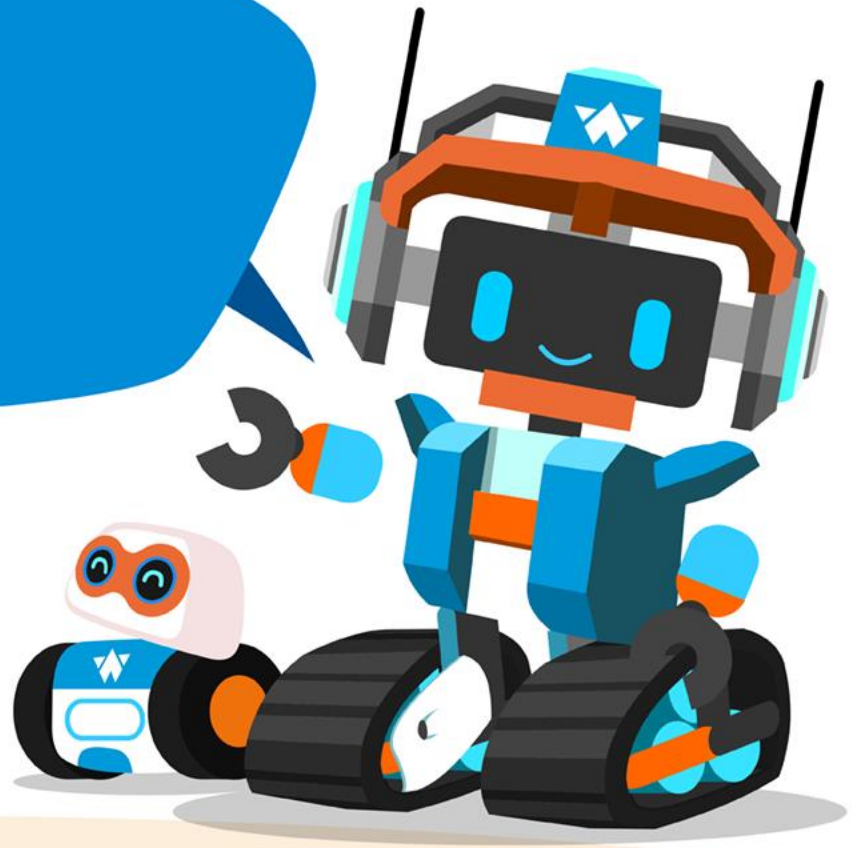
ENJOY AI 2024

INTERSTELLAR JOURNEY

CLOSING CEREMONY OF SPORTS

Task Analysis (Part 4)

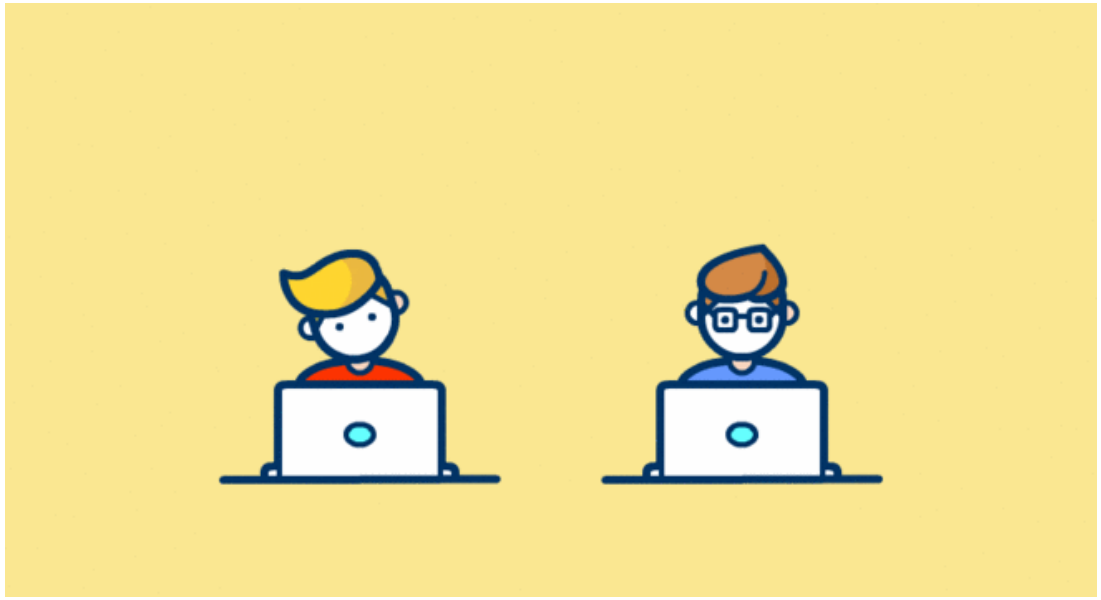


Objectives:

1. In-depth analysis of task requirements and scoring rules
2. Design solutions
3. Write programs to finish the tasks

5+

Review



After three lessons, we have completed most of the tasks. Let's take a look at the rest tasks!

