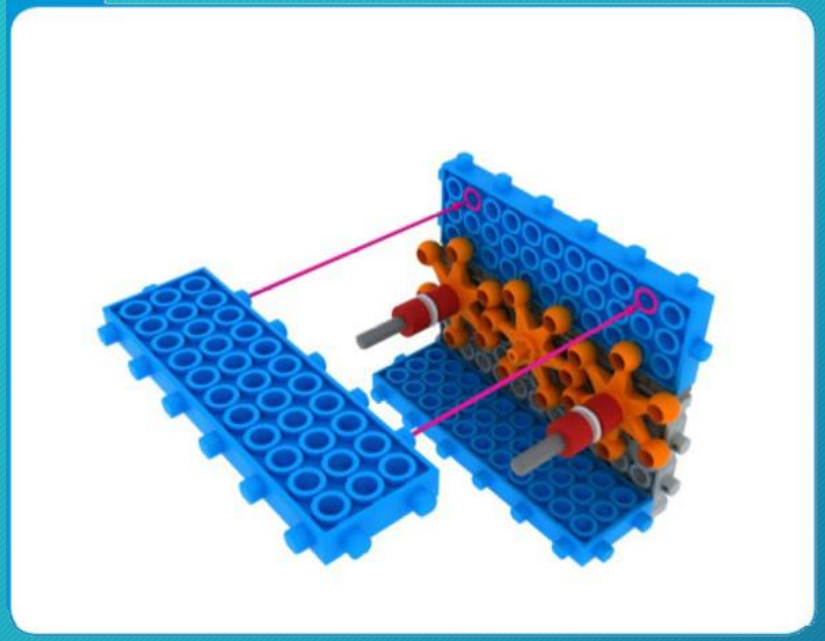

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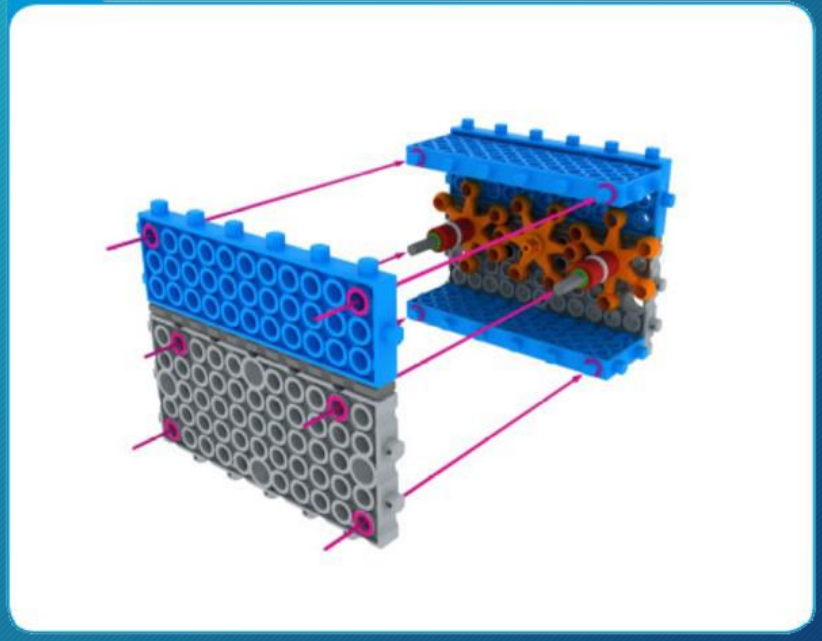

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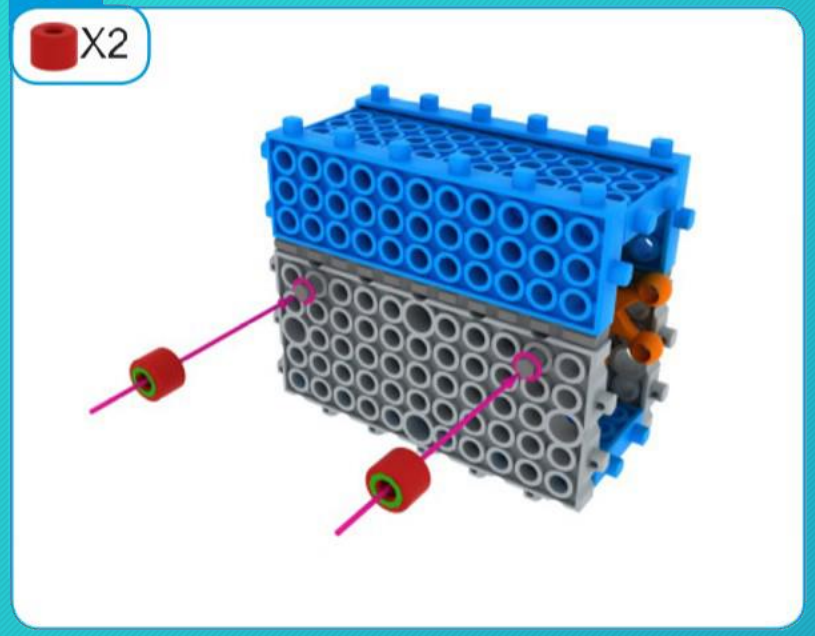

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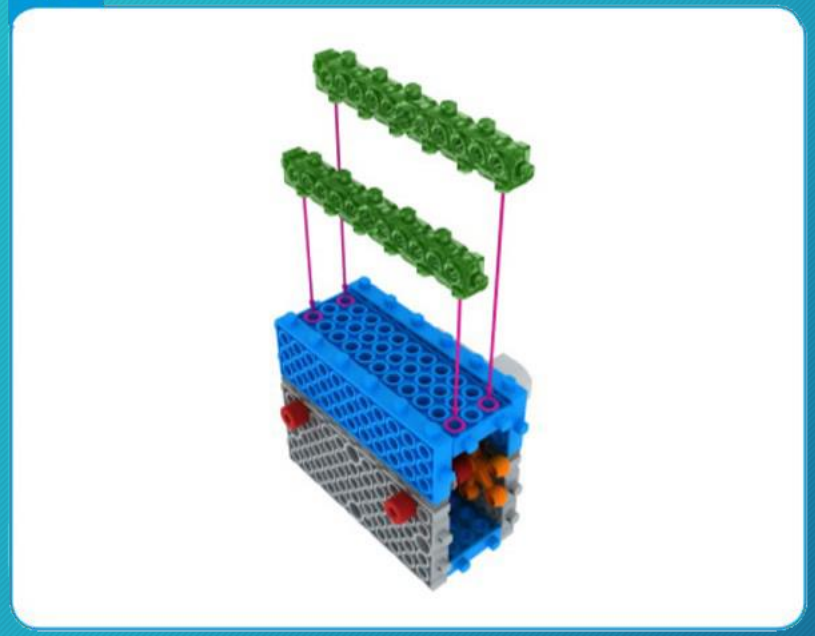

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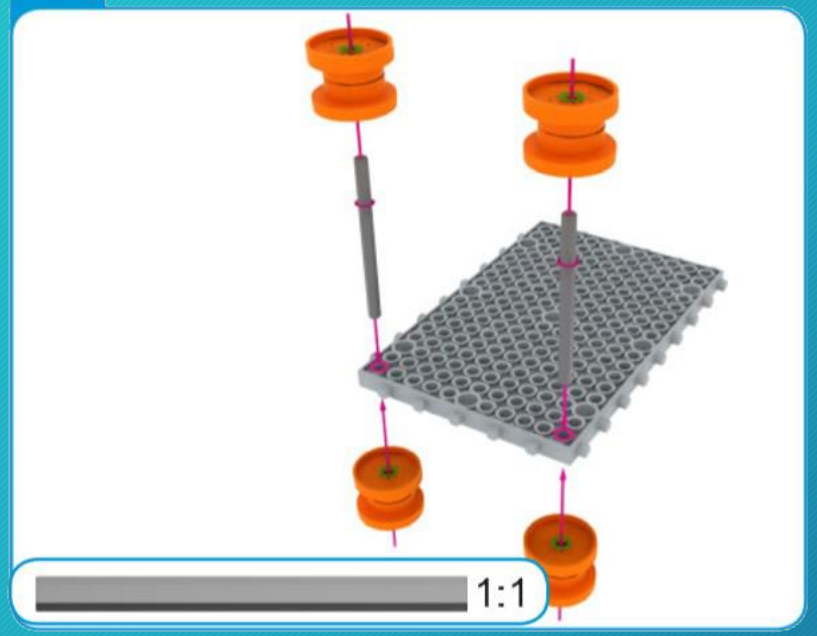

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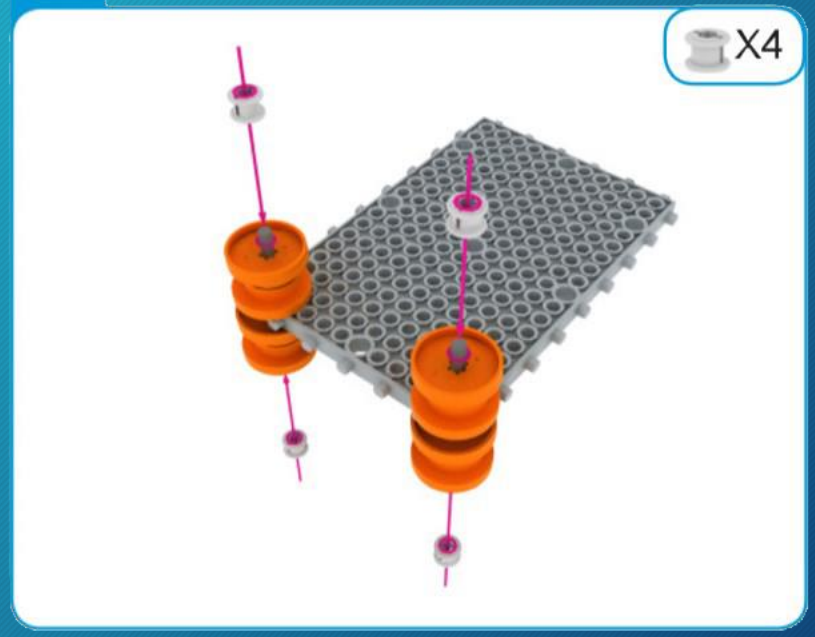

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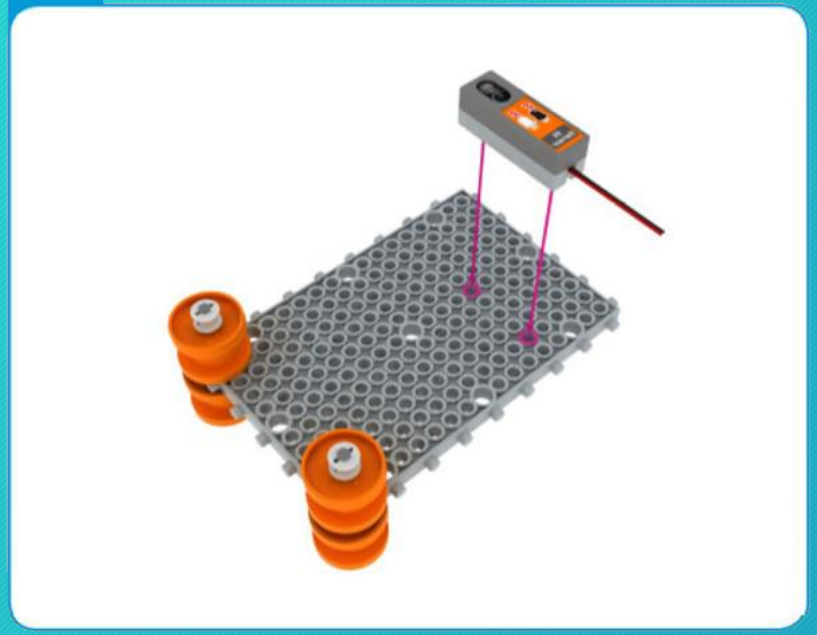

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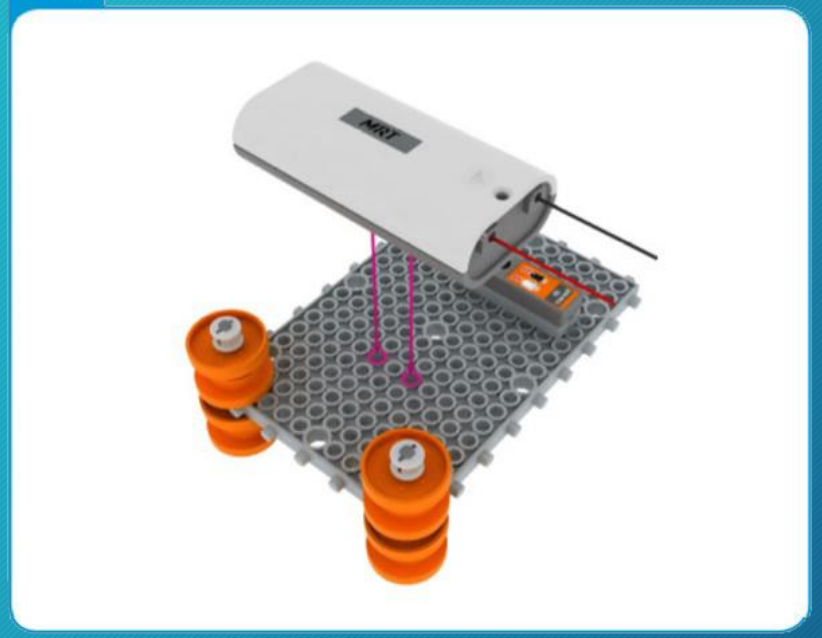

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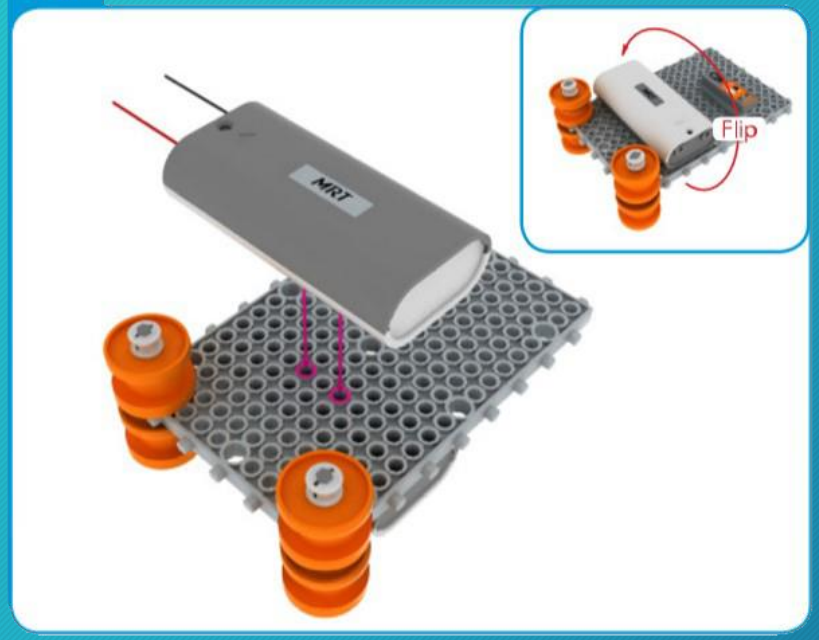

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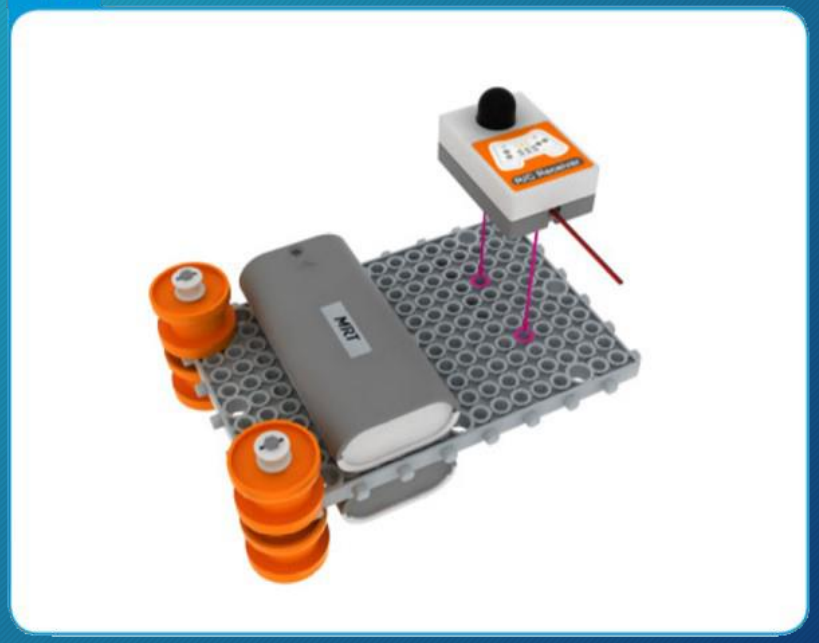

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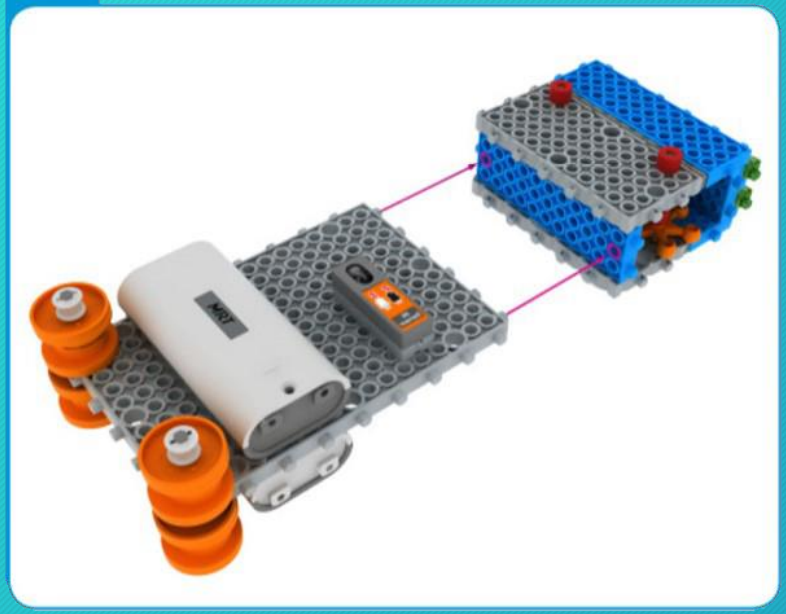

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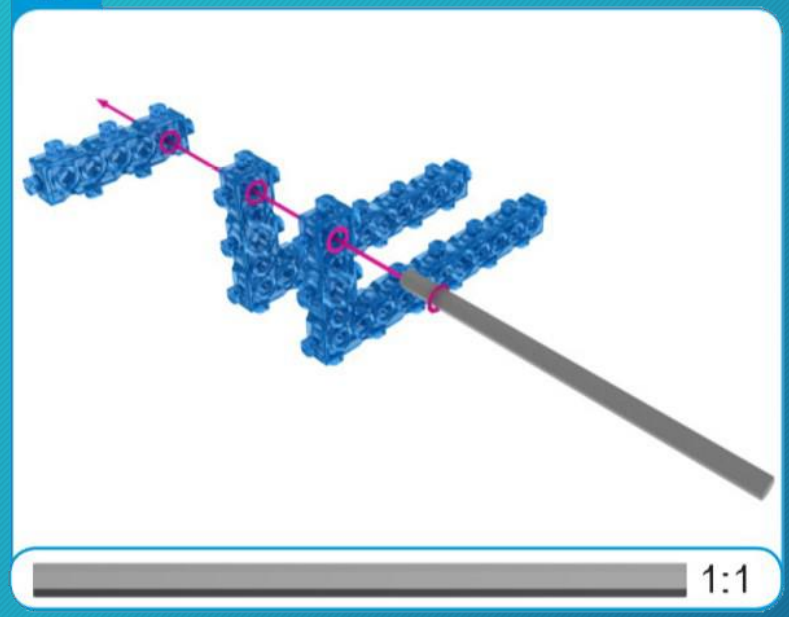

