

ENJOY AI 2024
INTERSTELLAR JOURNEY

CLOSING CEREMONY OF SPORTS

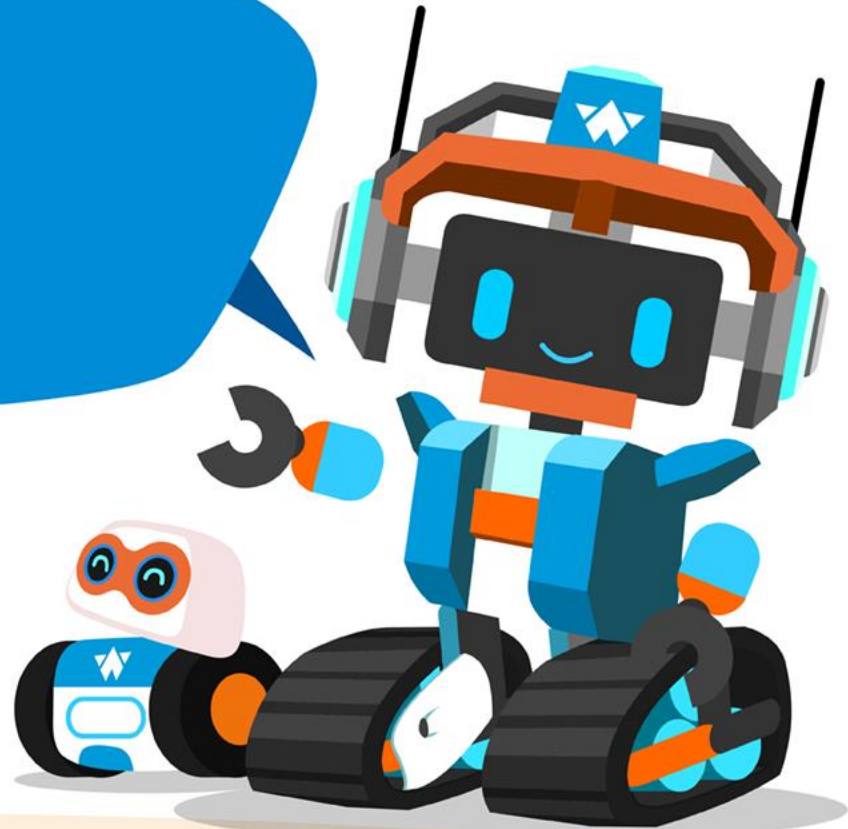


Task Analysis (Part 1)

Objectives:

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

5+



Review



In the previous lesson, we learned about code blocks and their combinations. Before we go on to analyze tasks in this competition, let's review the key points of the previous lesson!



Review

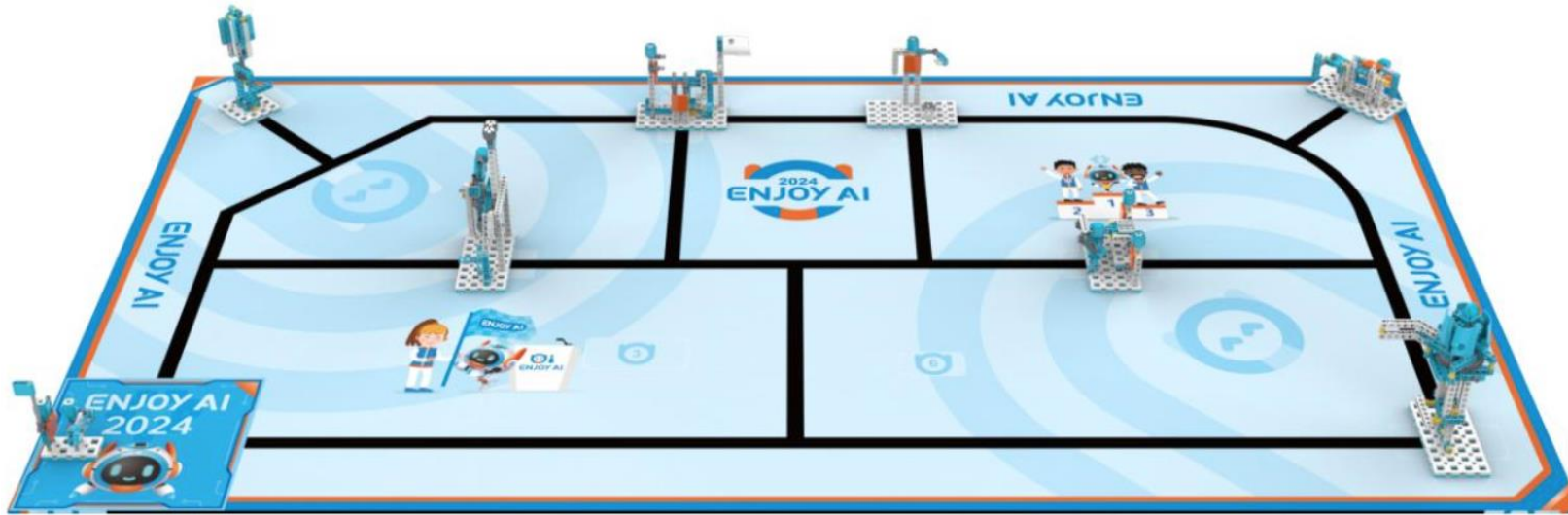
Grayscale Sensor

1. What is the difference between single grayscale sensors and 5-in-one grayscale sensors?
2. When to use single grayscale sensors or a single grayscale channel? Why?
3. What is the grayscale value? How to read it?