Review

1. What problems did we meet when doing tasks in the previous lesson?

2. When the program starts, we may find that the robot doesn't accurately follow lines. Which code blocks could we try to use instead to prevent this issue?

3. In the process of flag handover, how can the magnet be placed at the junction part of the flag?

Challenges

Challenges

Hi guys, let's move to the next task!

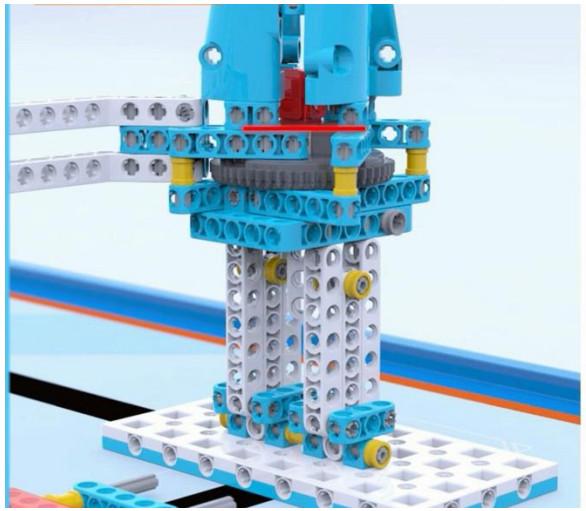
Challenges

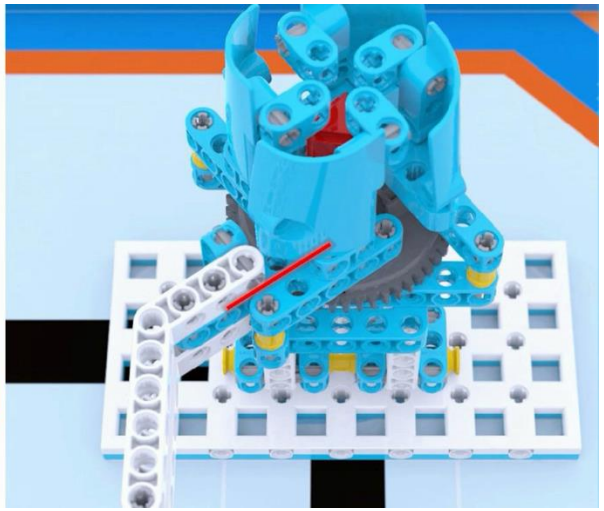
To watch detailed rule analysis, go to
https://www.youtube.com/watch?v=oitiXwSqGBM