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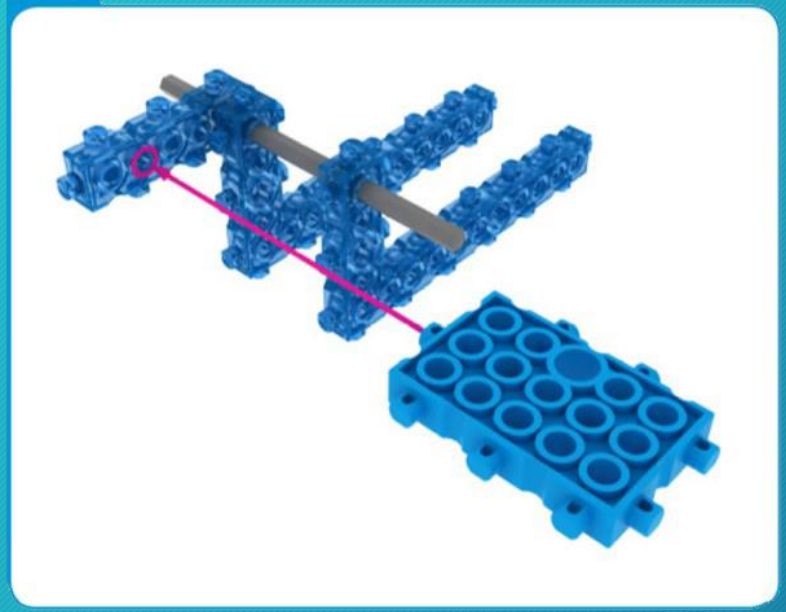

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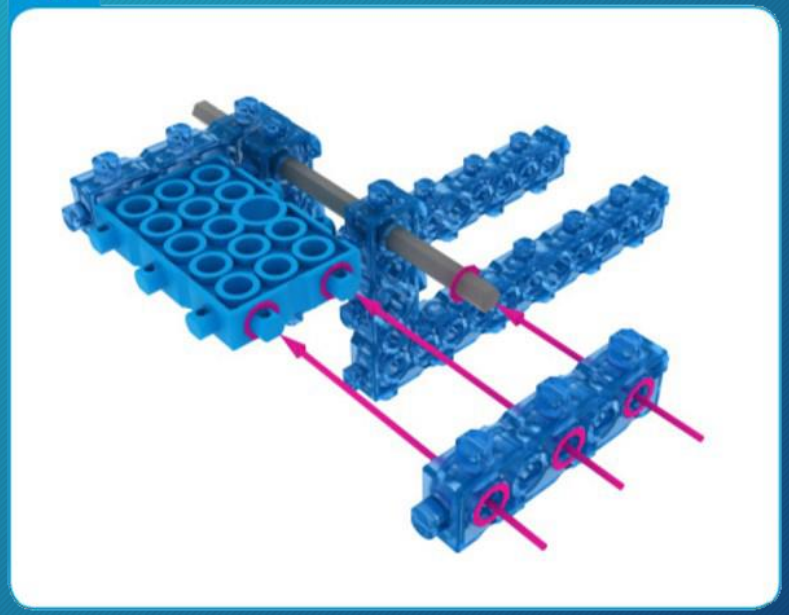

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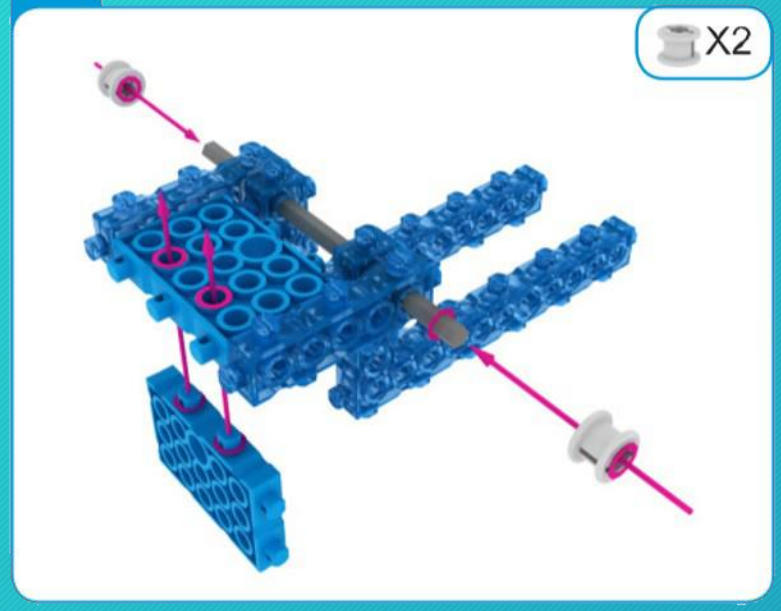

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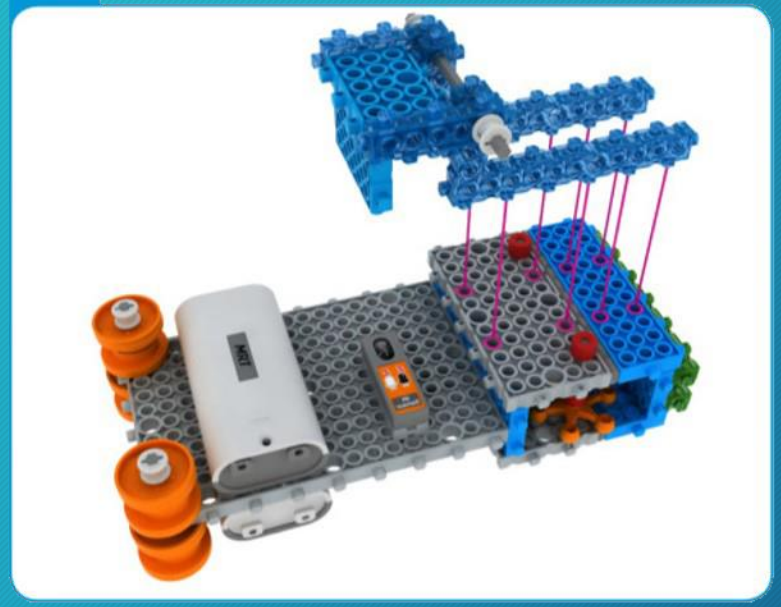

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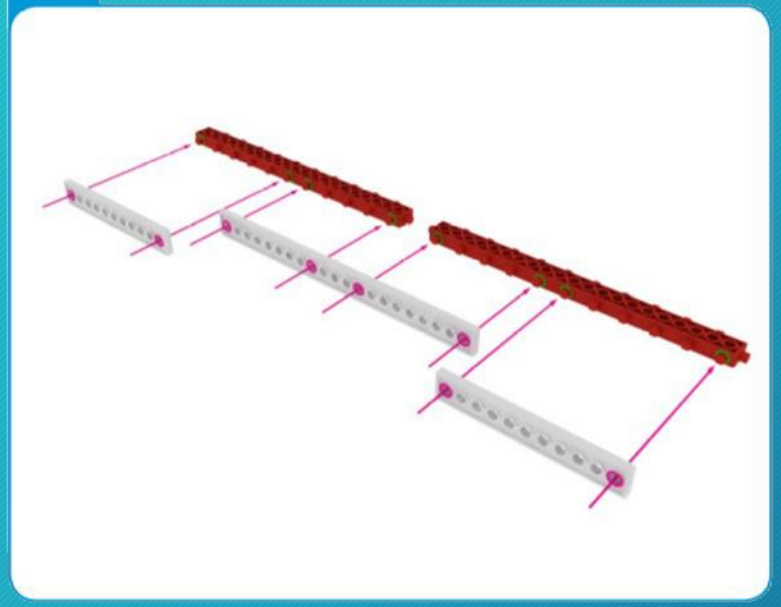

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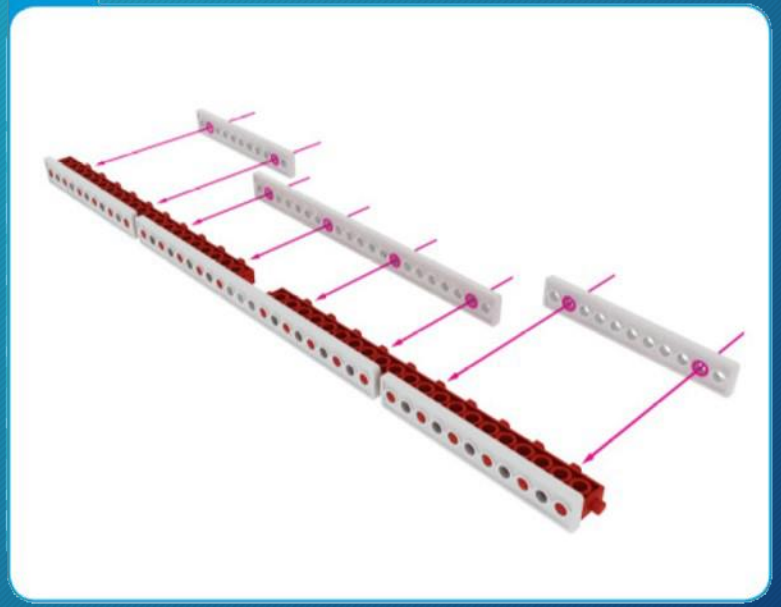

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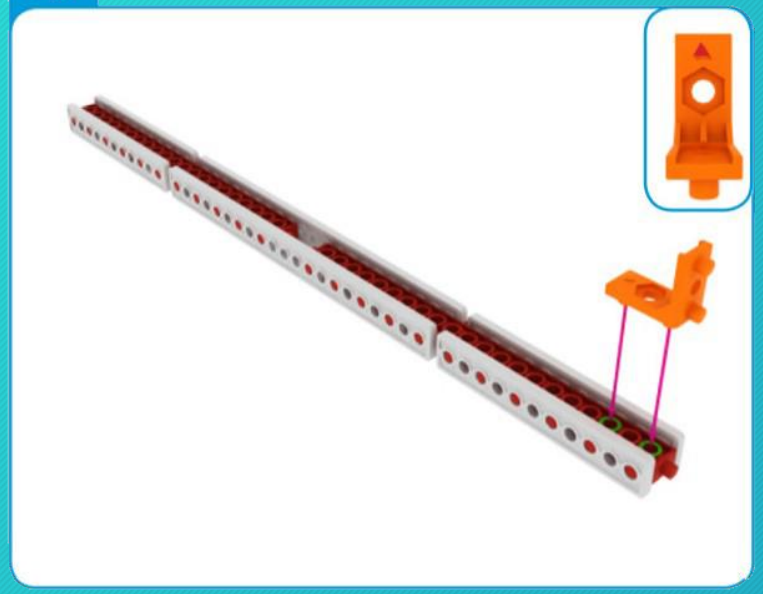

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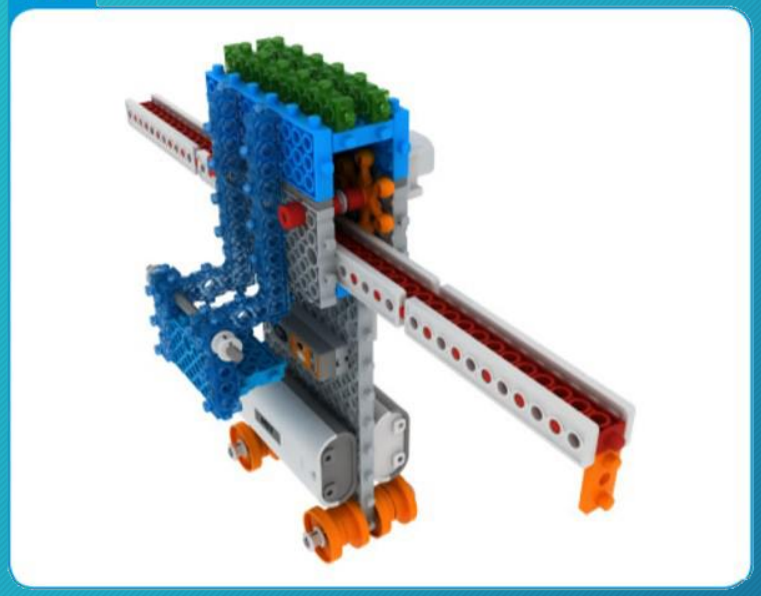

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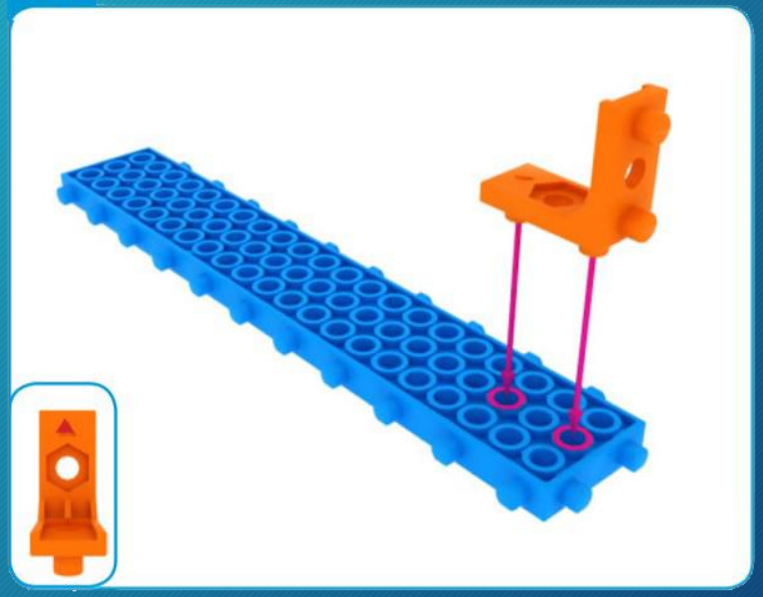

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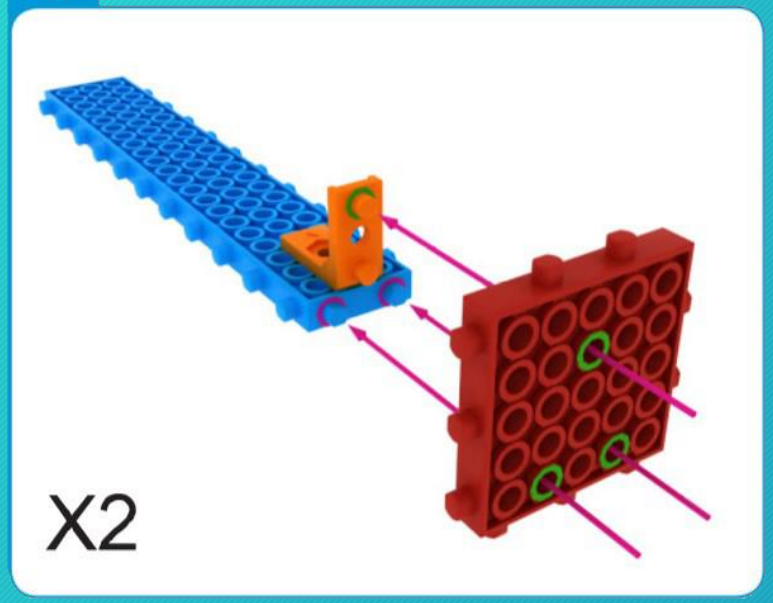

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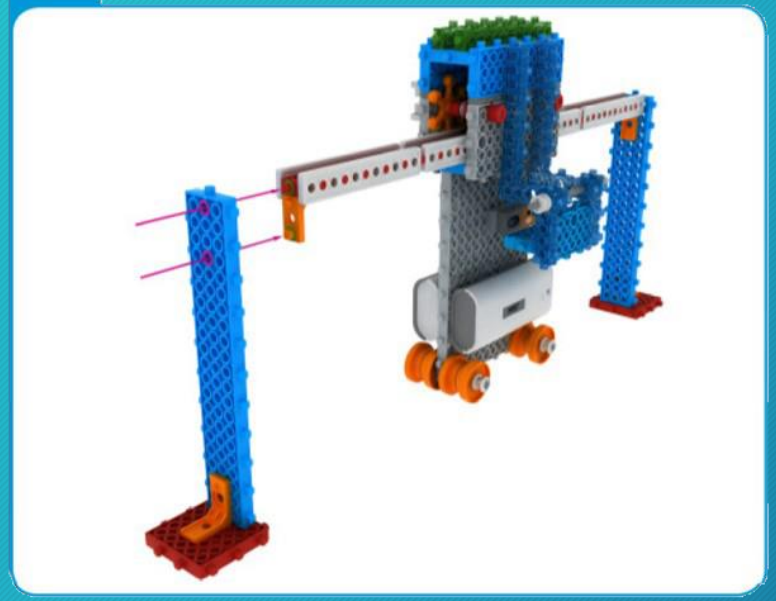

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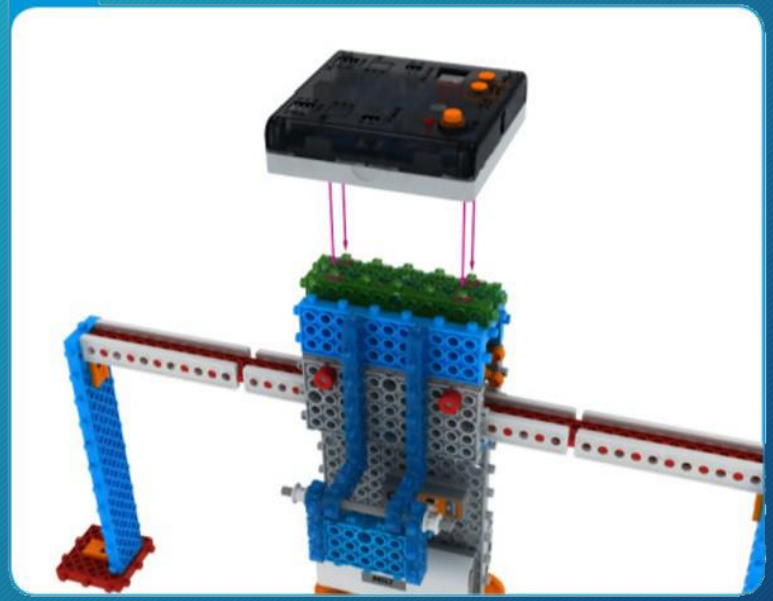
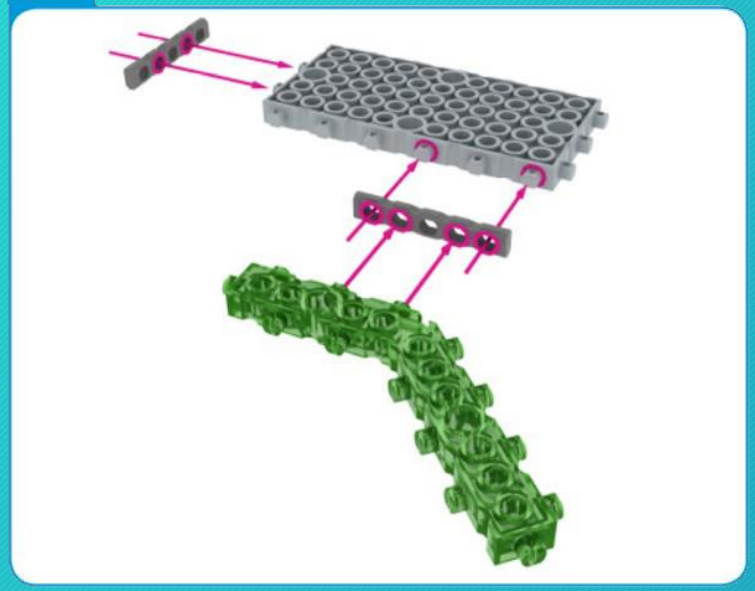