Challenges



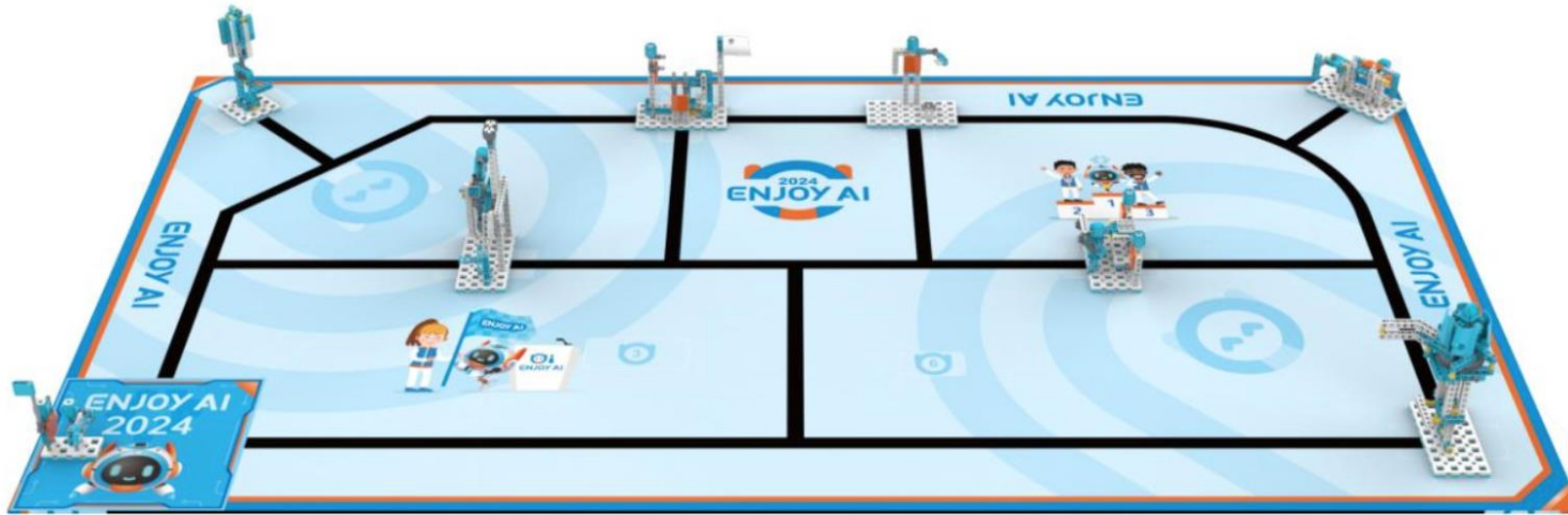
Challenges



In the first lesson, we had an overview of the tasks in this competition. Now, let's take a closer look at them one by one!



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: Firework Display



Task Analysis



As shown from the previous video, we need to turn the lever to make the firework burst.



Task Analysis



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

Task Analysis



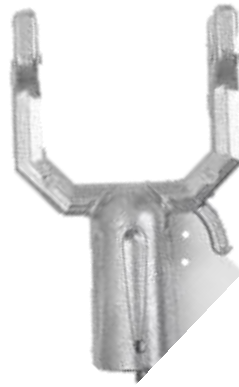
Use your robot to turn the lever. When the 30 beams in the middle contact and the firework bursts, you get 50 points.

Task Analysis



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

Challenges

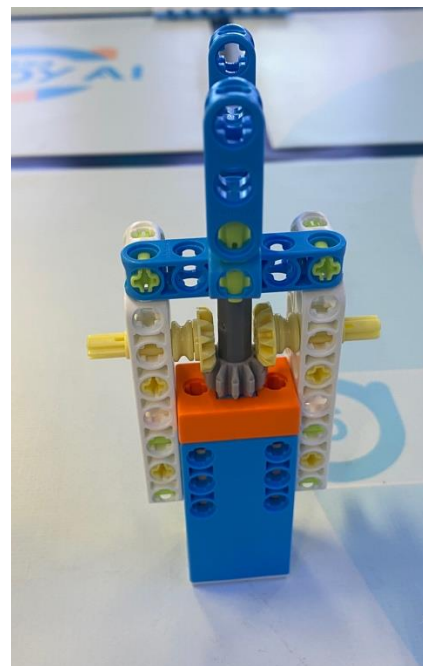


To make the firework burst, we need a structure like this to hold and turn the lever. Let your imagination run wild and see whose design is better!

Try it out!

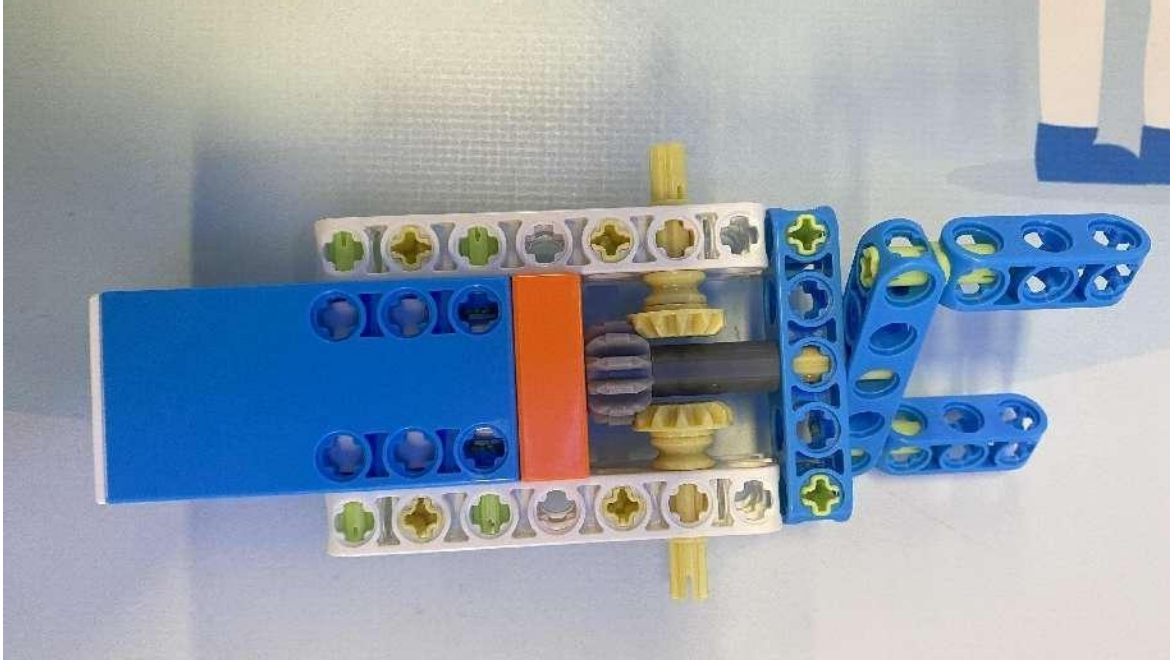


Challenges



Here's our solution. Let's build this one!