To watch a demo, go to
https://www.youtube.com/watch?v=jn6KJHc9a2E

Task Analysis:
Torch Dousing

Challenges



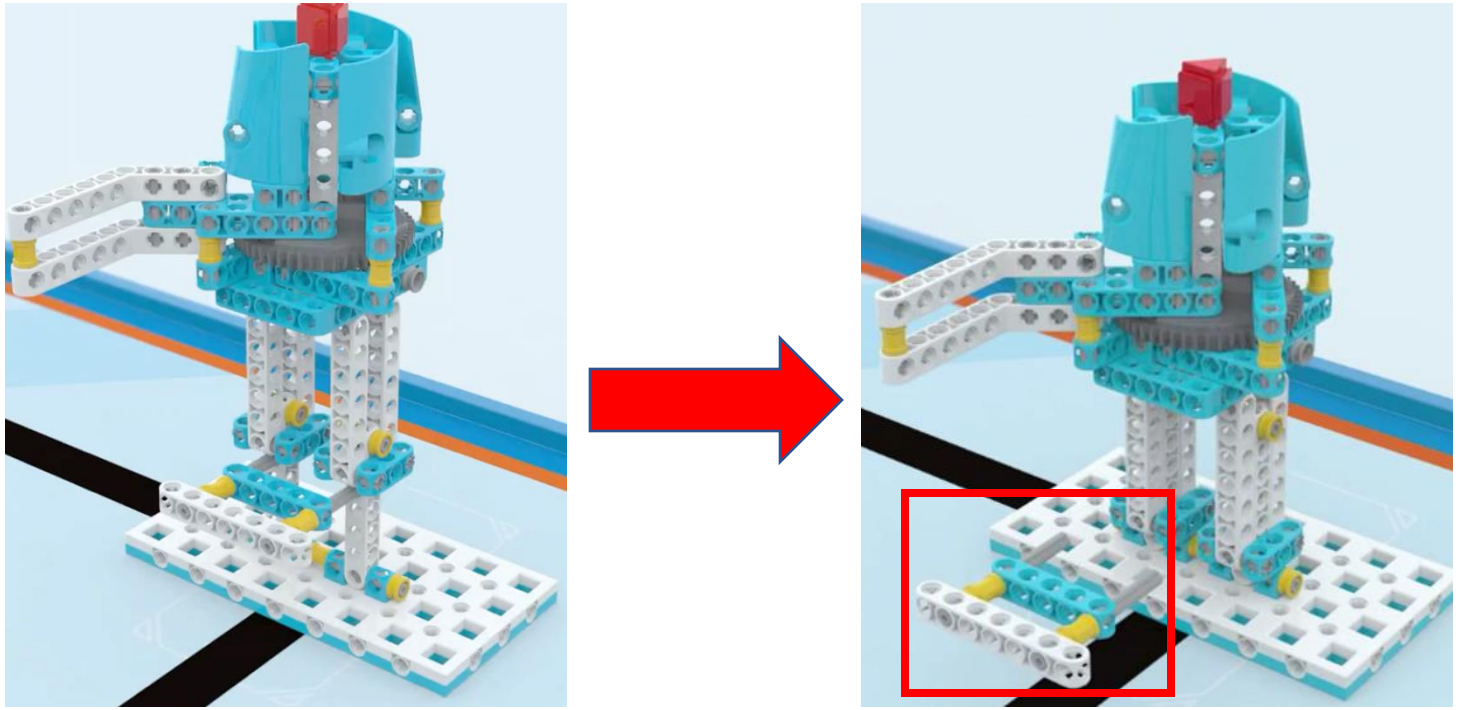


From what we saw in the last video, we need to pull out the lever first. Then, the torch contacts the wheel tooth chassis, and the two 50 beams contact.

Challenges

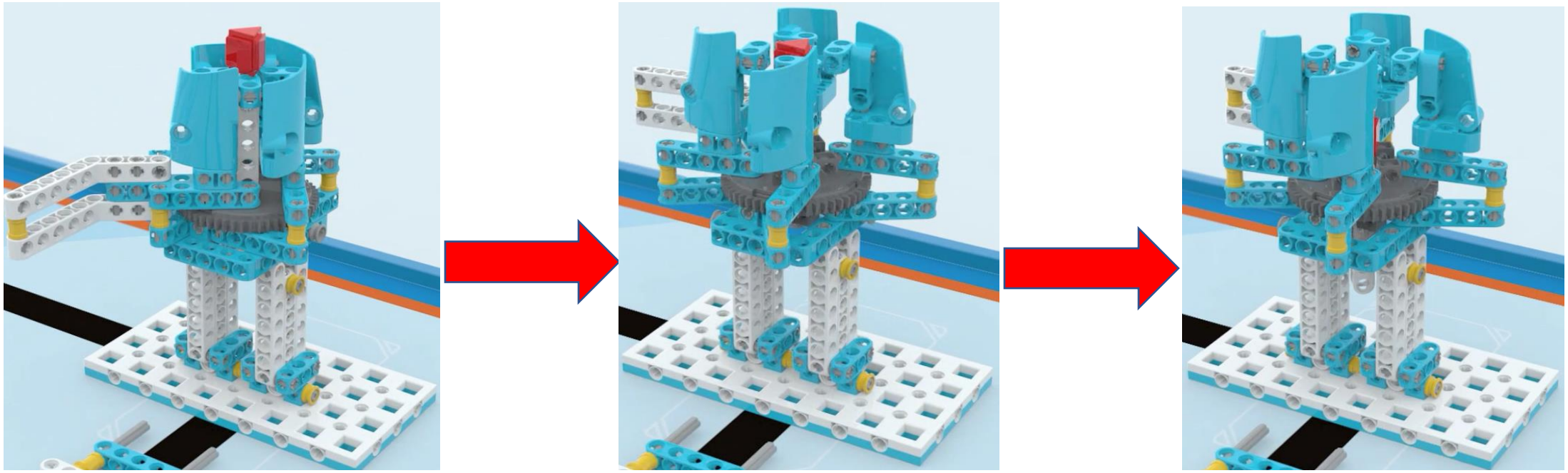
Everyone, before we start practicing this task, let’s learn how to win points in this task!

Challenges



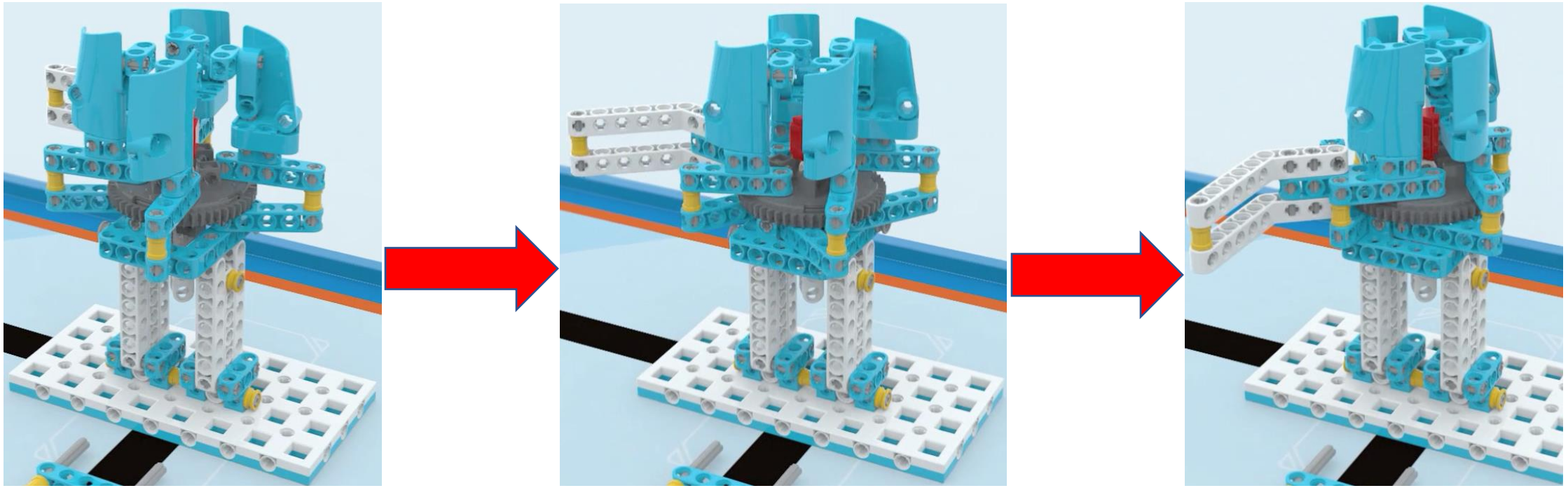
1. Pull out the lever to make the flame movable.