33 Making the gun



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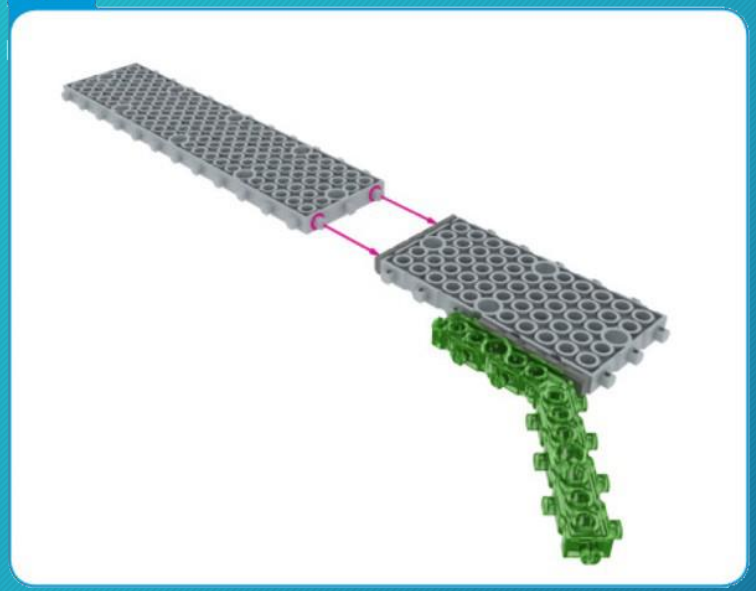

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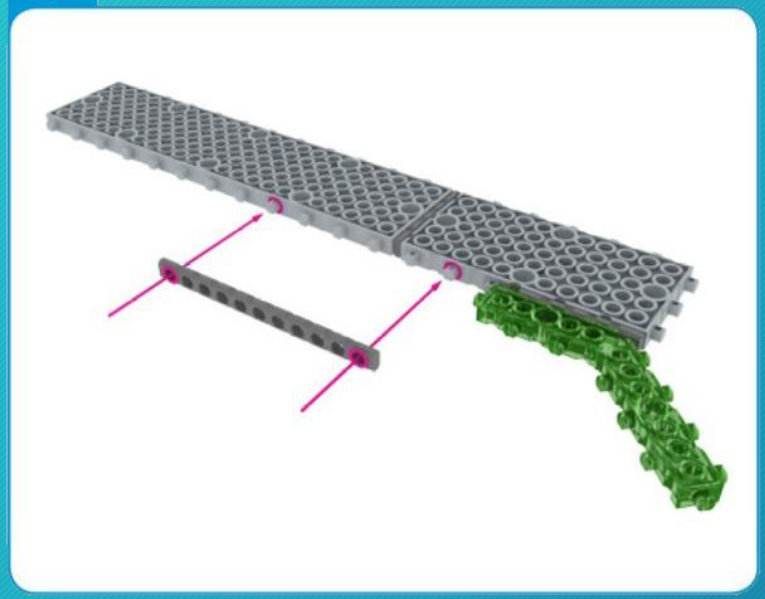

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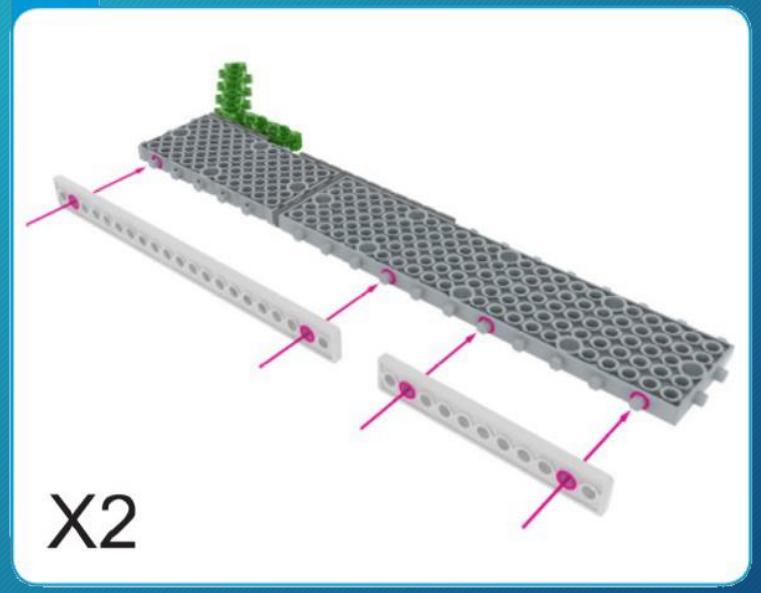

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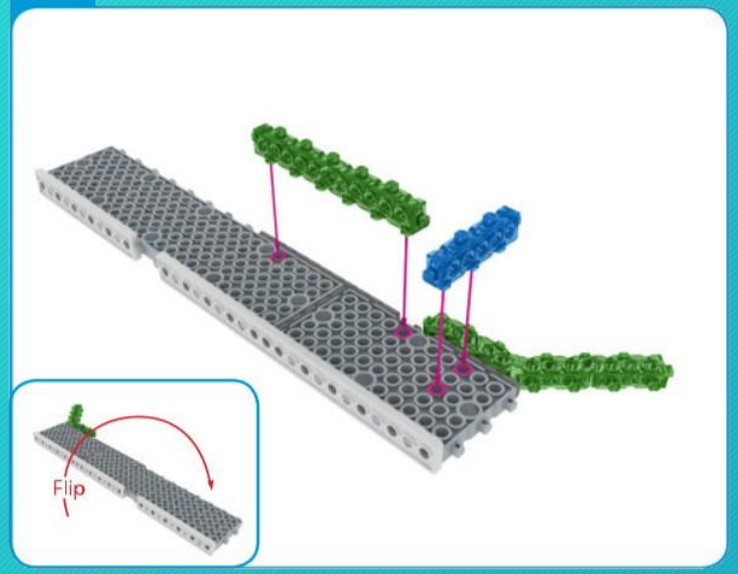

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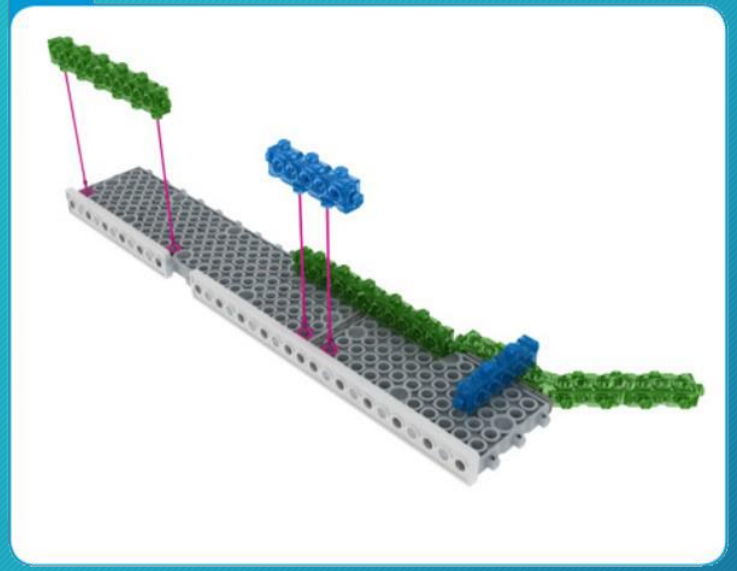

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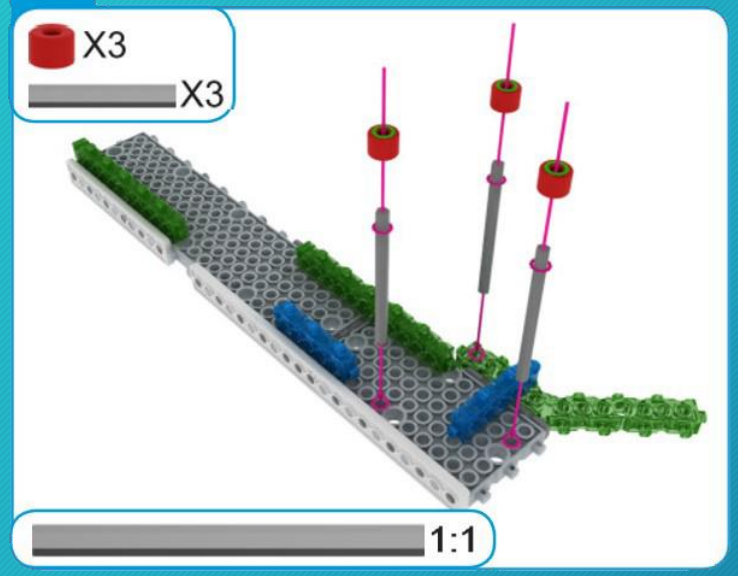

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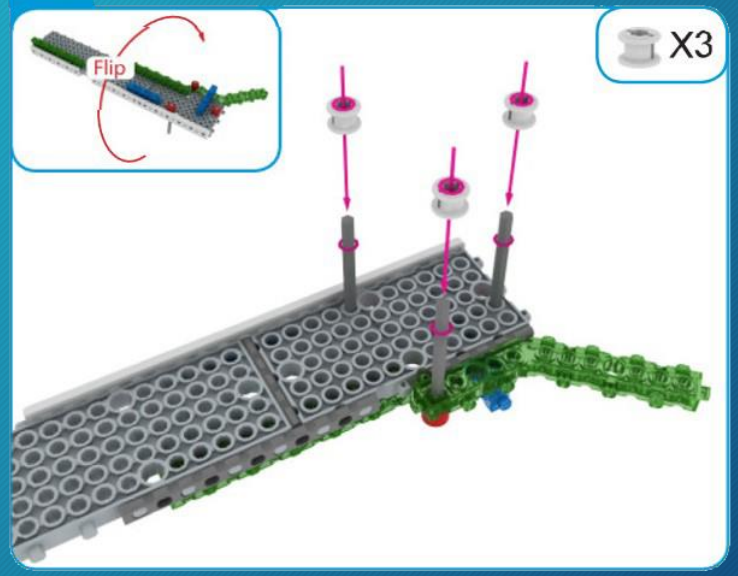

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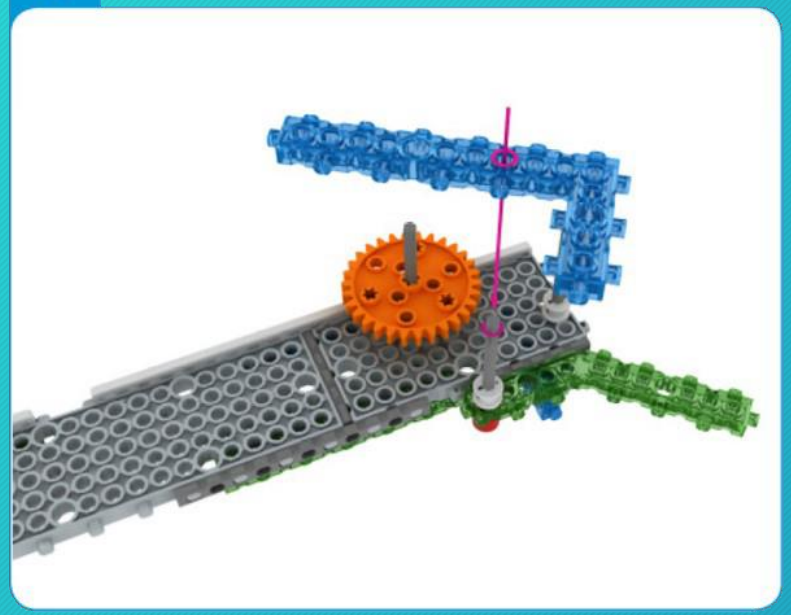

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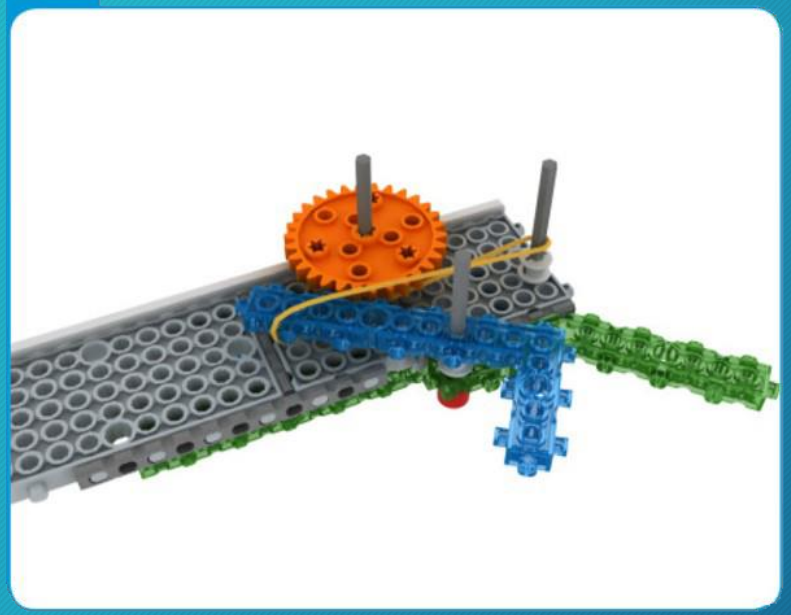

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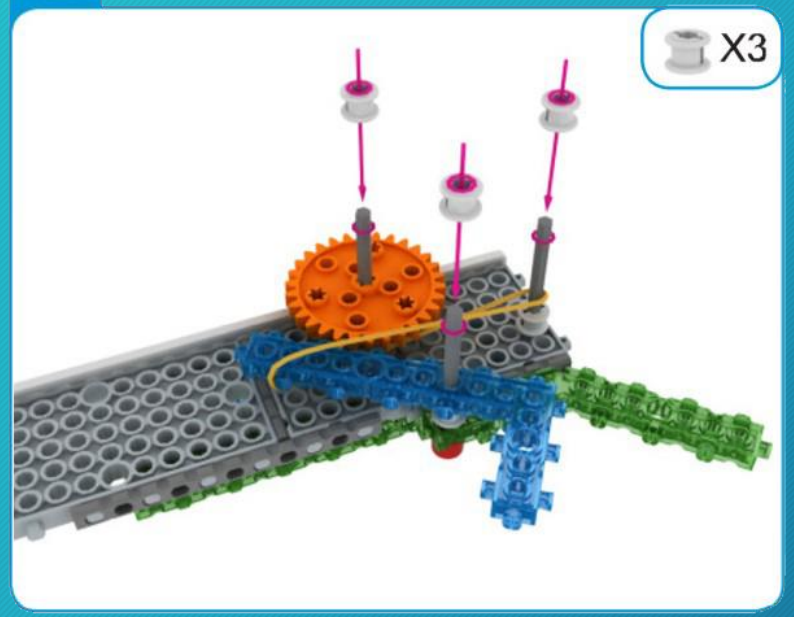

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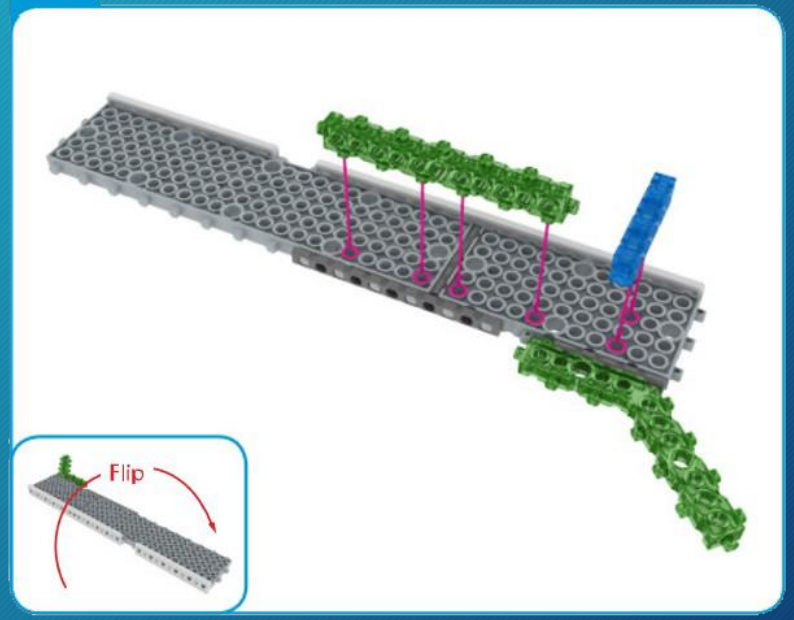

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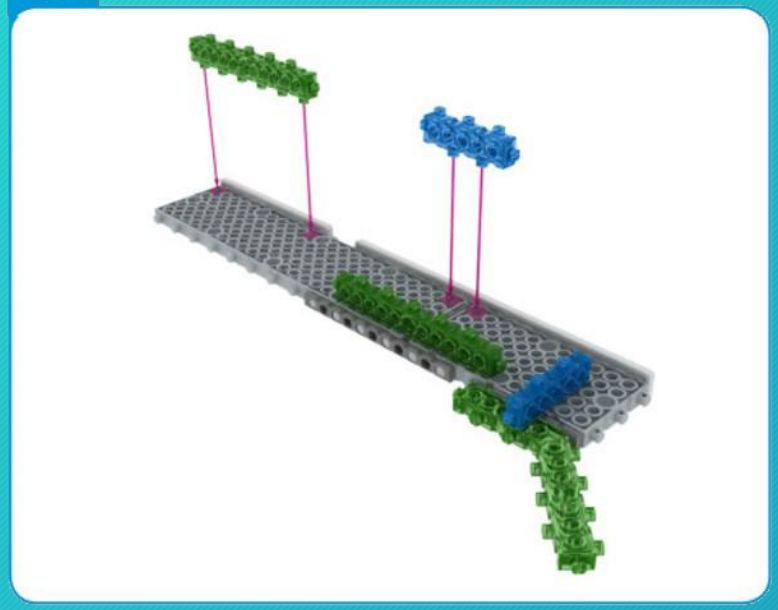

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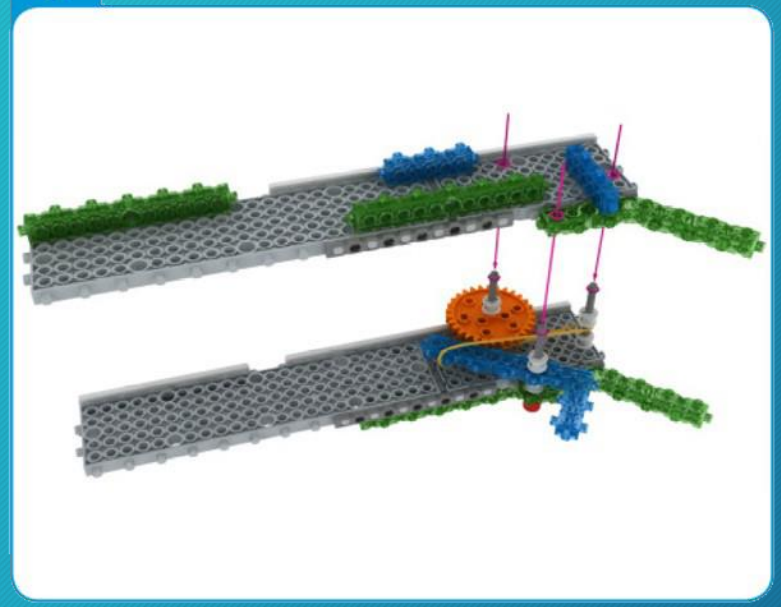