Challenges



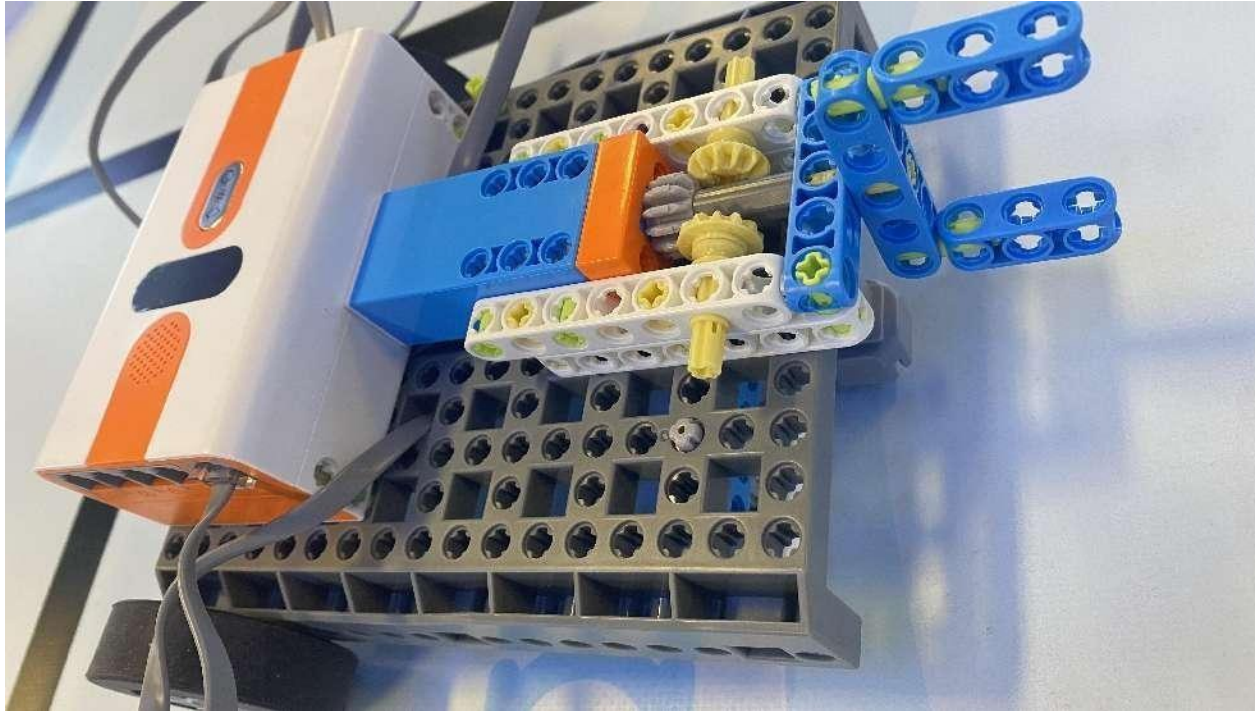
After we install this part onto the robot, how can the robot move towards the task structure?

Challenges



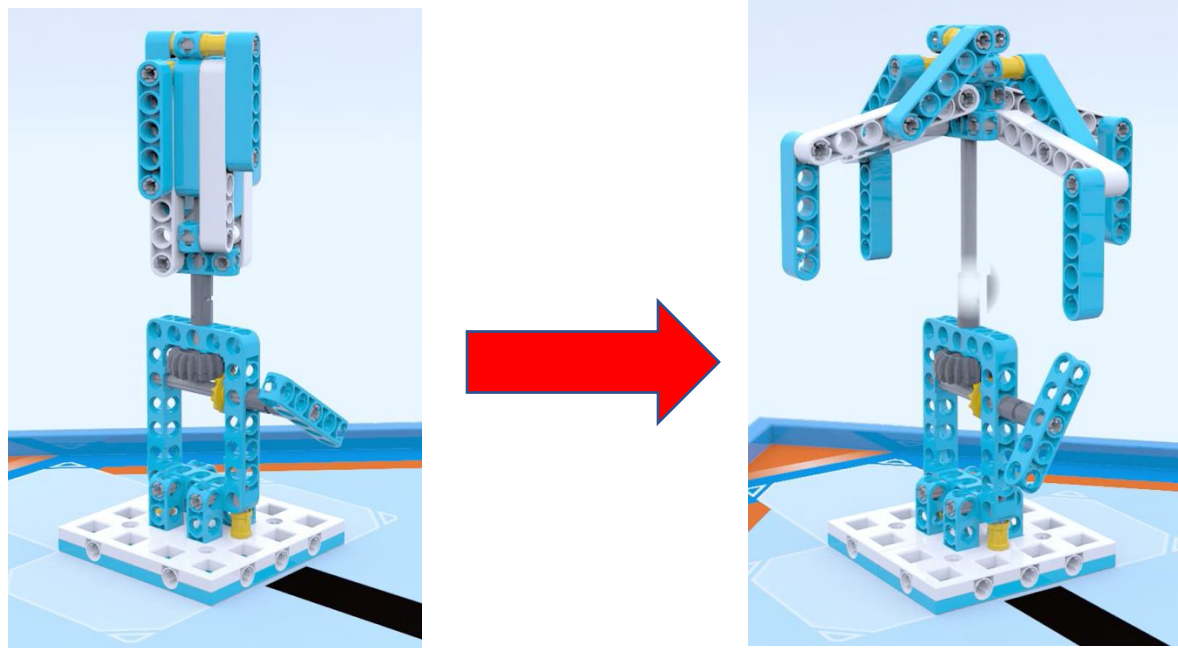
Remember? We've learned about line following before.
Let's build the robot and try the line following feature!