Challenges



2. Pull the toggle clockwise to loosen the shell and let the flame drop to the chassis.

Challenges



3. Pull the toggle back to restore the shell. You can win points in this task if the restrictor is pulled out of the task structure, the flame drops to the chassis, and the 50 beam of the toggle contacts another 50 beam.

Challenges

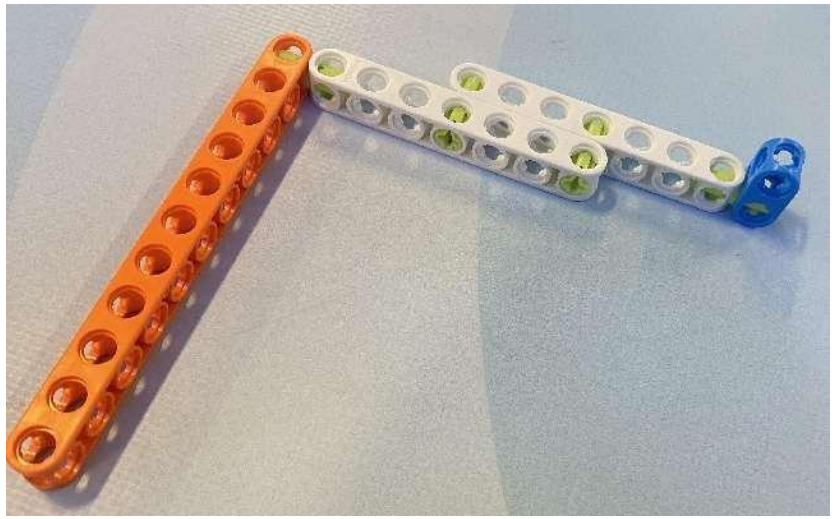
So, how can we build our robot? What parts do we need?

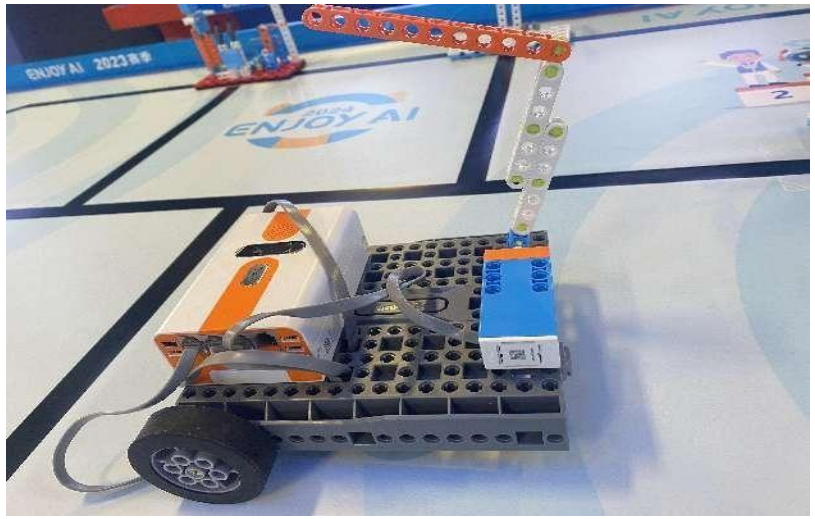
Challenges

The robot must be able to pull both the lever and the toggle.

Give it a go!