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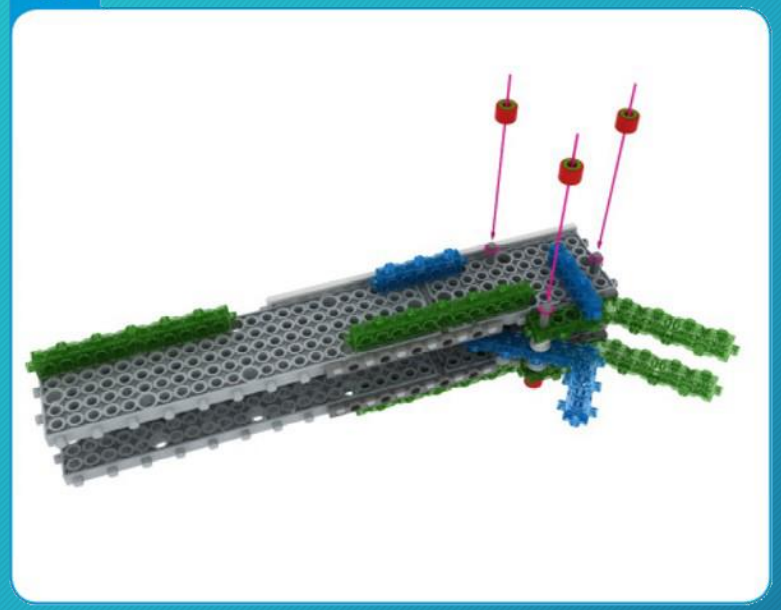

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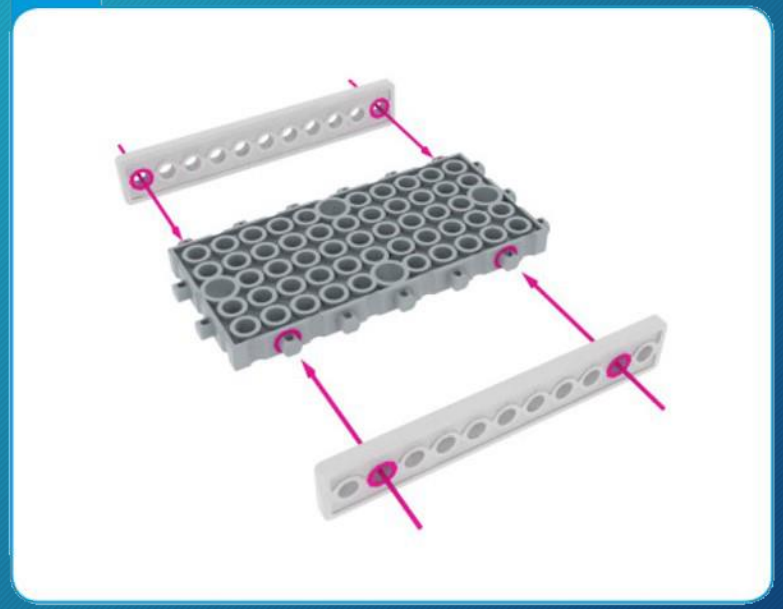

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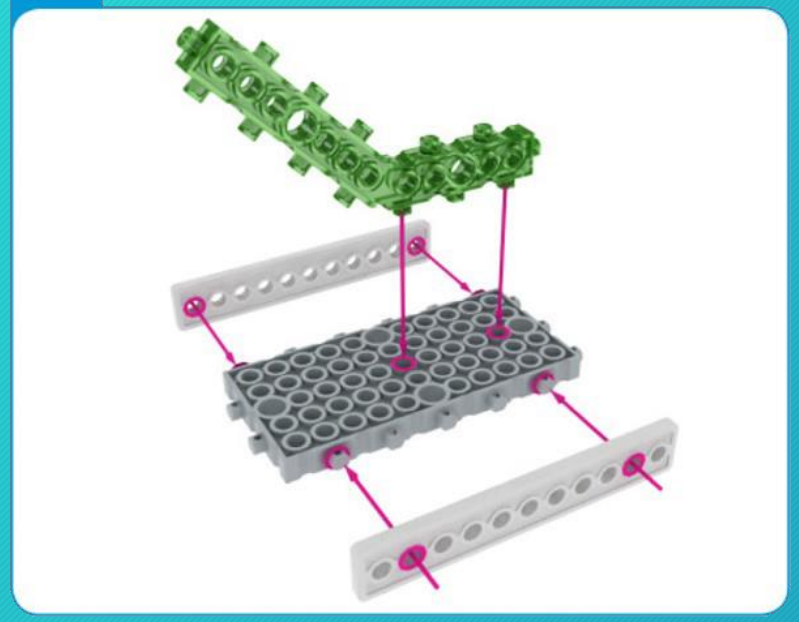

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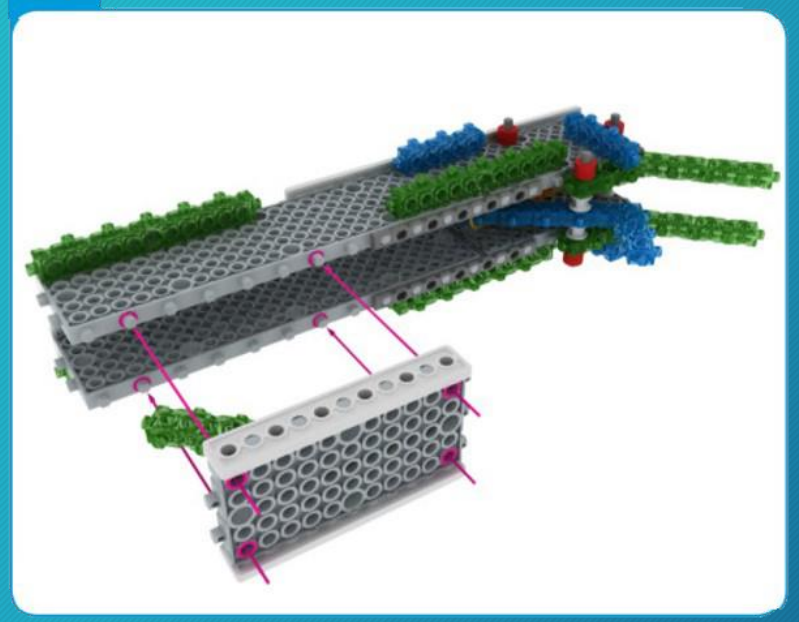

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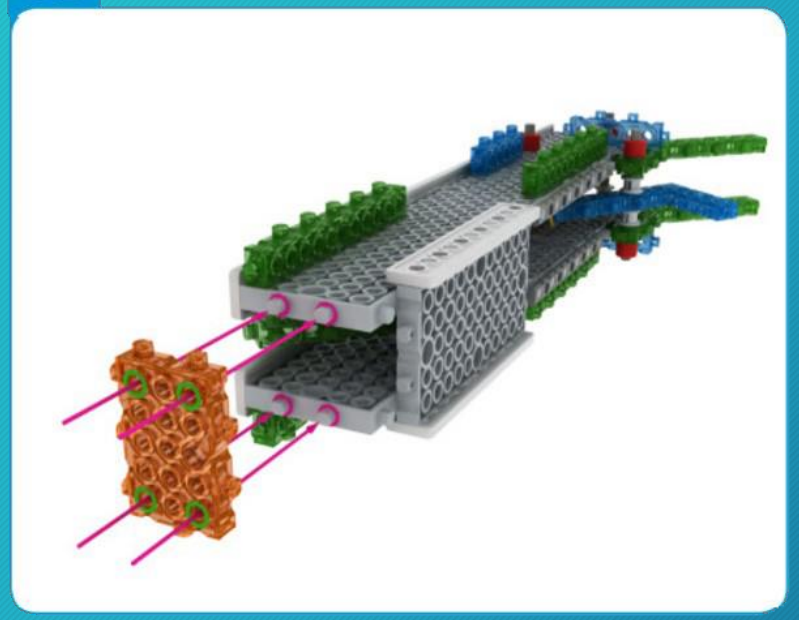

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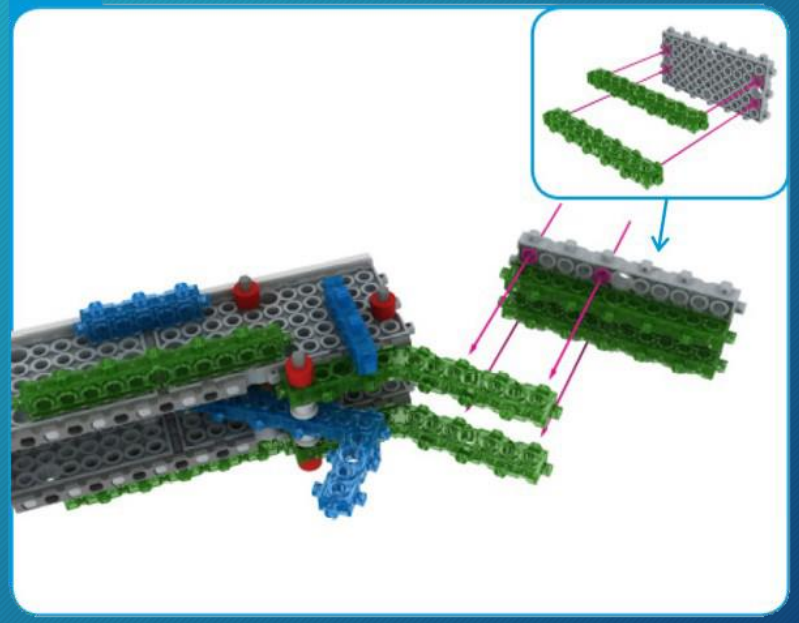

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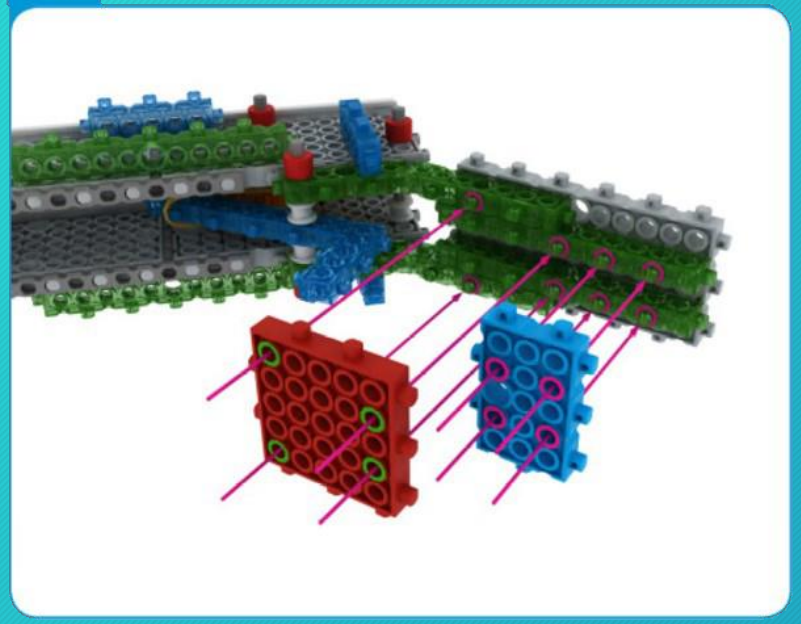

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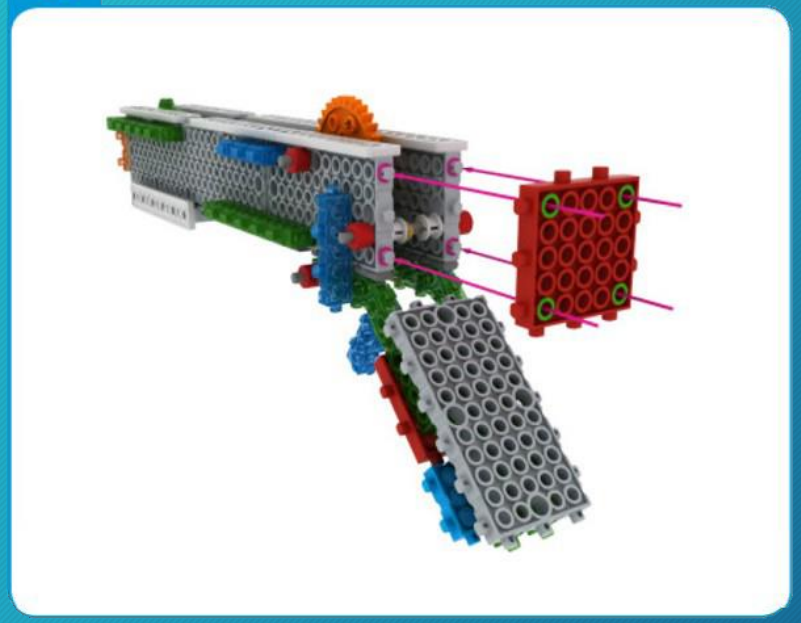
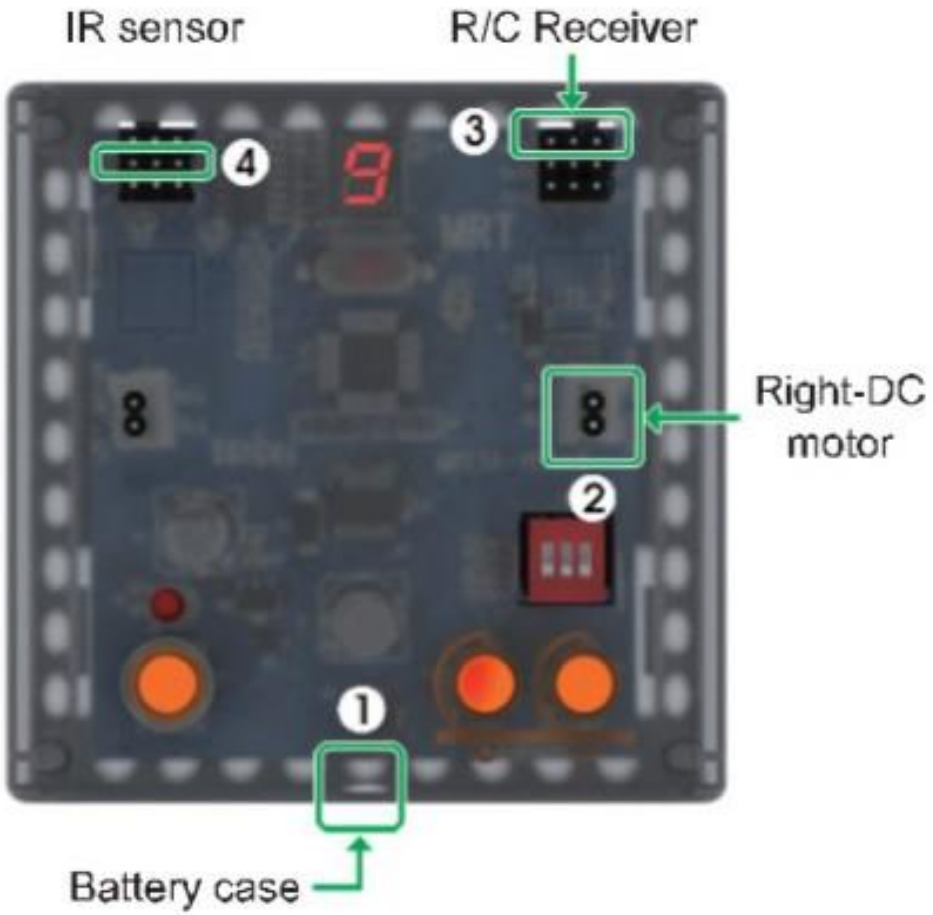


End

Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect DC motor to Right-motor connector.
3. Connect Remote Control to R/C connector.
4. Connect IR Sensor to C connector.

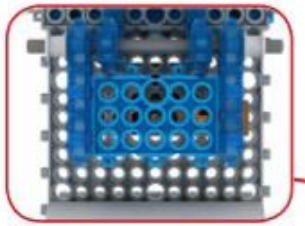
Setting mode

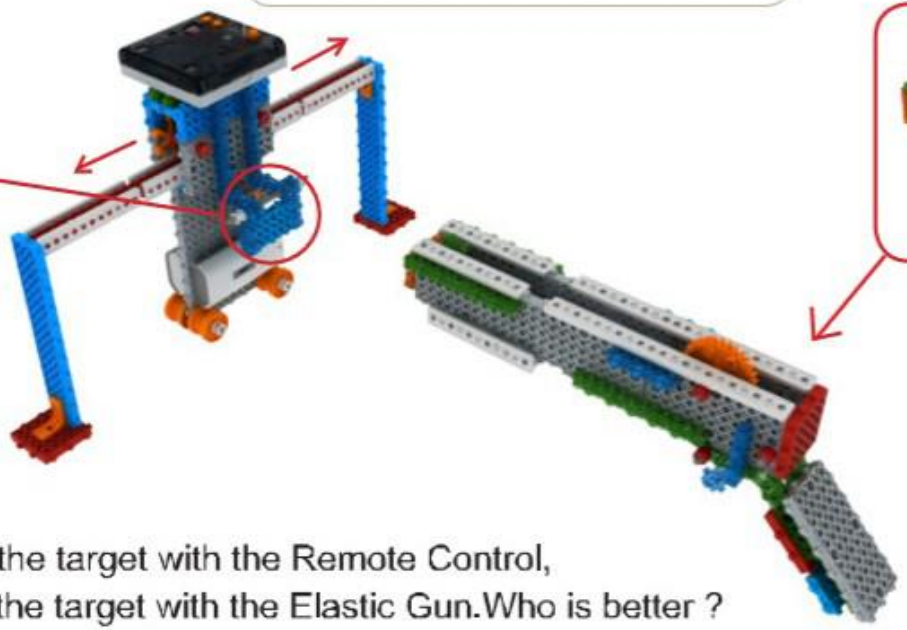
1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

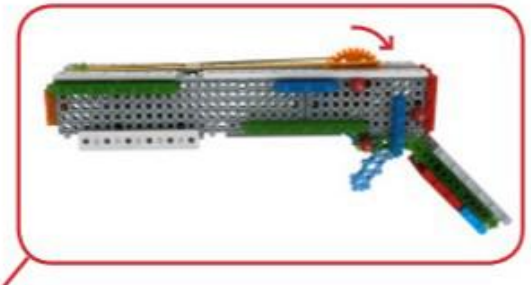
MODE # 9		Remote Control +Touch Mode

4. Select Remote ID.
5. Press the START button.

How to make it move?





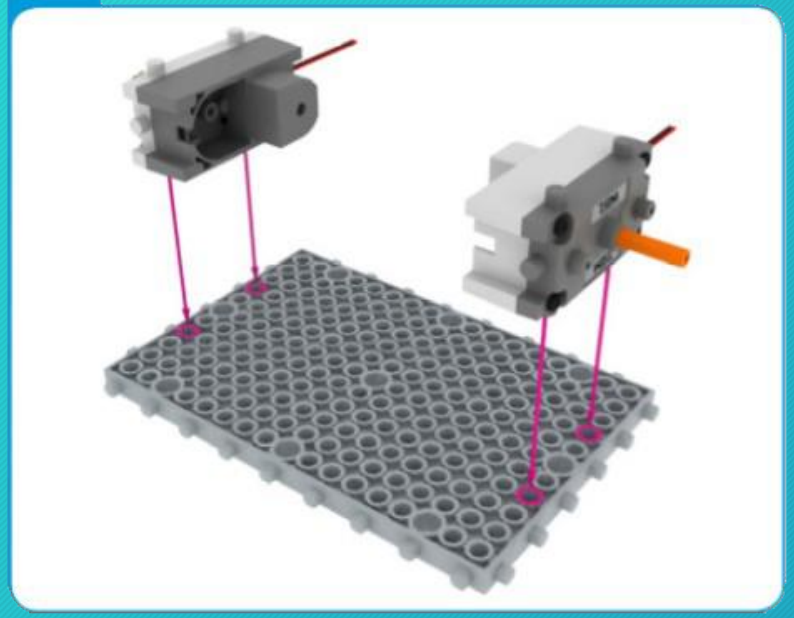


※ Shoot to the center if hit it,the target will stop for a while.