Challenges



Robot

Challenges



Try to write a program to complete this task!

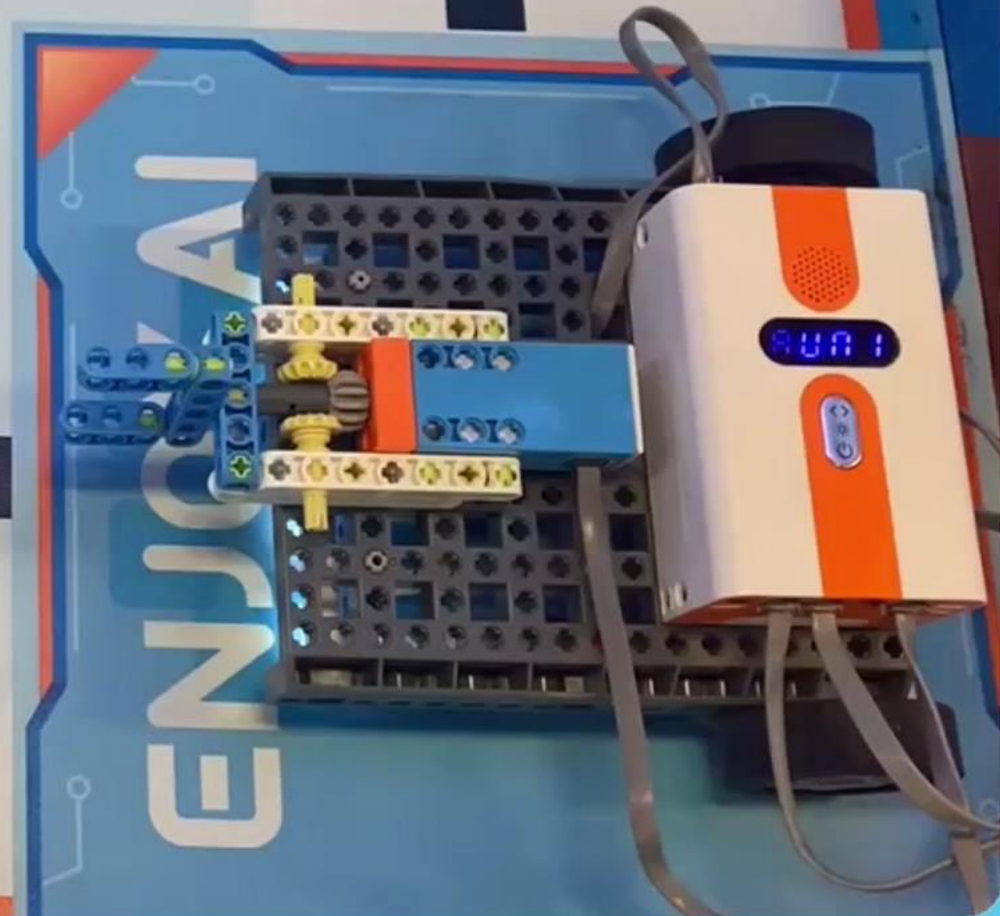
Challenges

The following video provides a demo of this task.

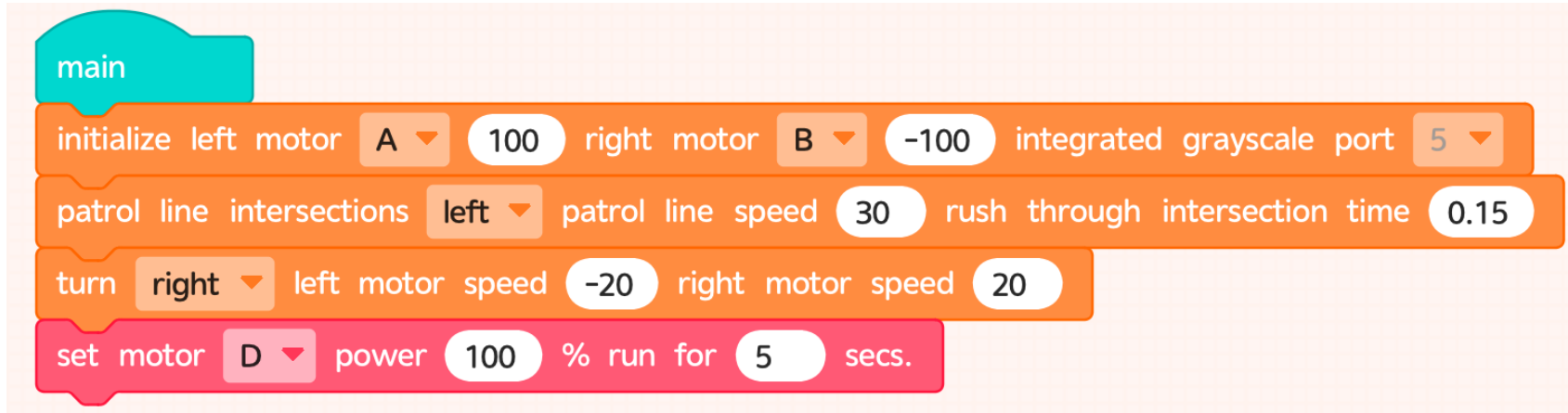


Challenges

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Challenges



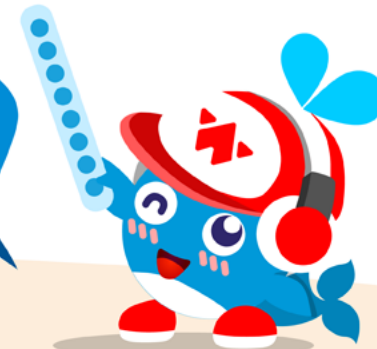
Sample Program

Challenges

Challenges accepted!