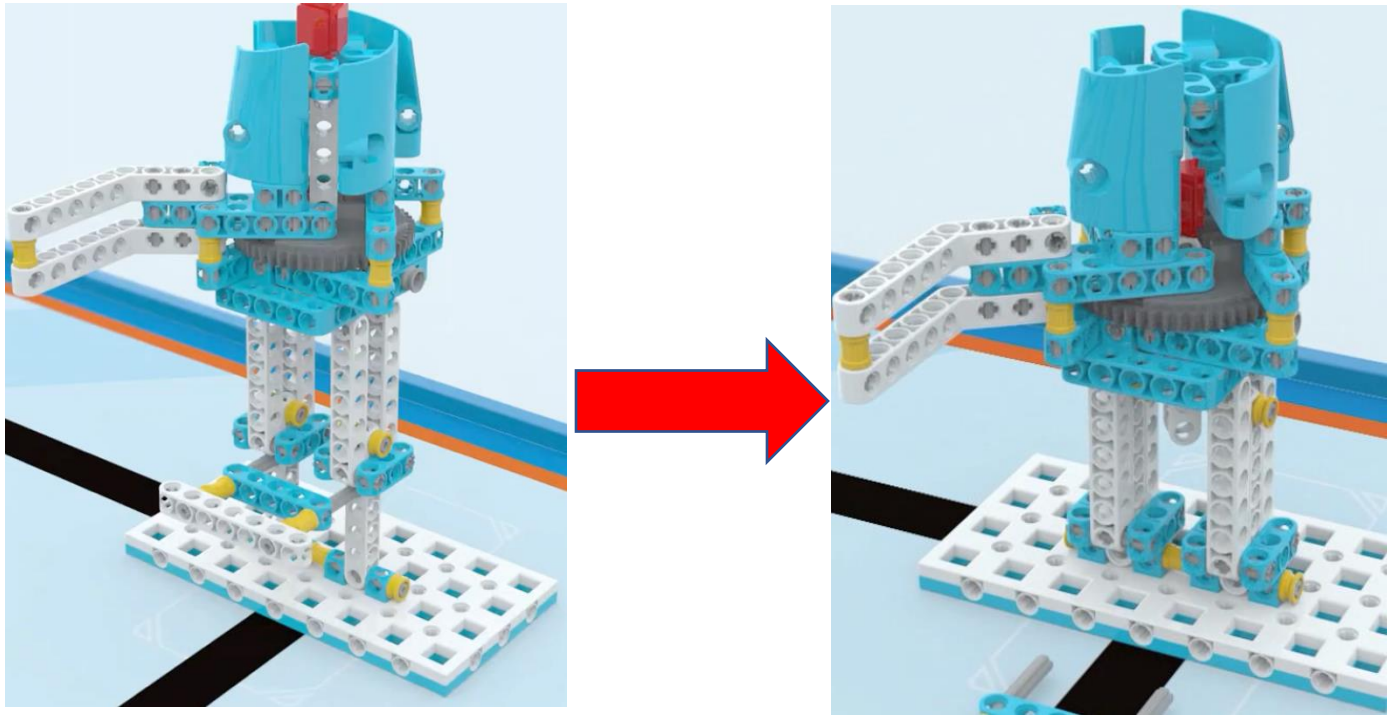
Challenges





Here’s our solution. Let’s install these parts and see what happens!