※ one friend control the target with the Remote Control, other friend shoot the target with the Elastic Gun.Who is better ?

Car And Car Key

1



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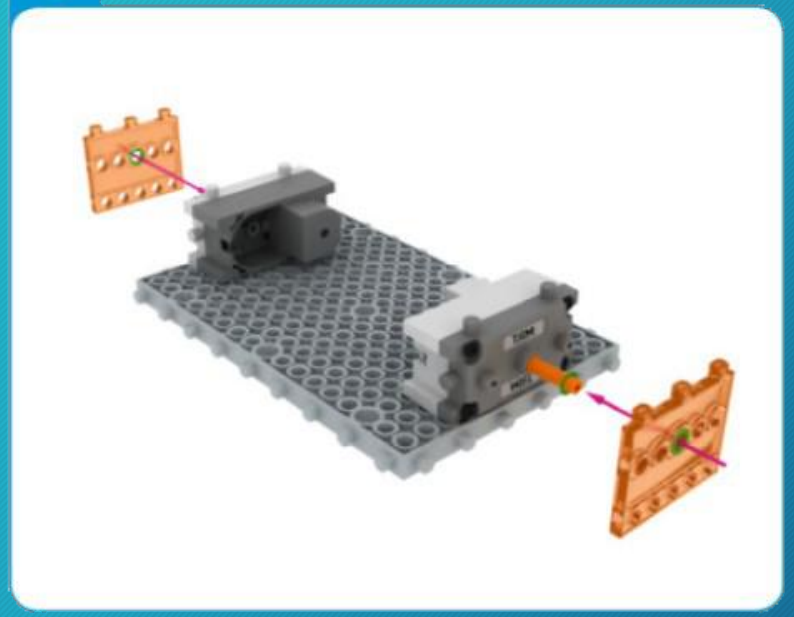

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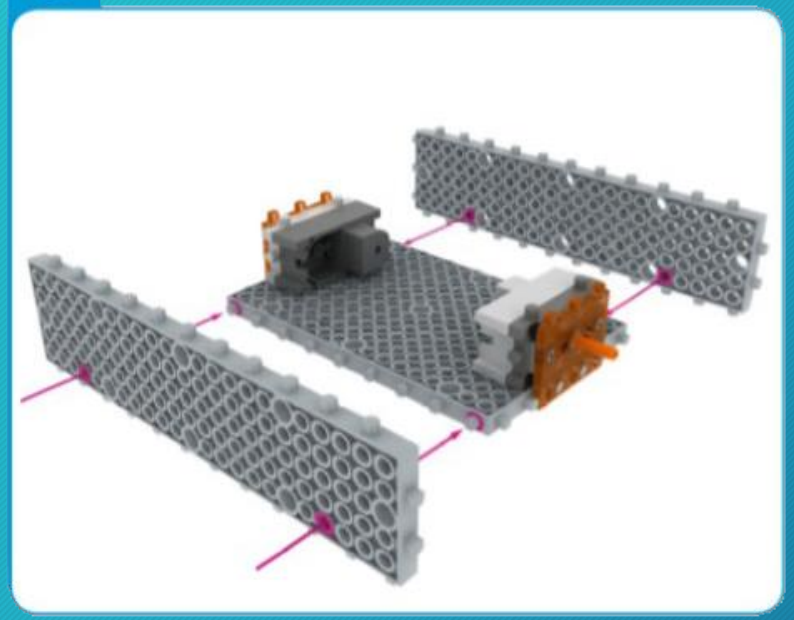

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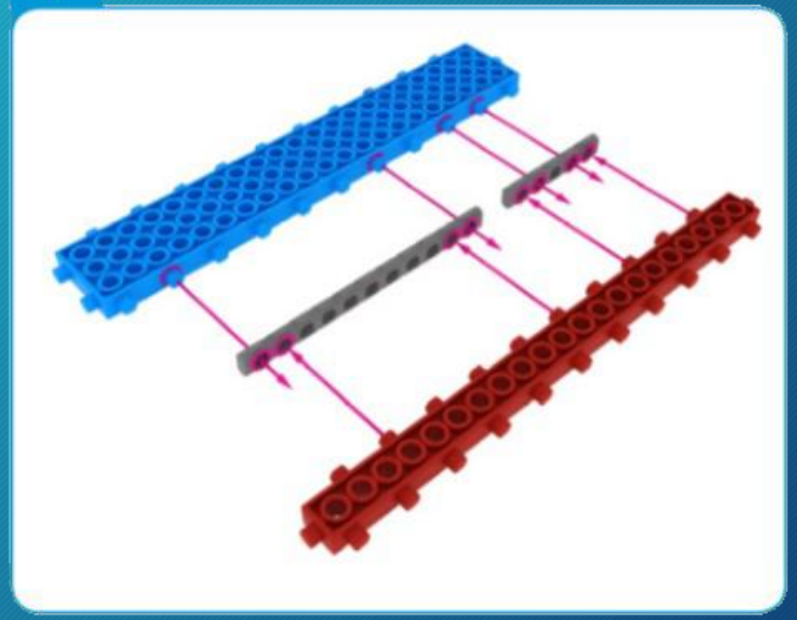

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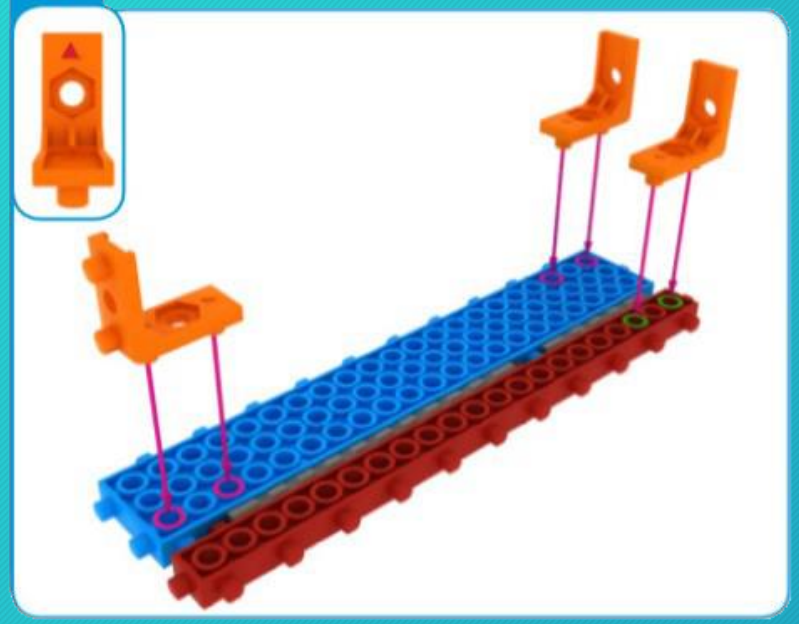

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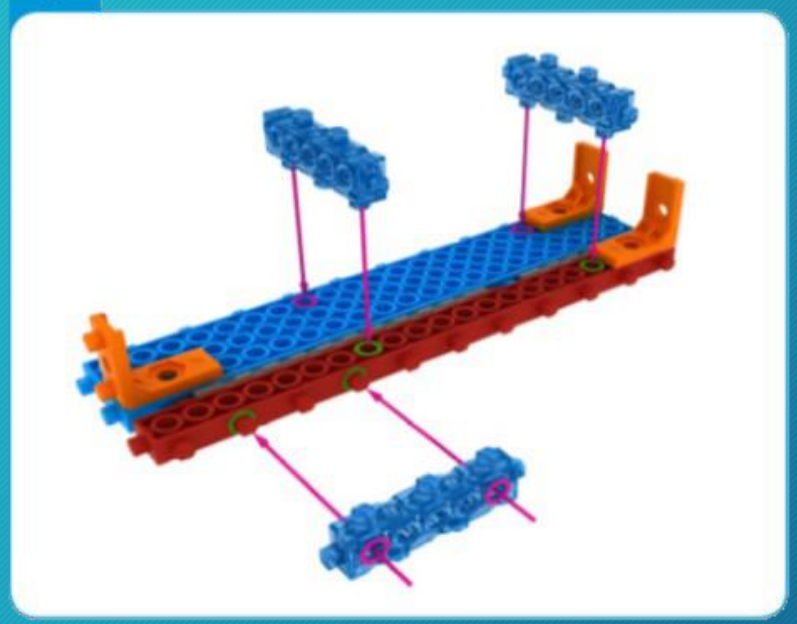

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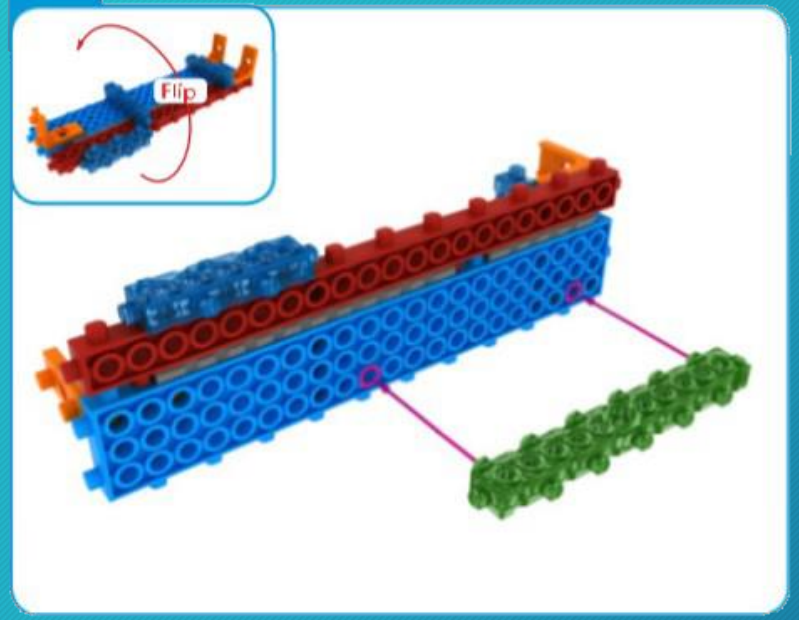

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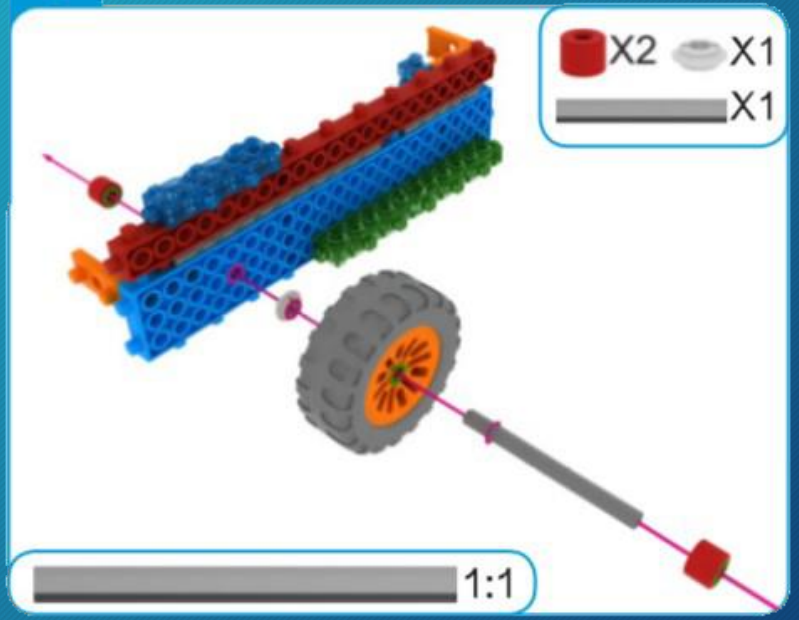

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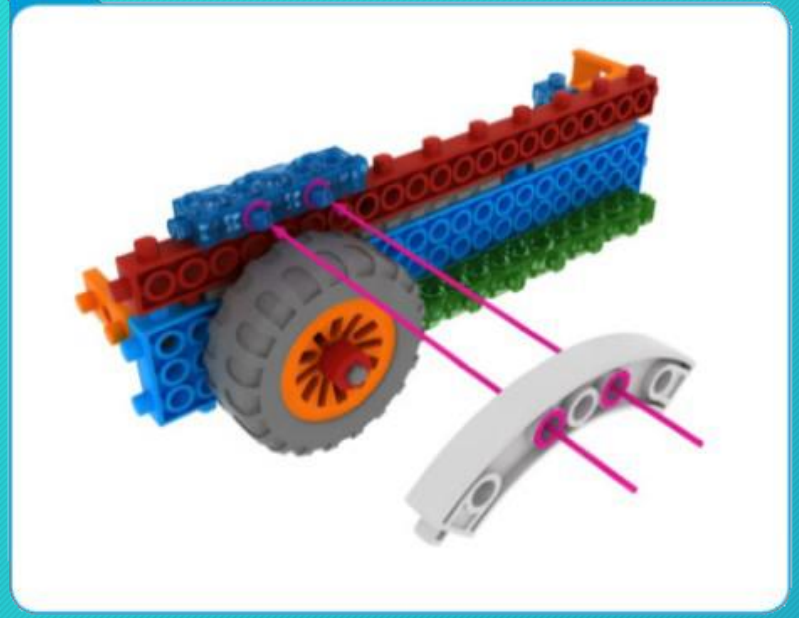

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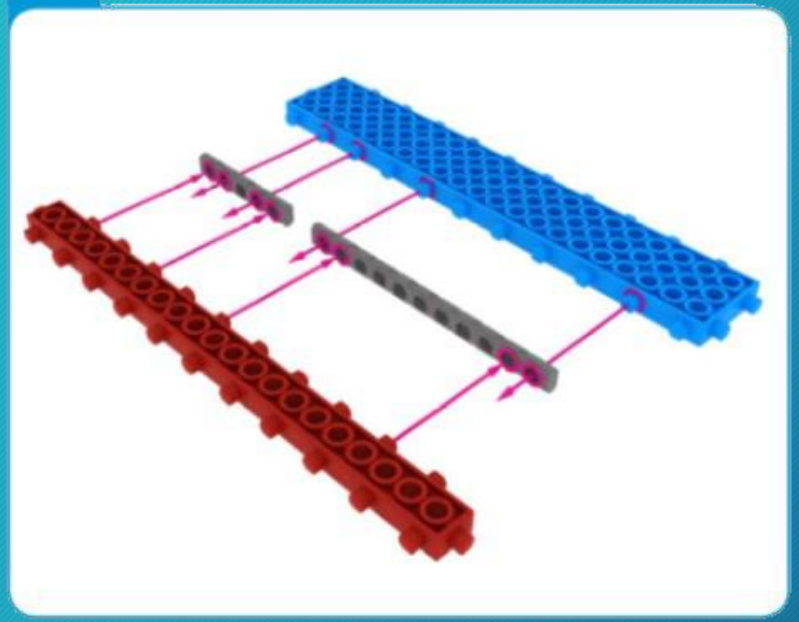

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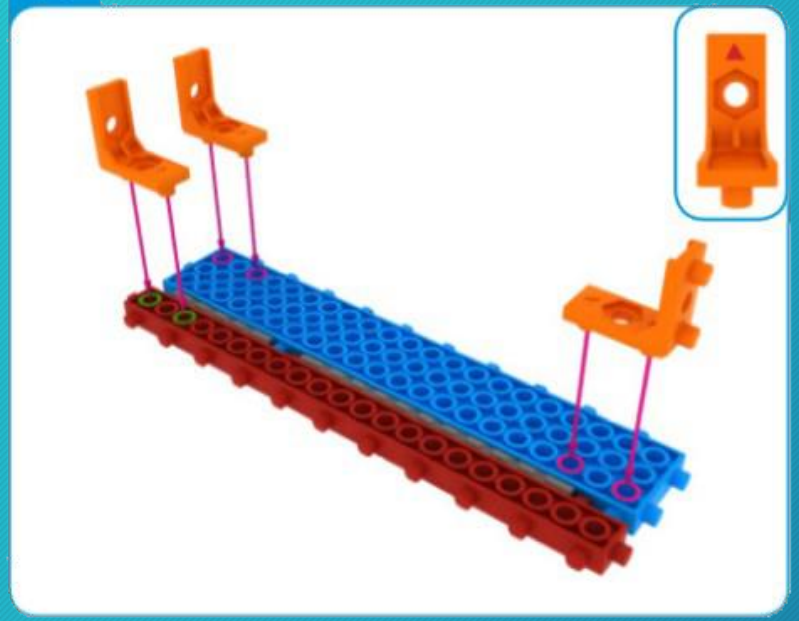

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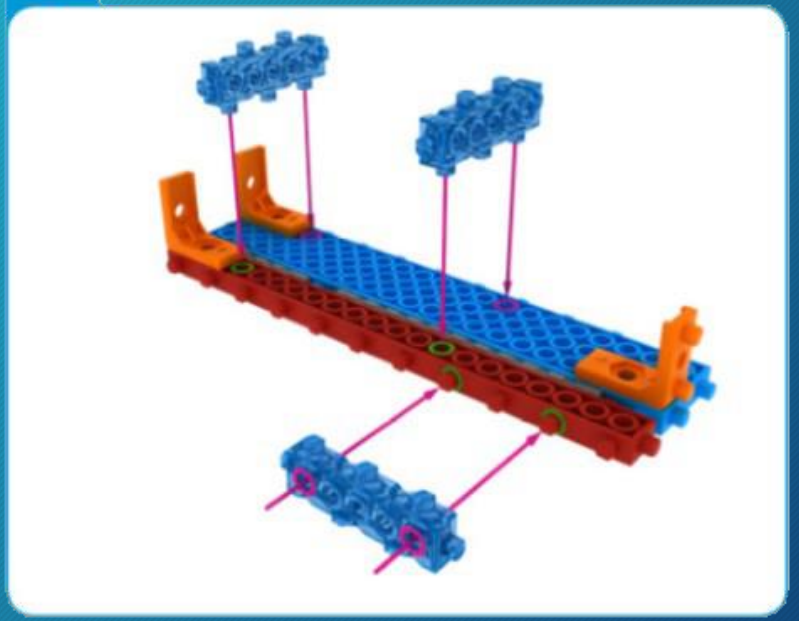

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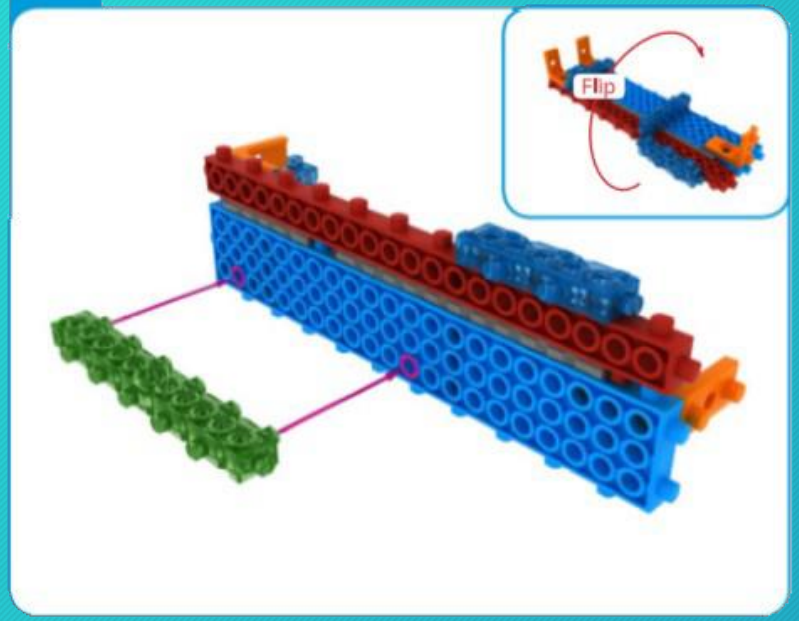