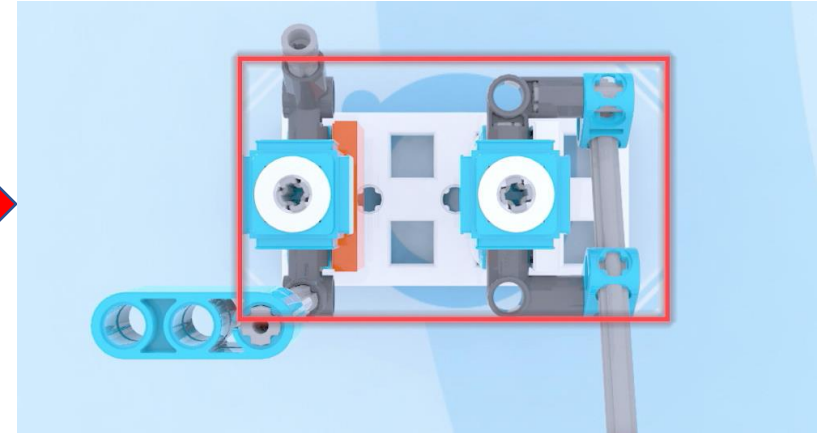
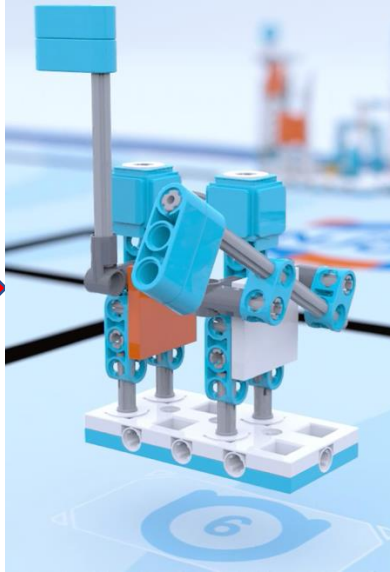
Congratulations! You have done this task! Let's go on with the next task!



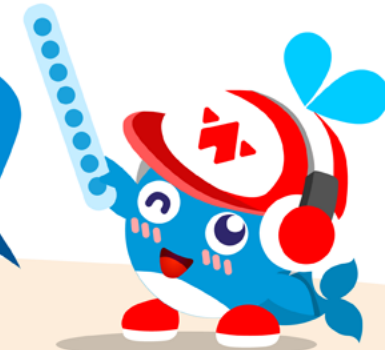
Task Analysis: Delegation Entry



Task Analysis



As shown in the previous video, the robot need to send the delegation to the area marked in the red rectangle.

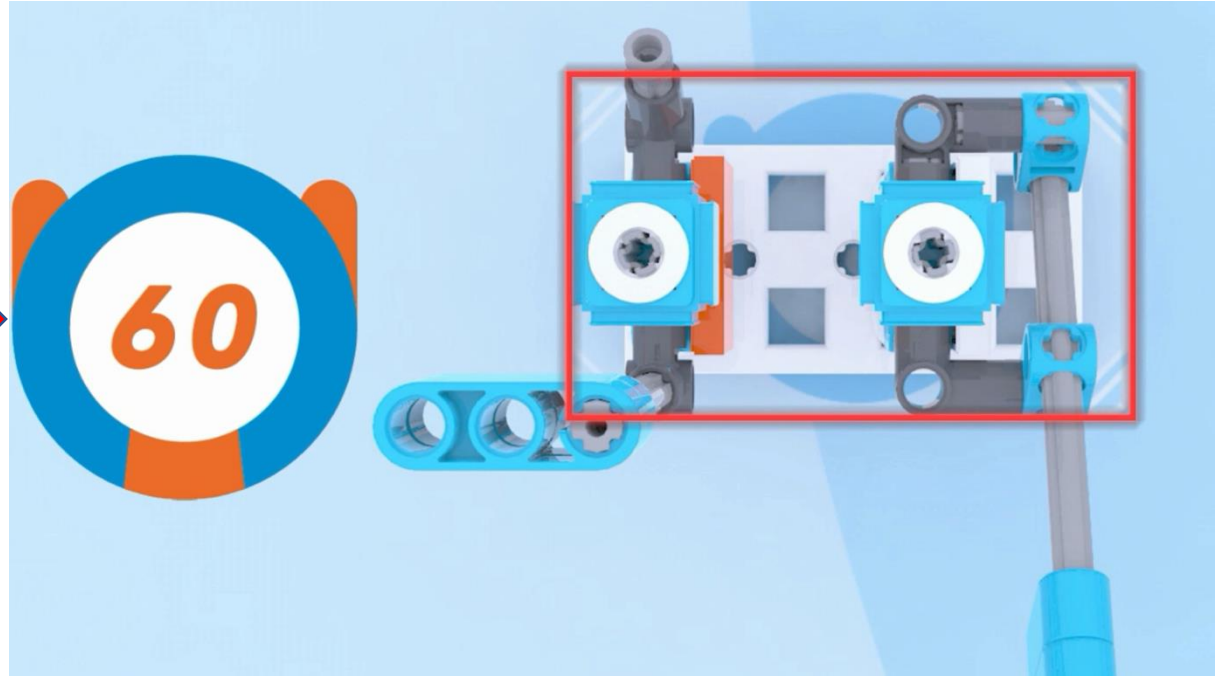
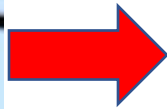
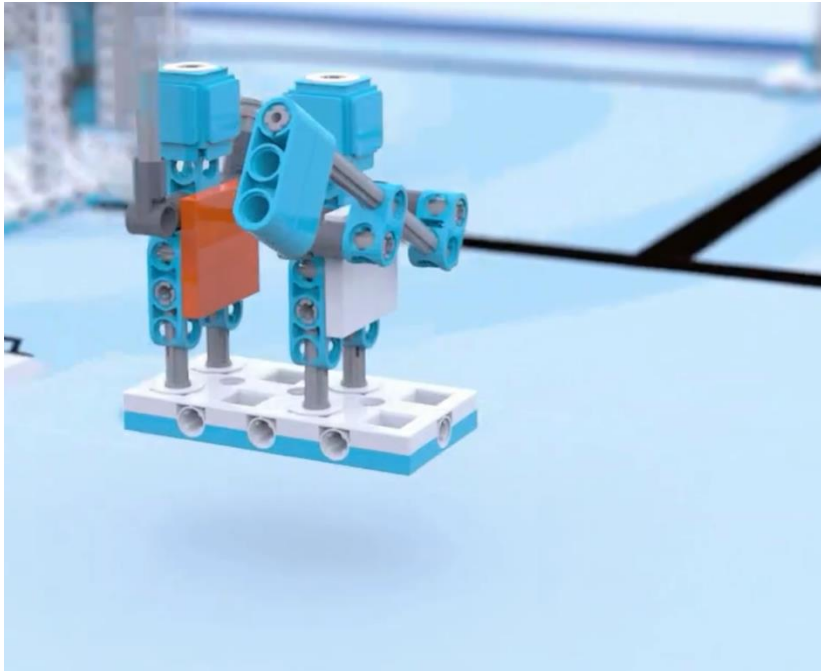