Challenges

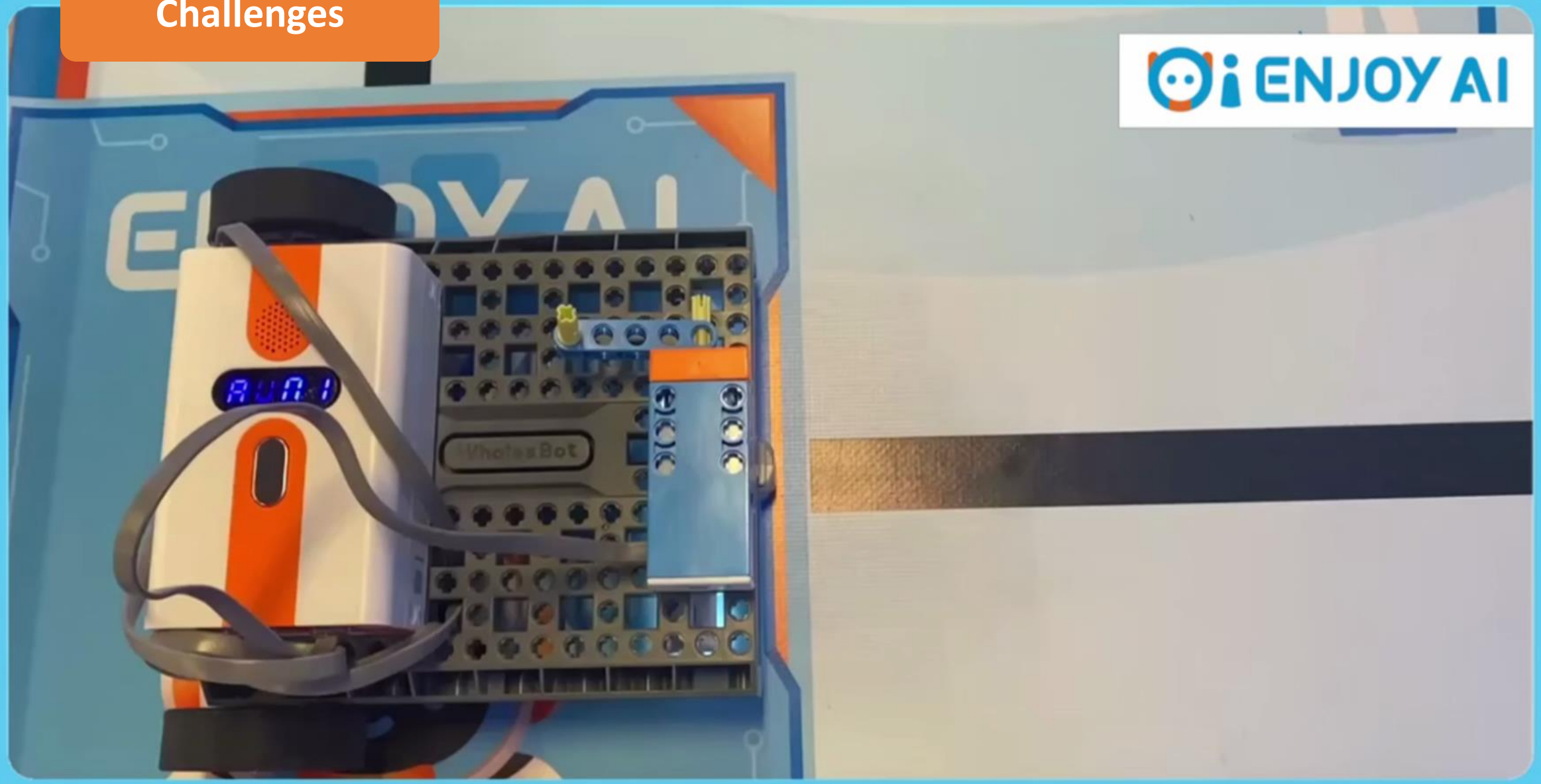


Try to write a program to complete this task!

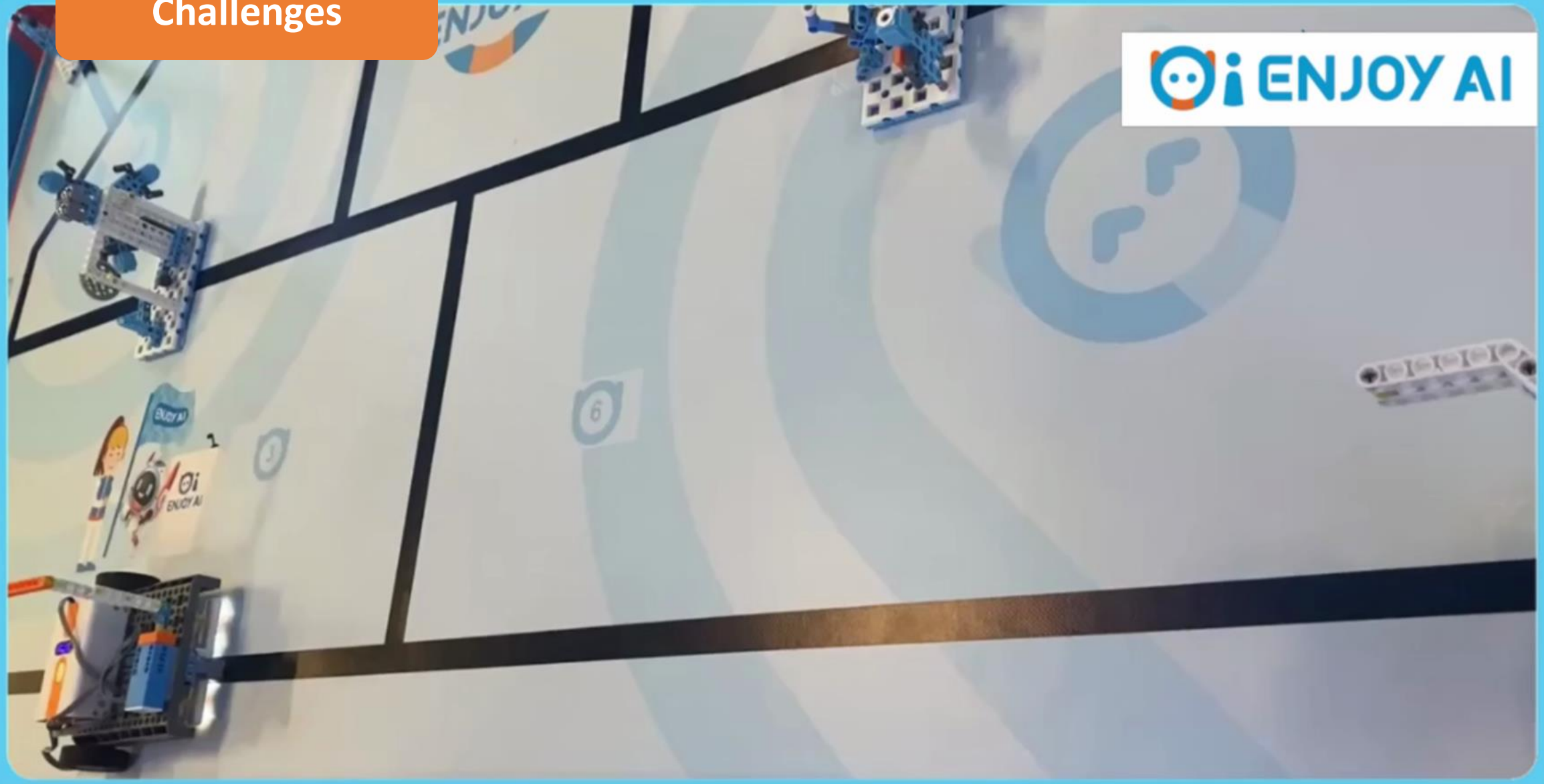
Challenges

The following videos provide demos of this task.