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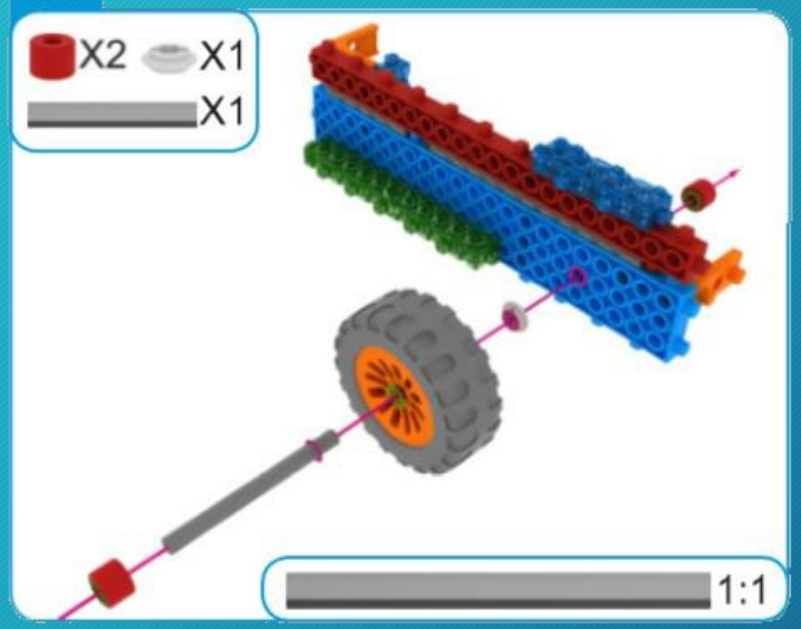

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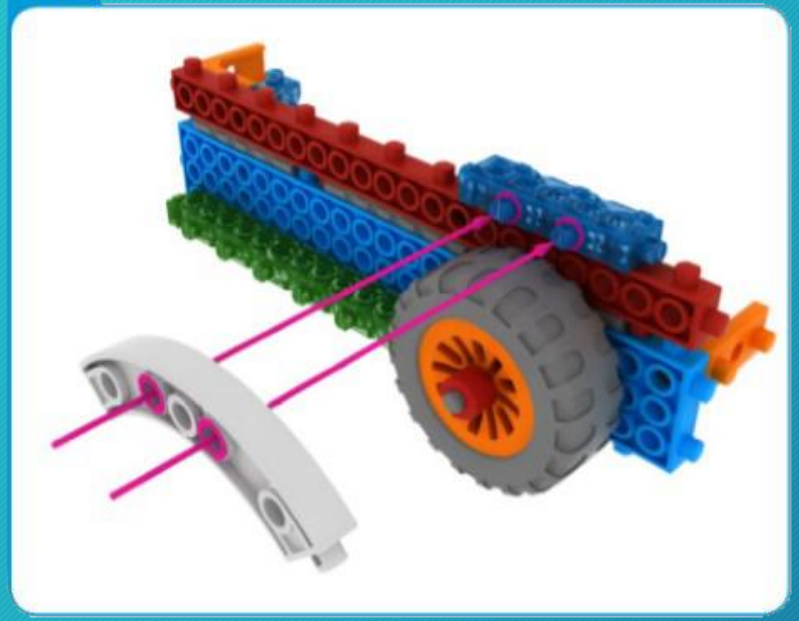

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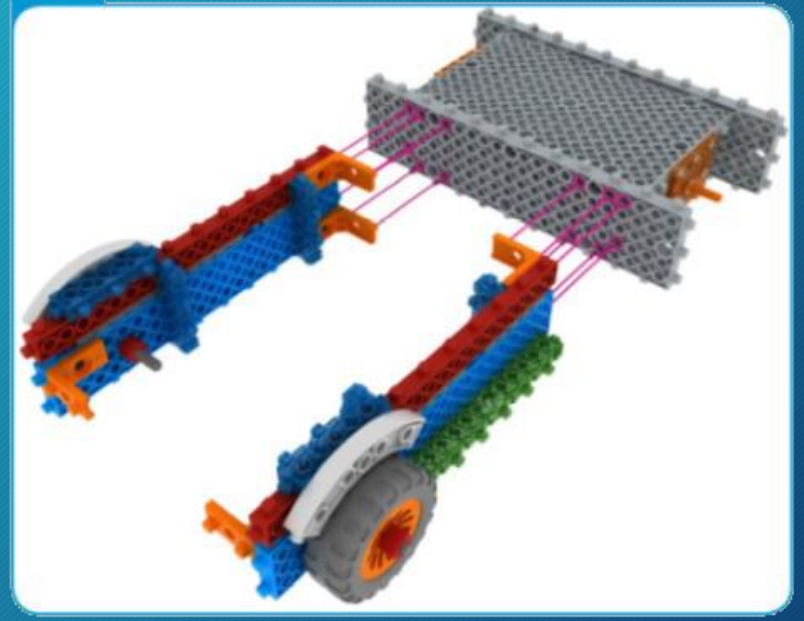

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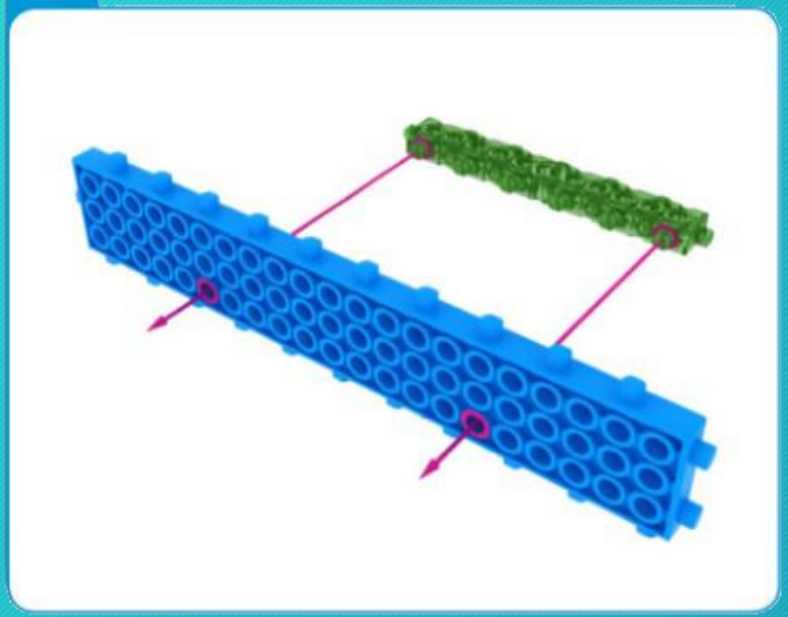

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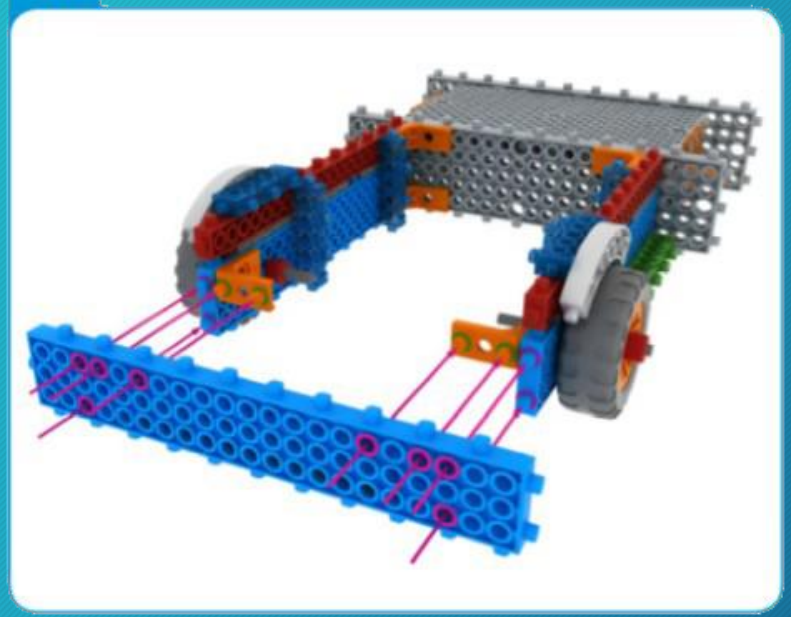

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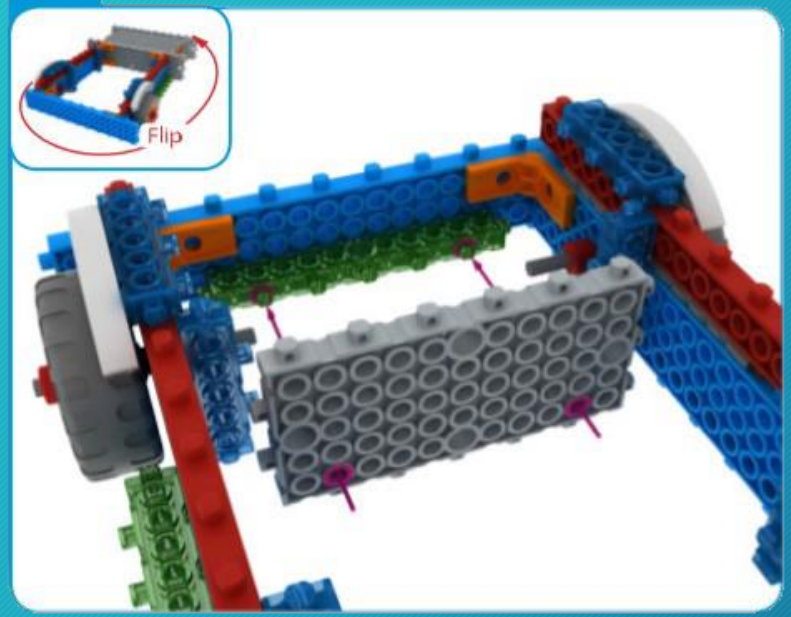

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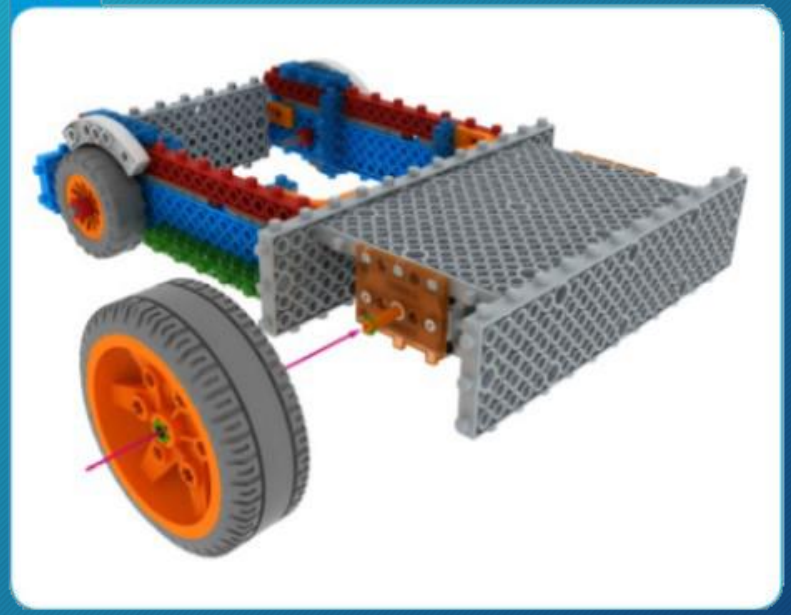

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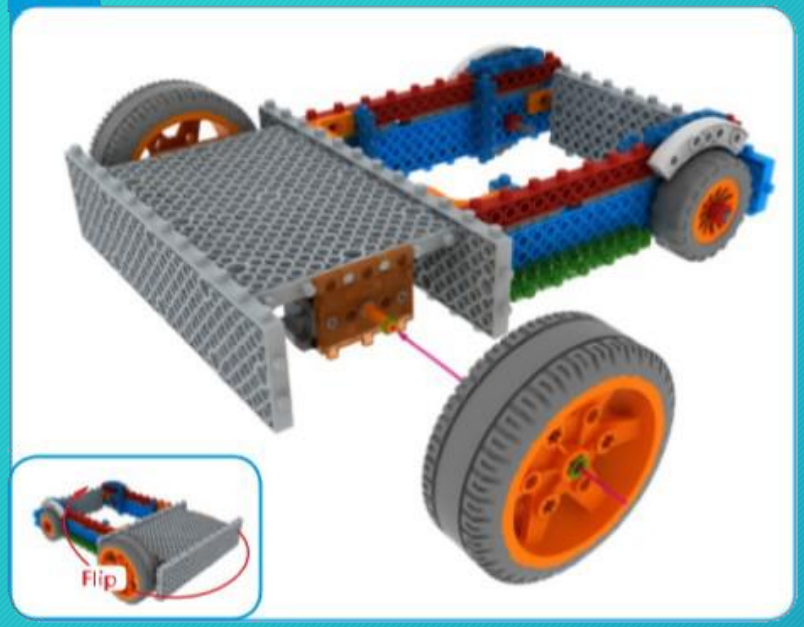

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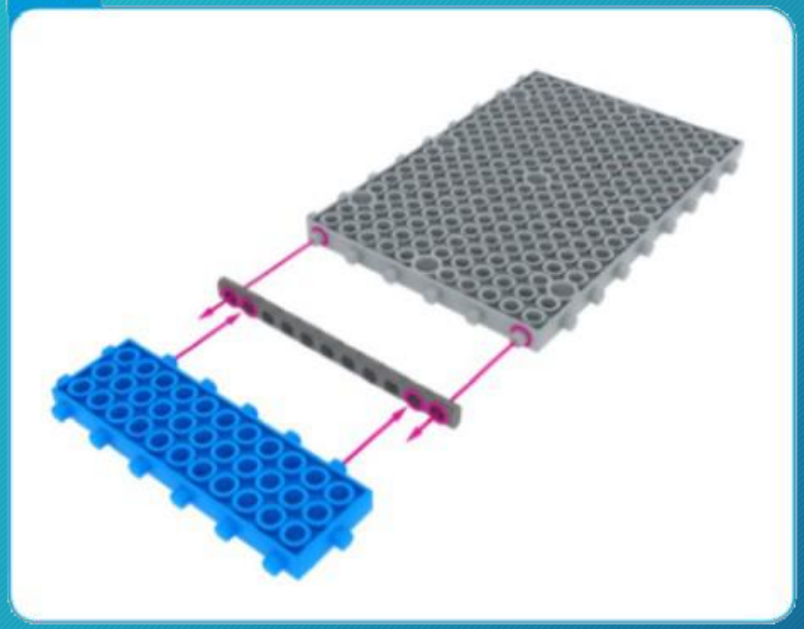

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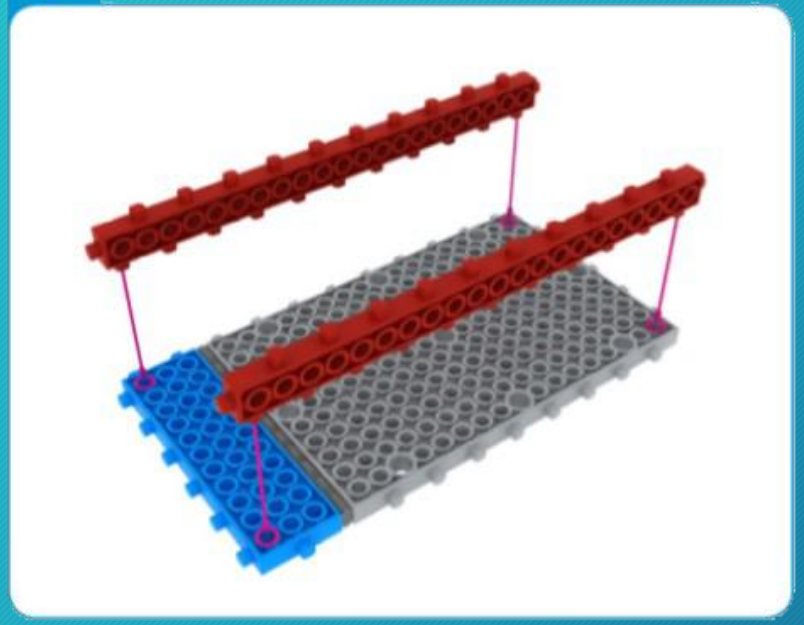

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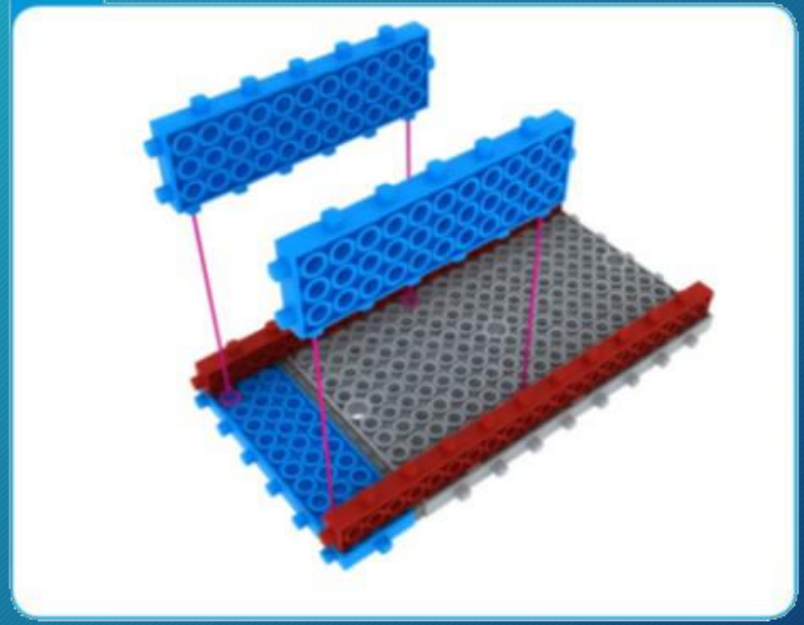

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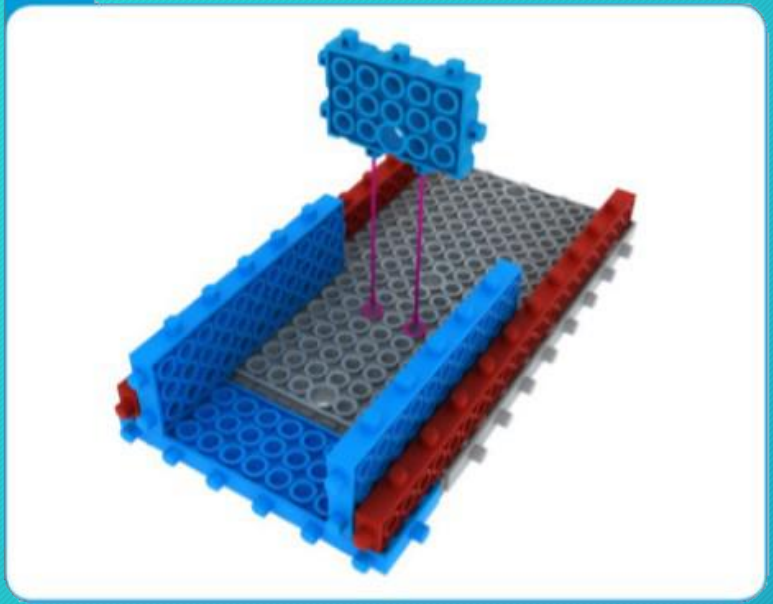