Task Analysis



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

Task Analysis



Our robot sends the delegation to the designated area. If the delegation stands completely within the area, you get 60 points.

Task Analysis



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

Challenges

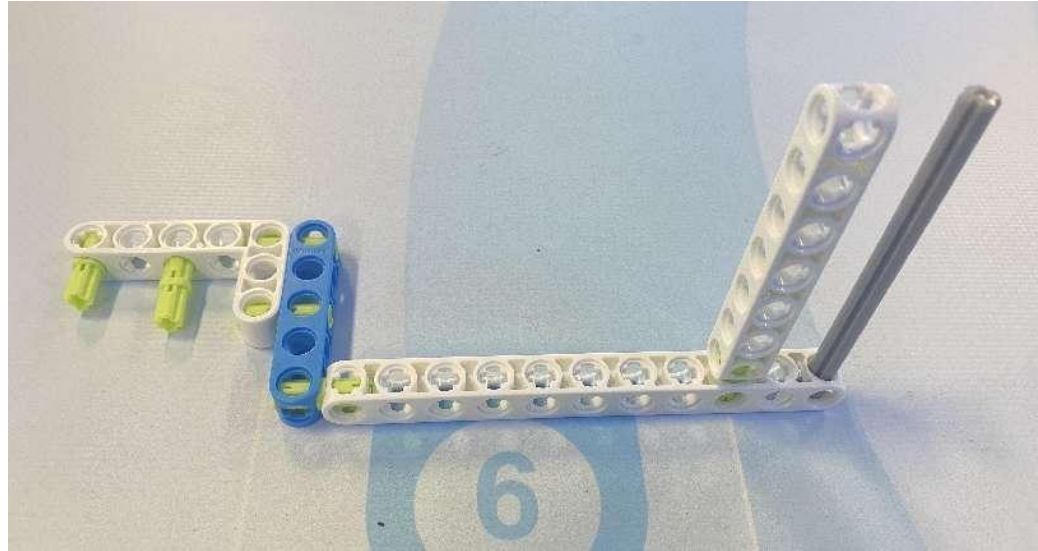


How can the robot move things from one place to another? Let's have a discussion and tell us your idea!

Try it out!