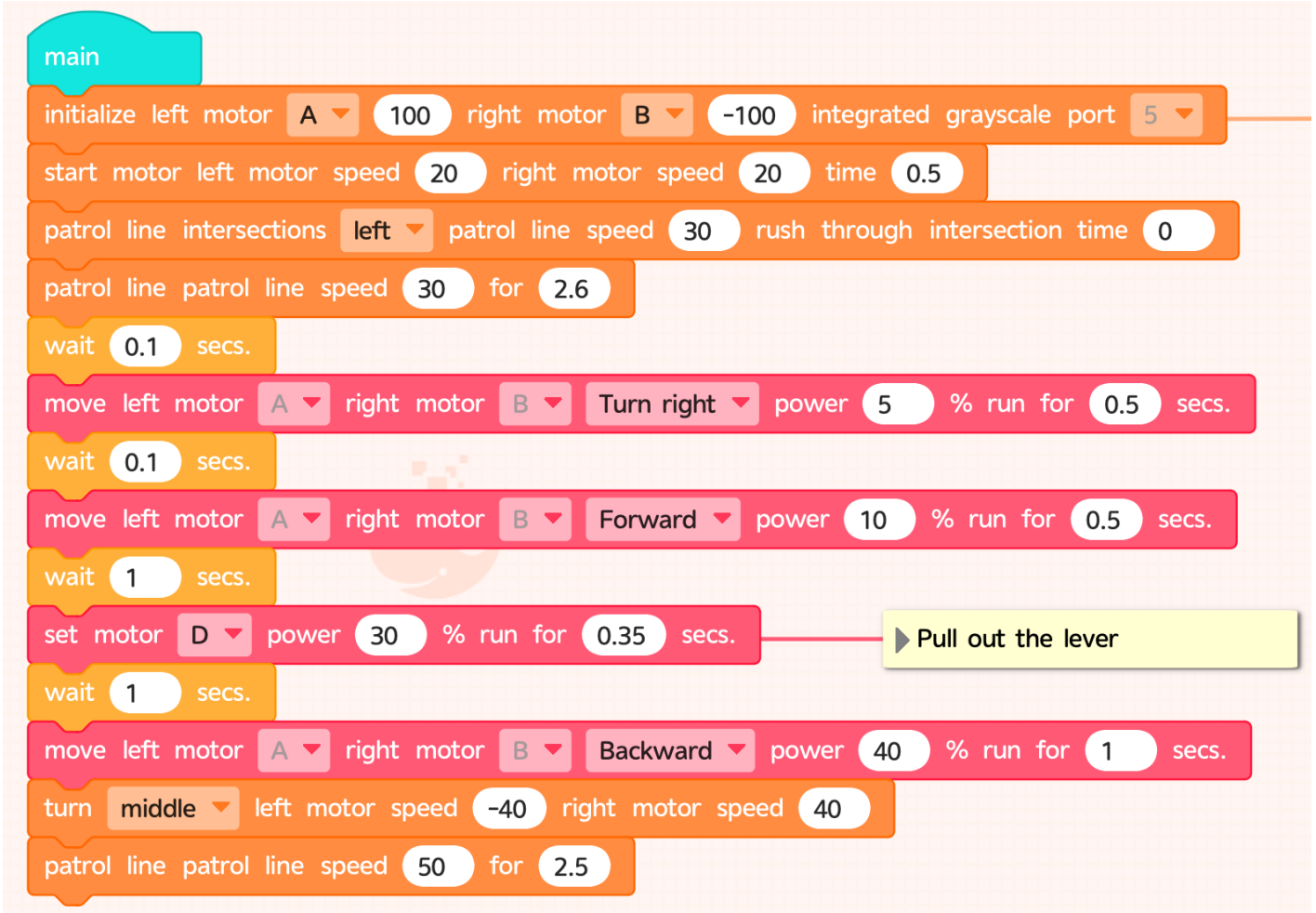
Challenges



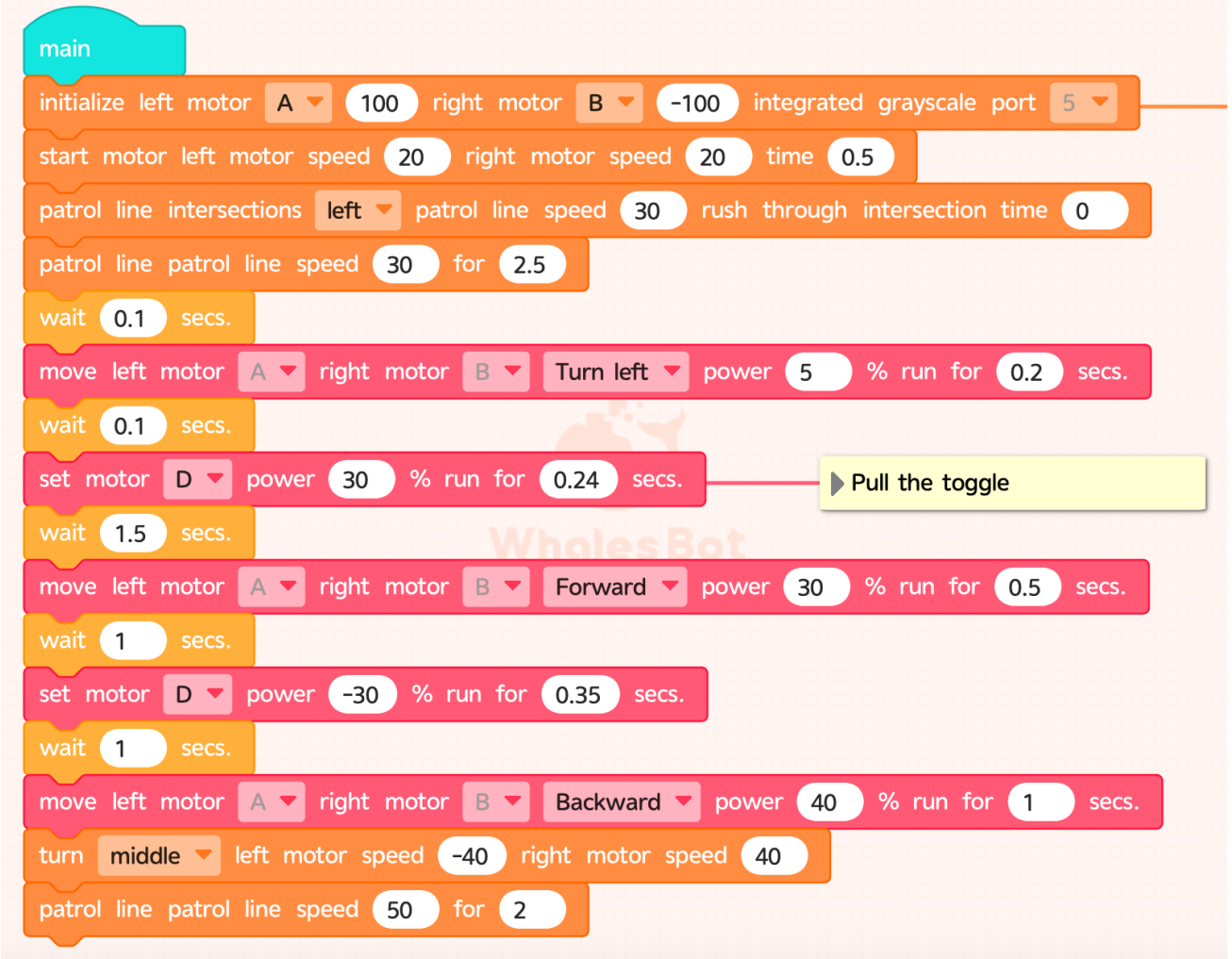
Challenges



Challenges


main
initialize left motor A 100 right motor B -100 integrated grayscale port 5
start motor left motor speed 20 right motor speed 20 time 0.5
patrol line intersections left patrol line speed 30 rush through intersection time 0
patrol line patrol line speed 30 for 2.6
wait 0.1 secs.
move left motor A right motor B Turn right power 5 % run for 0.5 secs.
wait 0.1 secs.
move left motor A right motor B Forward power 10 % run for 0.5 secs.
wait 1 secs.
set motor D power 30 % run for 0.35 secs.
Pull out the lever
wait 1 secs.
move left motor A right motor B Backward power 40 % run for 1 secs.
turn middle left motor speed -40 right motor speed 40
patrol line patrol line speed 50 for 2.5

Challenges


main
initialize left motor A 100 right motor B -100 integrated grayscale port 5
start motor left motor speed 20 right motor speed 20 time 0.5
patrol line intersections left patrol line speed 30 rush through intersection time 0
patrol line patrol line speed 30 for 2.5
wait 0.1 secs.
move left motor A right motor B Turn left power 5 % run for 0.2 secs.
wait 0.1 secs.
set motor D power 30 % run for 0.24 secs.
Pull the toggle
wait 1.5 secs.
move left motor A right motor B Forward power 30 % run for 0.5 secs.
wait 1 secs.
set motor D power -30 % run for 0.35 secs.
wait 1 secs.
move left motor A right motor B Backward power 40 % run for 1 secs.
turn middle left motor speed -40 right motor speed 40
patrol line patrol line speed 50 for 2

Challenges

Challenges accepted!

Great! You've finished the task today. Let's spend the rest of the time practicing the the task and see if we can finish it more quickly!

Let’s try to finish the task and then let the robot return to the base!

See you next time!