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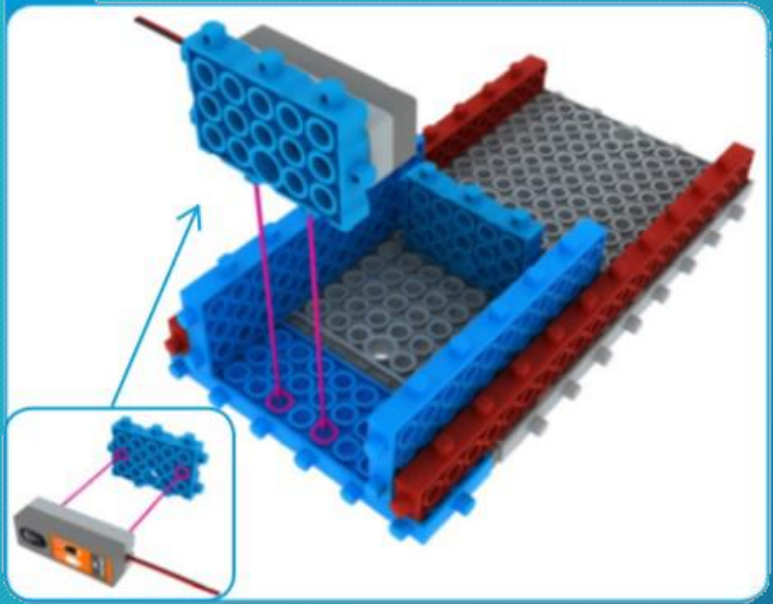

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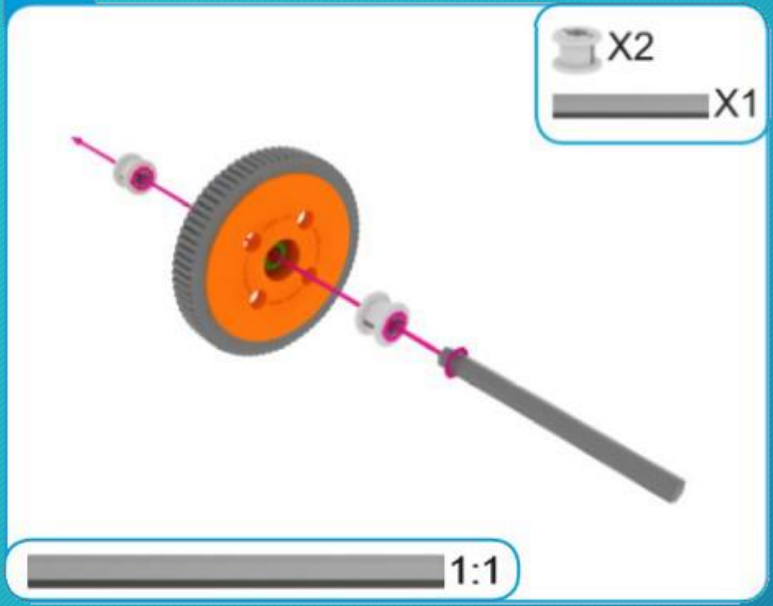

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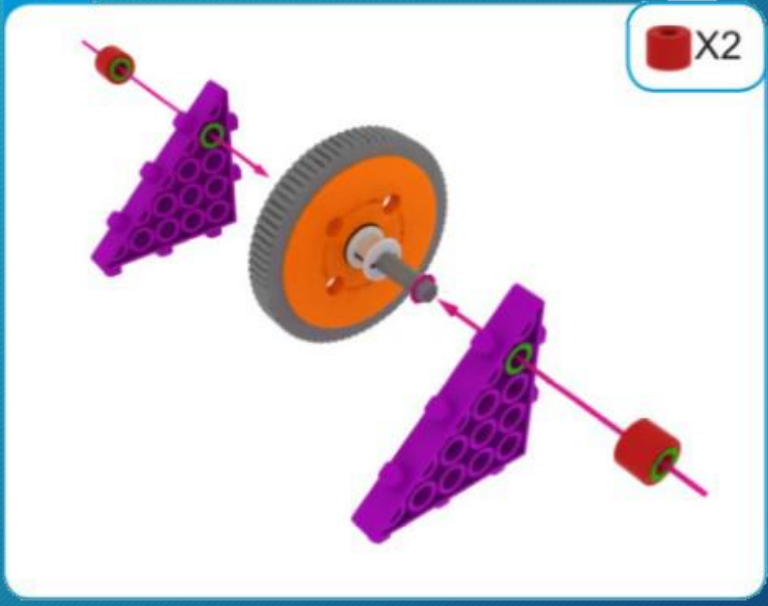

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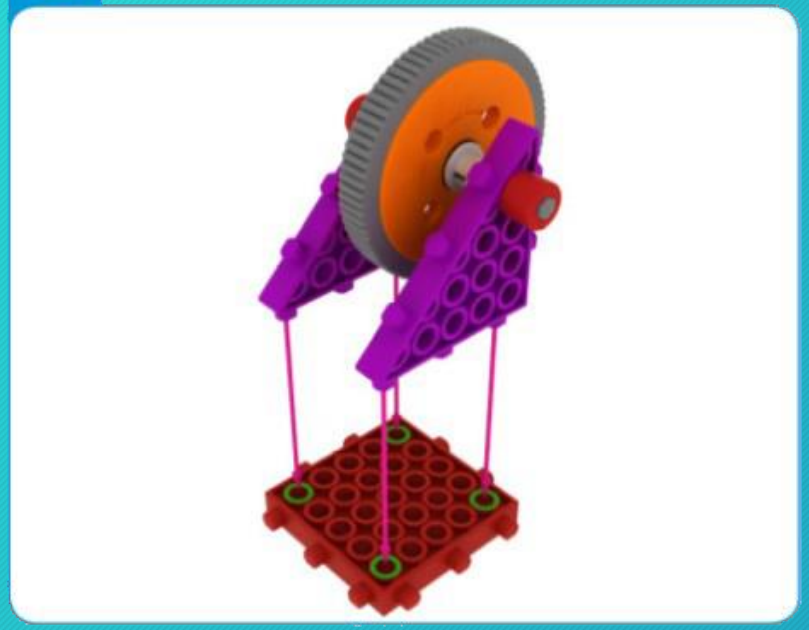

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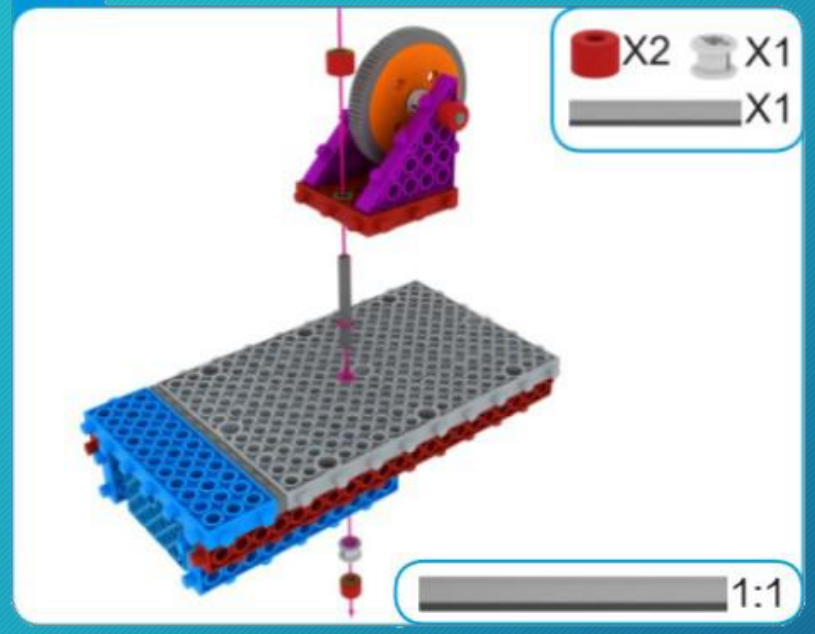

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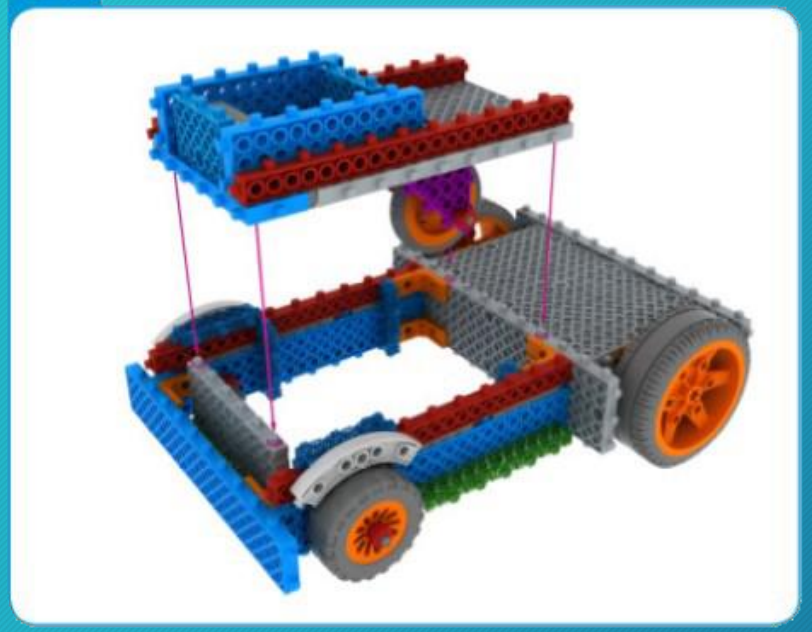

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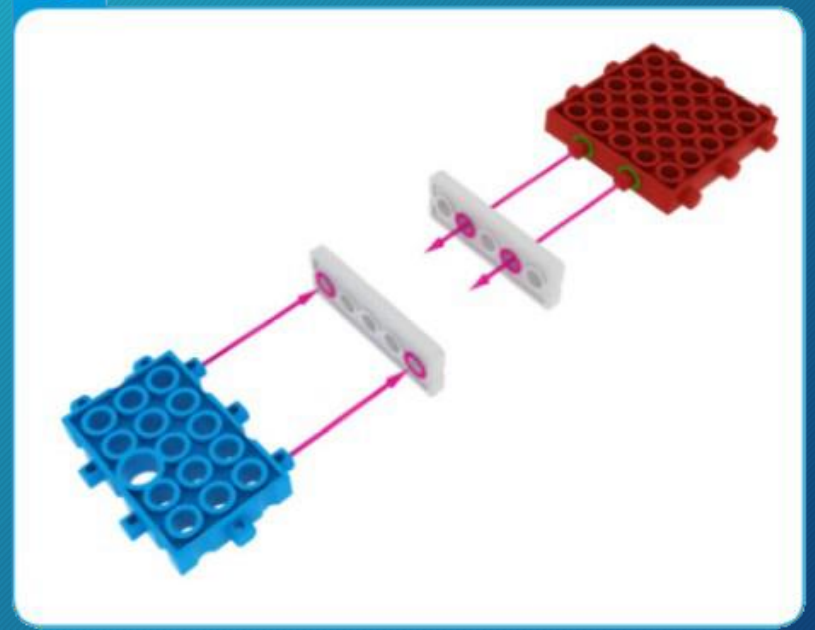

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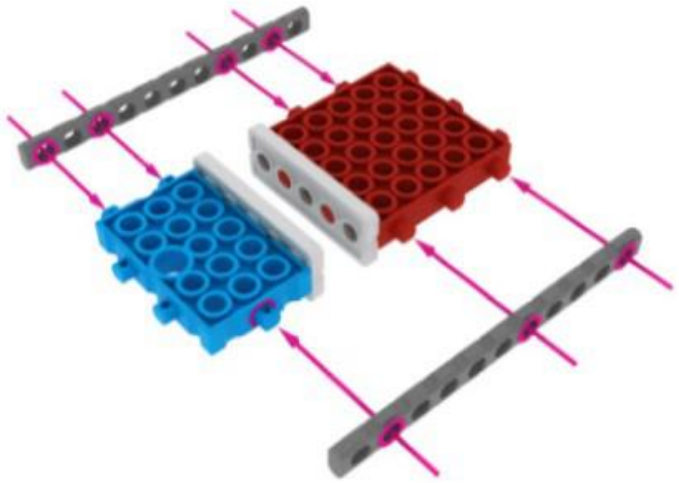

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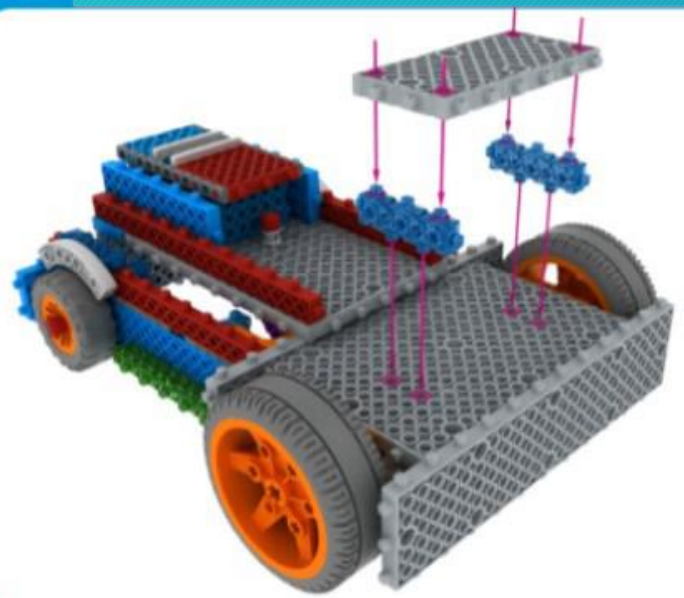

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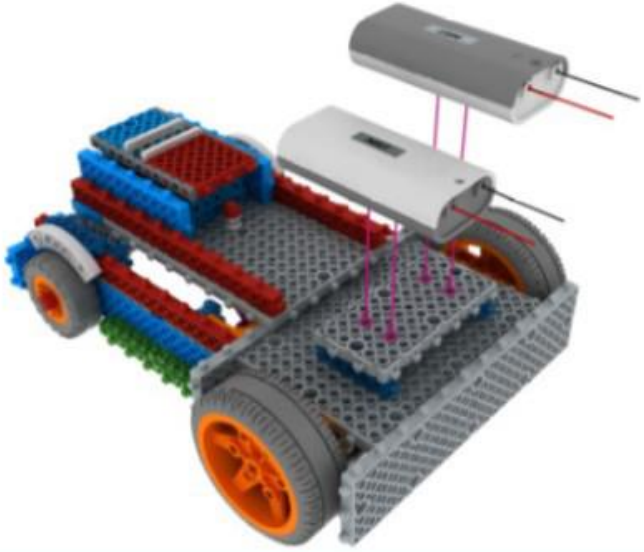

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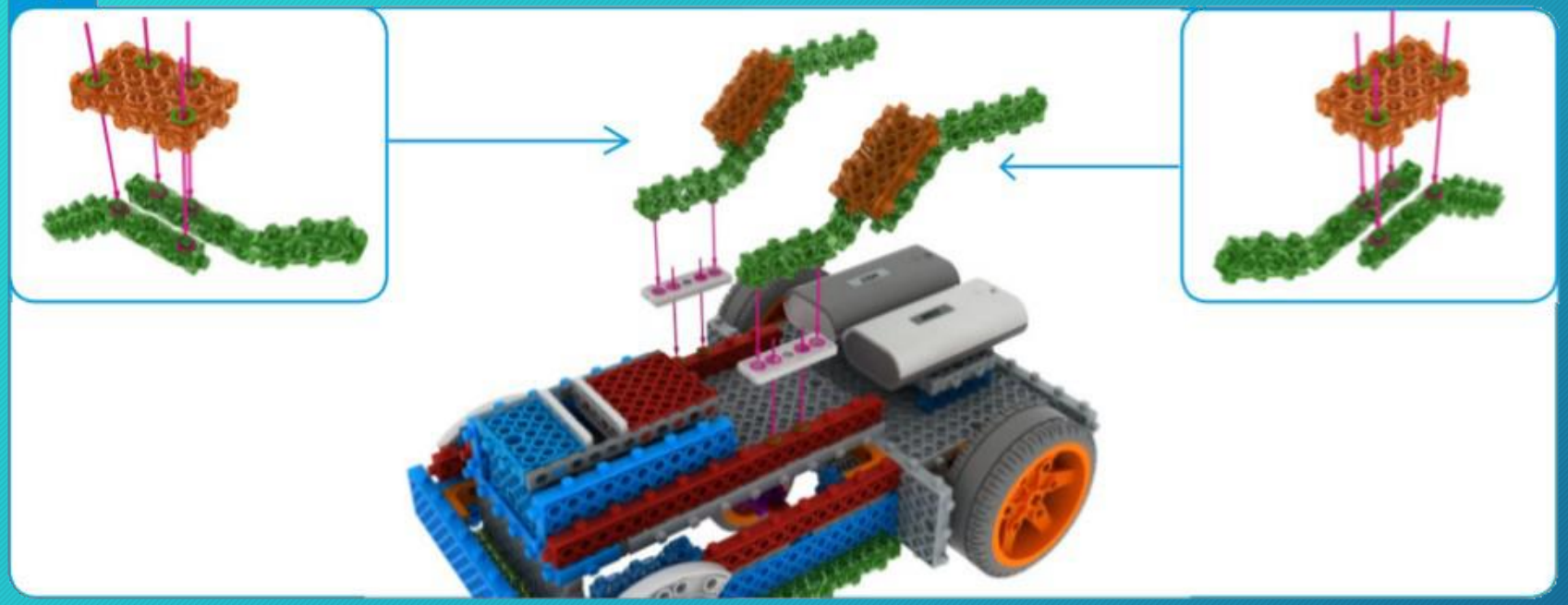

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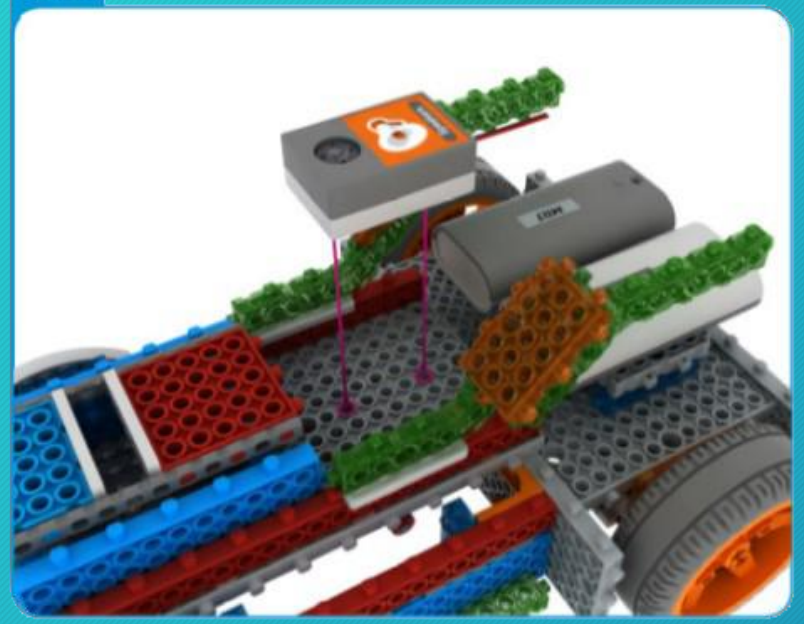