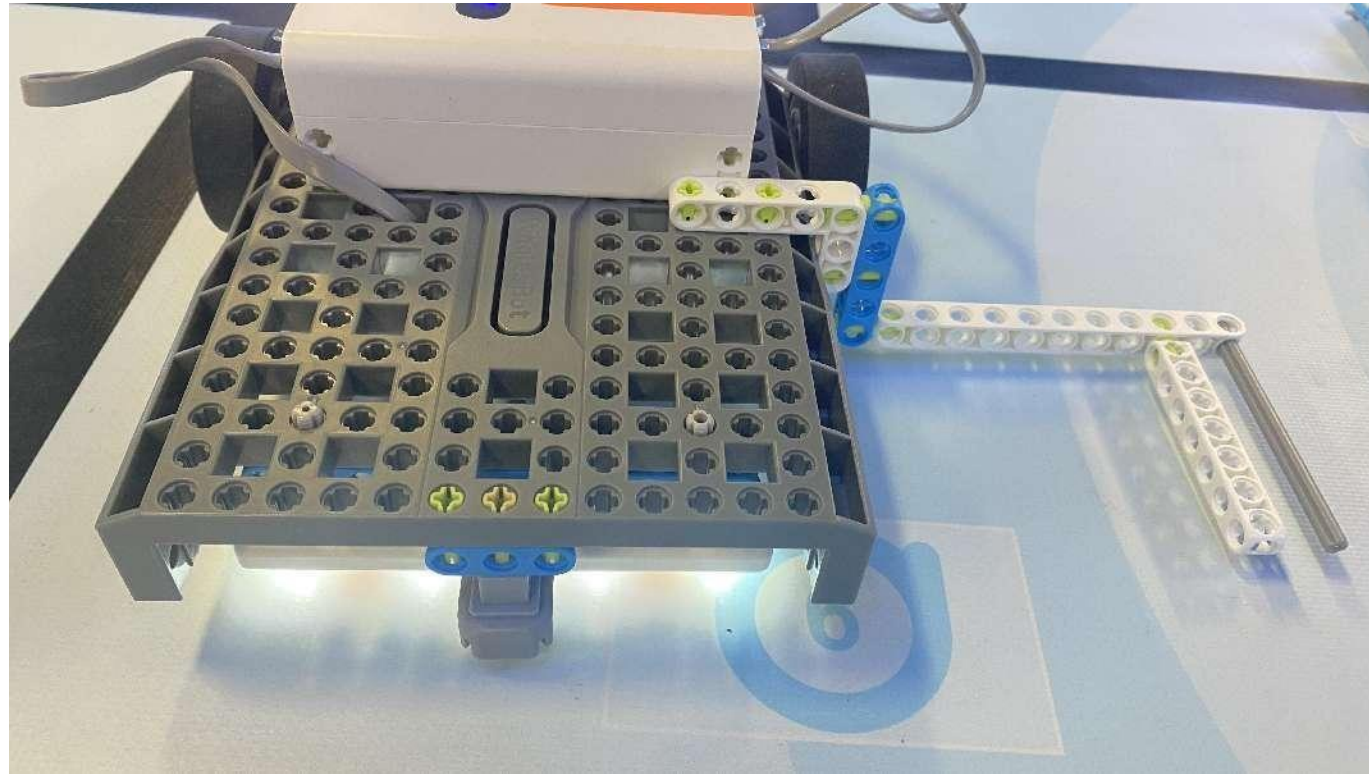


Challenges

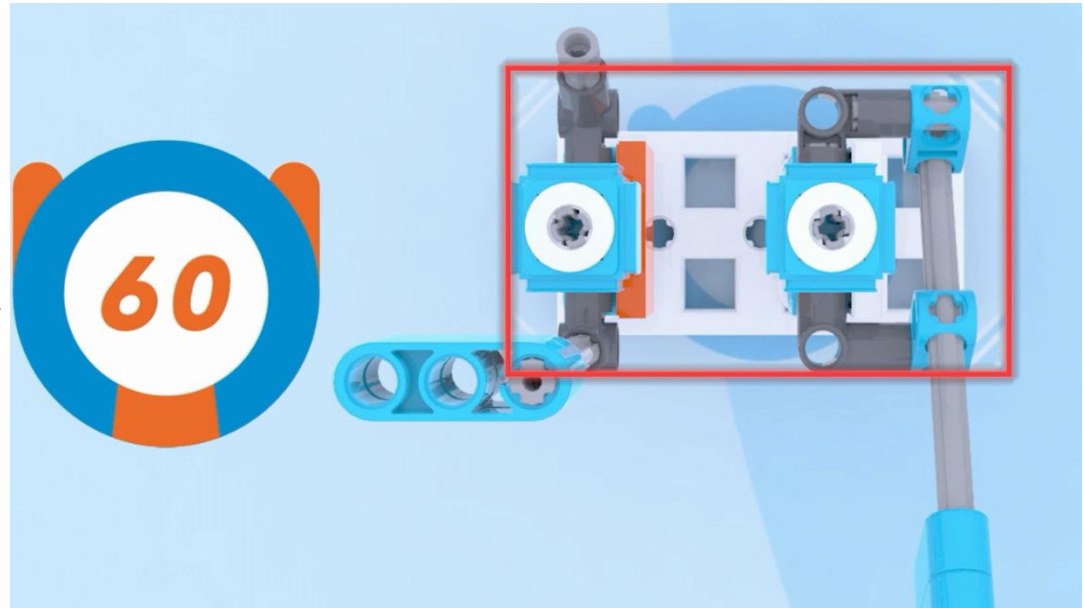
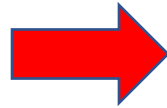
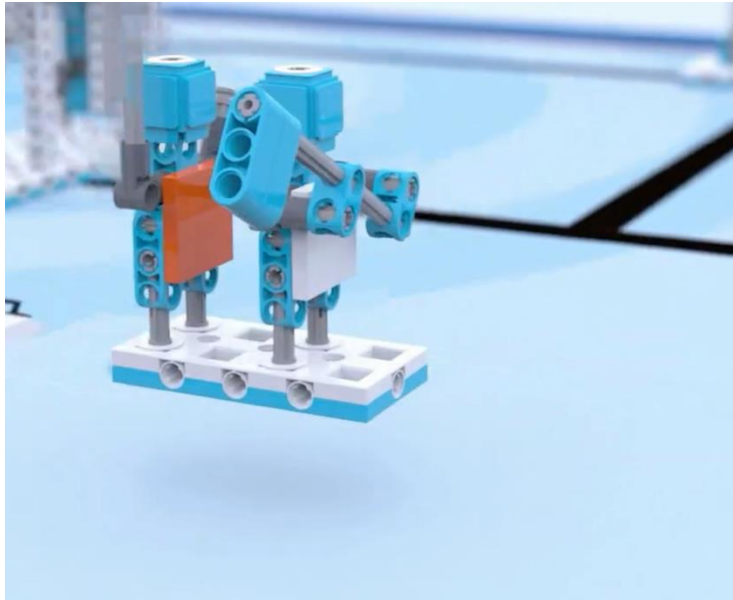


Here's our solution. Let's install these parts and see what happens!

Challenges



Challenges



Try to write a program to complete this task!