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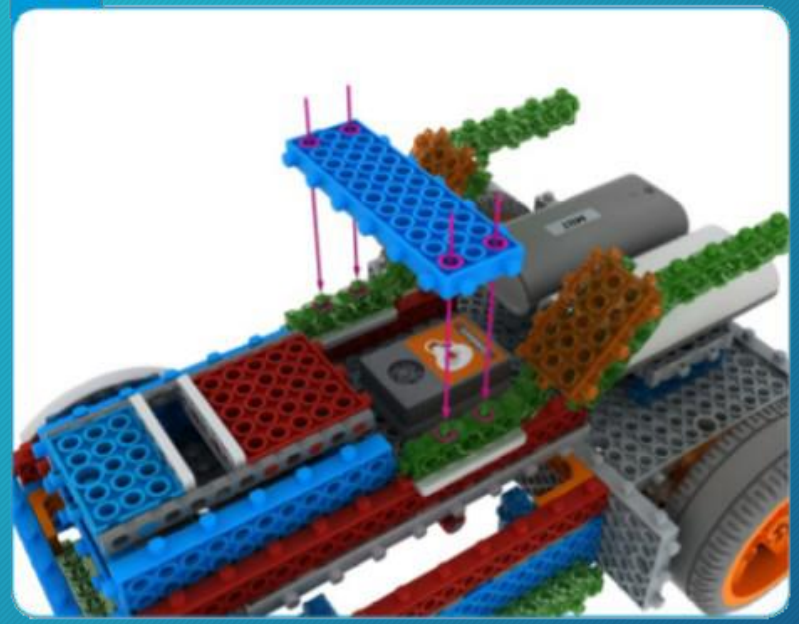

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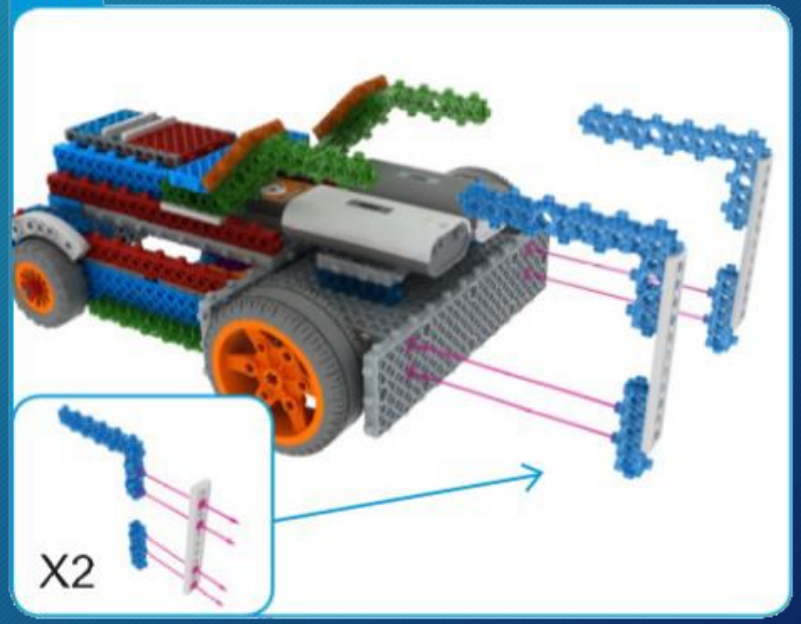

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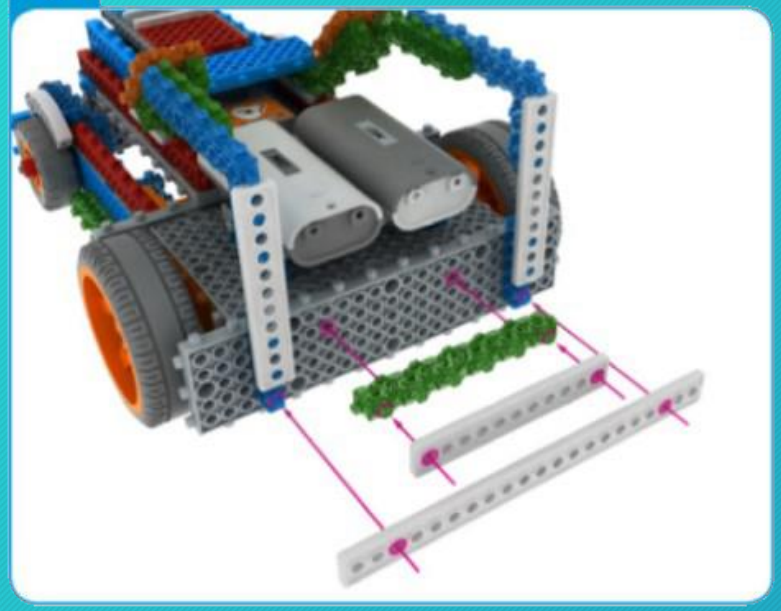

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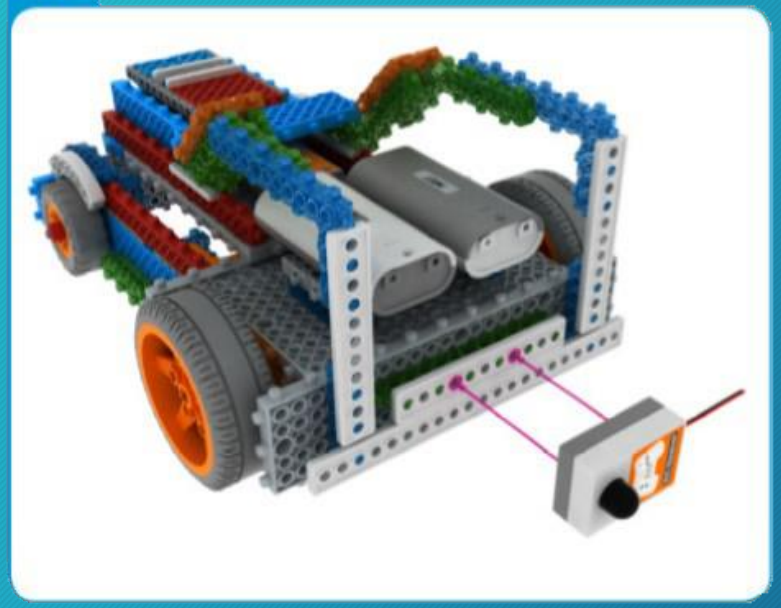

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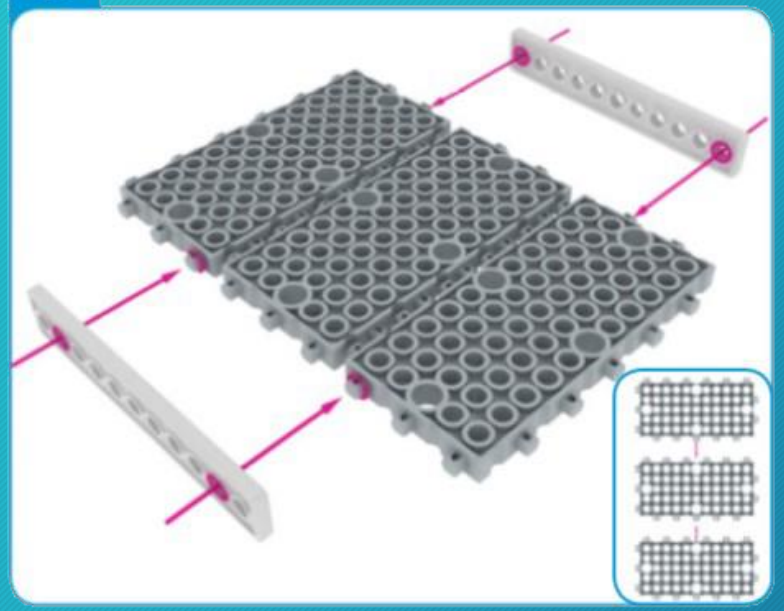

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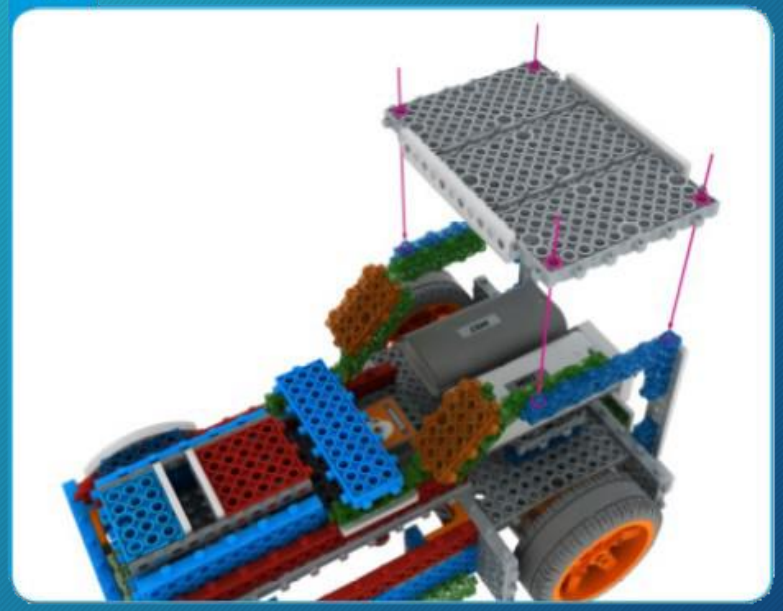

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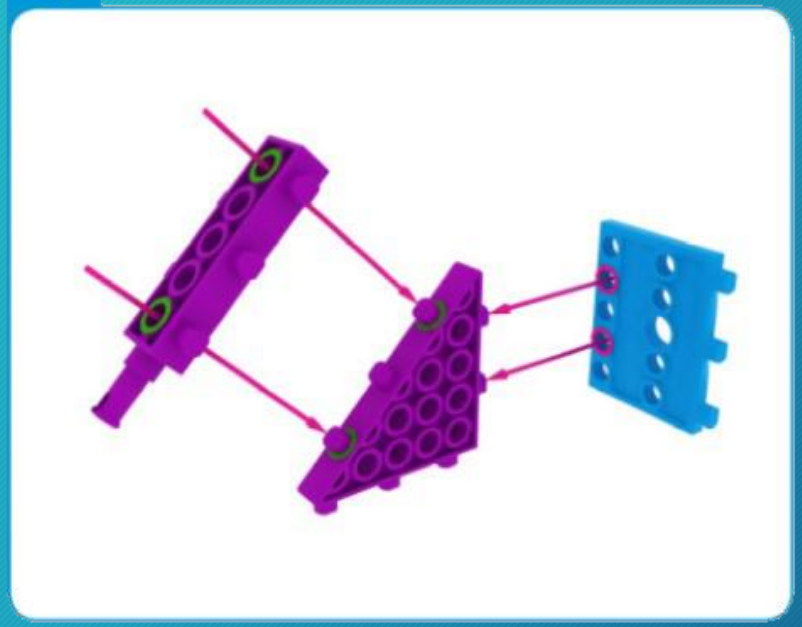

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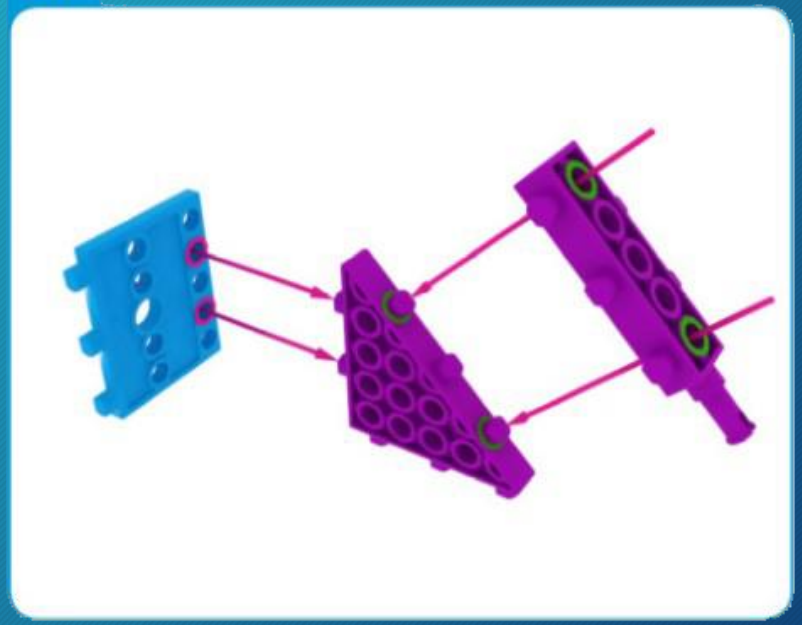

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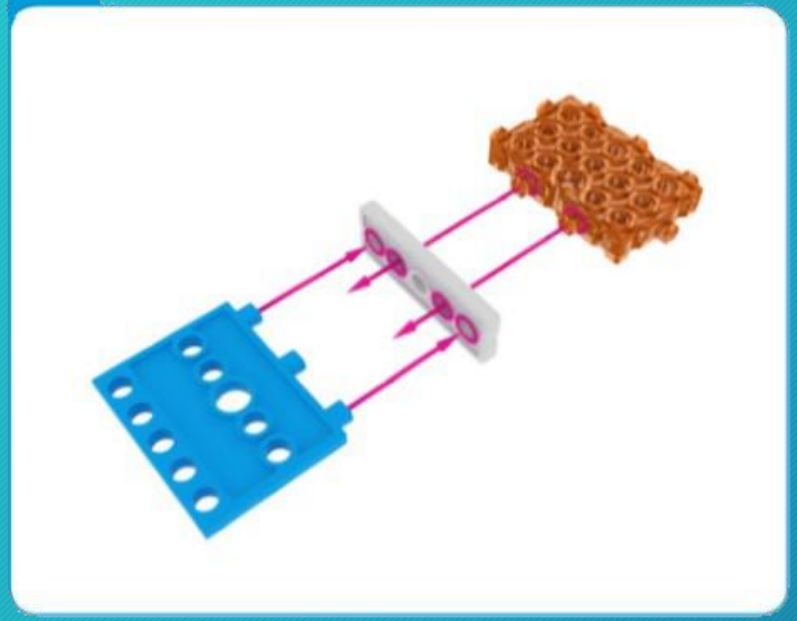

End

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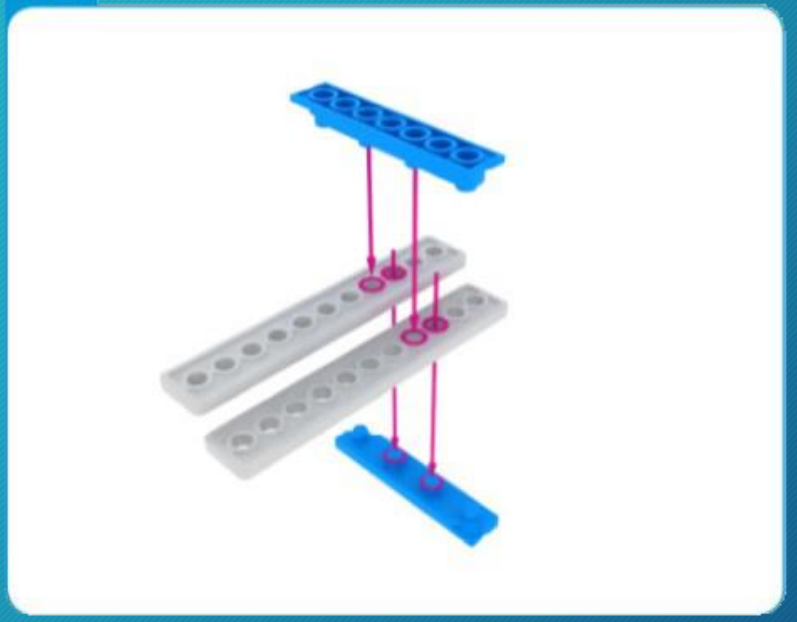
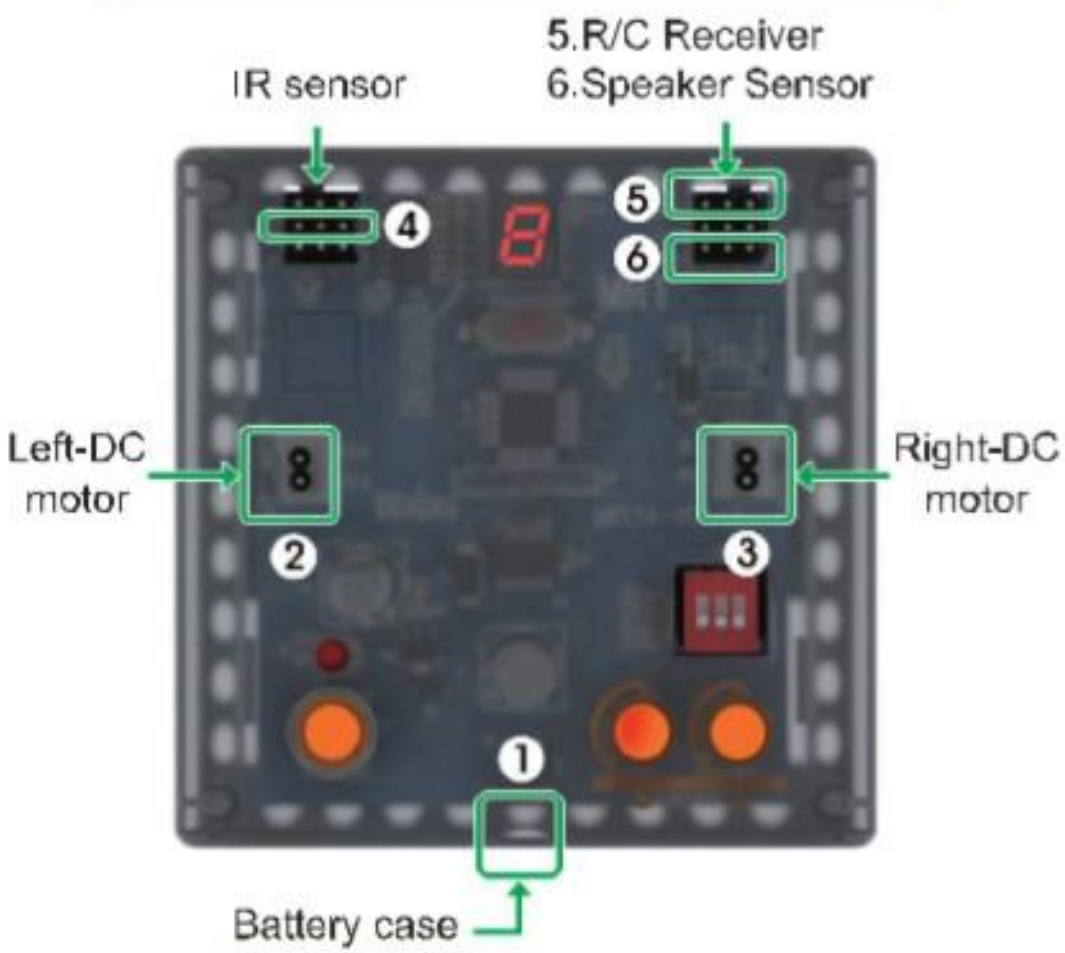


Connecting the main board



Connect in this order.

1. Connect Battery Cases to Power connector.
2. Connect Left-DC motor to Left-motor connector.
3. Connect Right-DC motor to Right-motor connector.
4. Connect IR sensor to C connector.
5. Connect R/C Receiver to R/C connector.
6. Connect Speaker Sensor to IN2 connector.

Setting mode

1. Ensure battery case/DC Motor Connector are connected.
2. Turn on the power.
3. Press the MODE button and select as the follow mode.

MODE # 8		Remote Control +IR Mode

4. Select Remote ID.
5. Press the START button.

How to make it move?

※ Make sure your car key insert into the slot and start with sound.