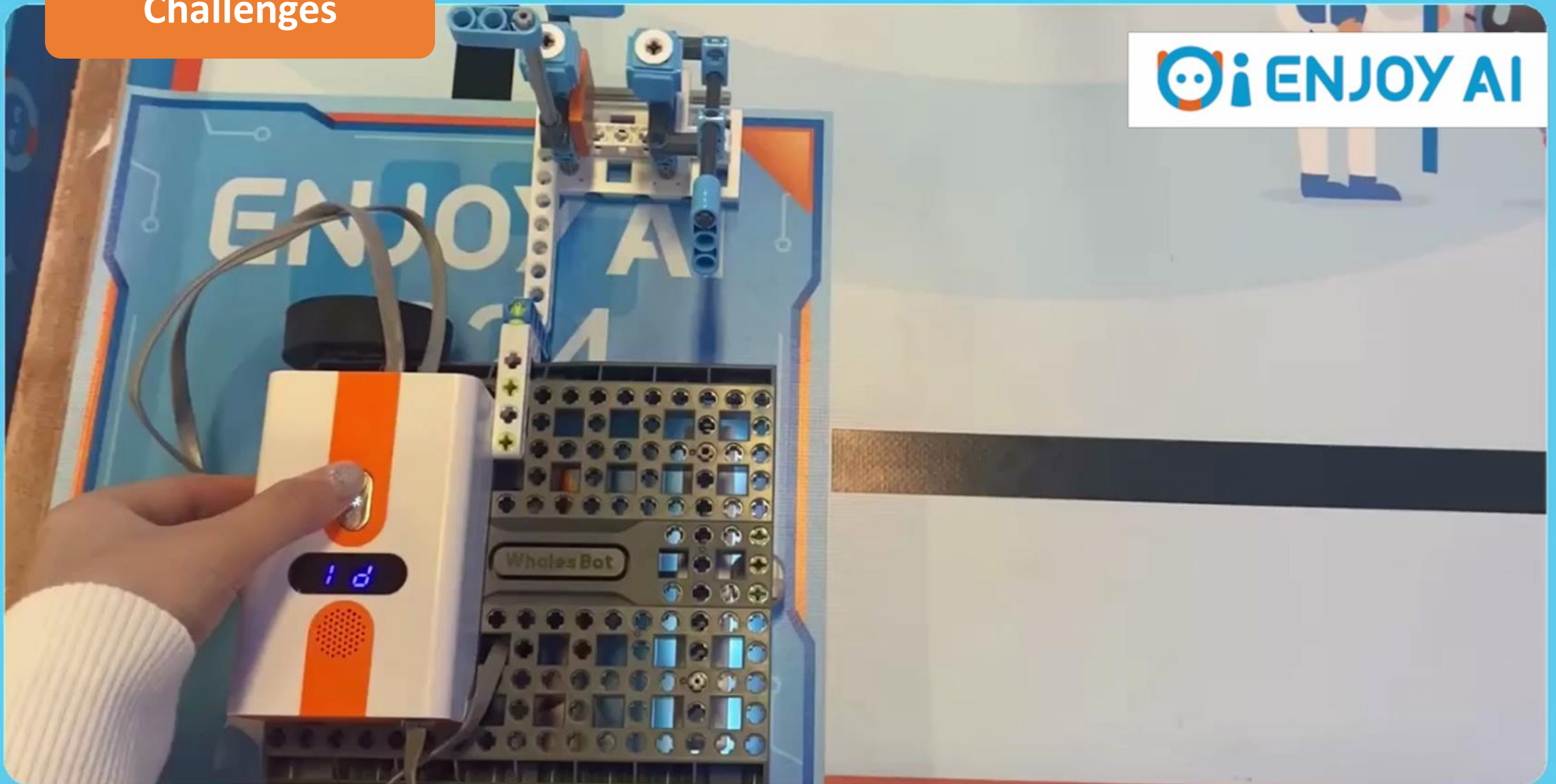
Challenges

The following video provides a demo of this task.

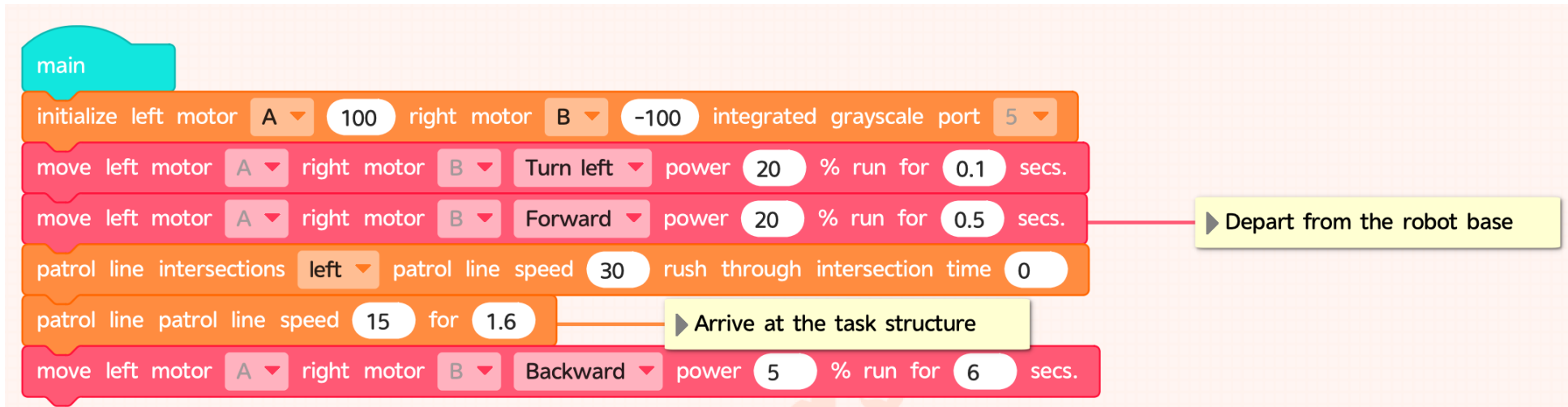


Challenges

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Challenges



Sample Program

Challenges

Challenges accepted!



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

Try it out!



Let's try to finish these two tasks and then let the robot return to the base!



See you next time!

