ENJOY AI 2024

INTERSTELLAR JOURNEY

CLOSING CEREMONY OF SPORTS

Hardware Upgrade

Objectives:

1. Understand the common points of all solutions
2. Design tools and hardware that suits all solutions
3. Simplify your design

5+

Review

Guys, we have tried out the eight tasks of this competition one by one. Now, let's try to design the hardware suitable for all these tasks!

Review

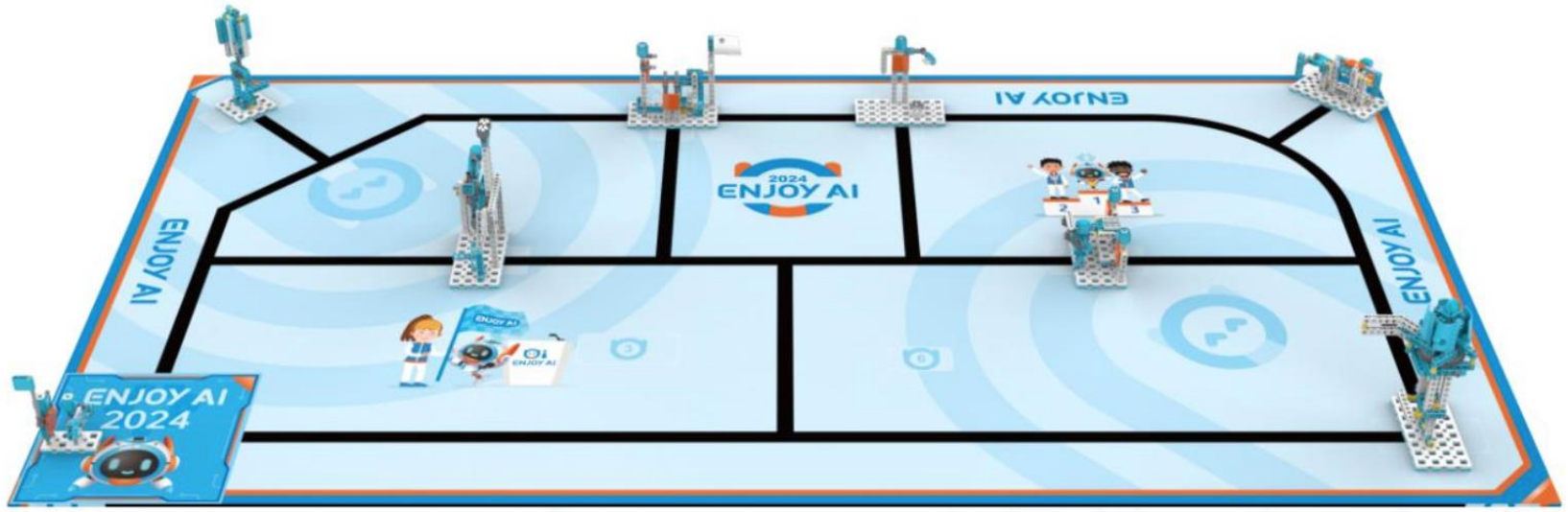
1. When doing the eight tasks, what are the most difficult problems you have met?

2. How should we deal with the inaccuracies in the execution of the task?

3. How long will it take us to complete the eight tasks altogether?

Challenges

Challenges



Do you think 150 seconds is enough for you to complete all the eight tasks?

Task Analysis

Task Analysis

Why do we need such a long time to finish all these tasks? Can we use less time to finish them?

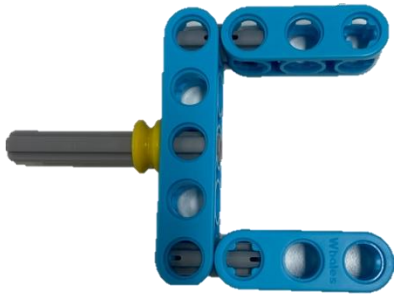
Task Analysis

In the previous lessons, we need to frequently install or uninstall devices and adjust the position of the motor from time to time. Can we integrate some parts together without the need to frequently move motors?

Task Analysis

What structures do we need to finish the eight tasks?

Task Analysis



Rotation structure

Push-and-pull structure

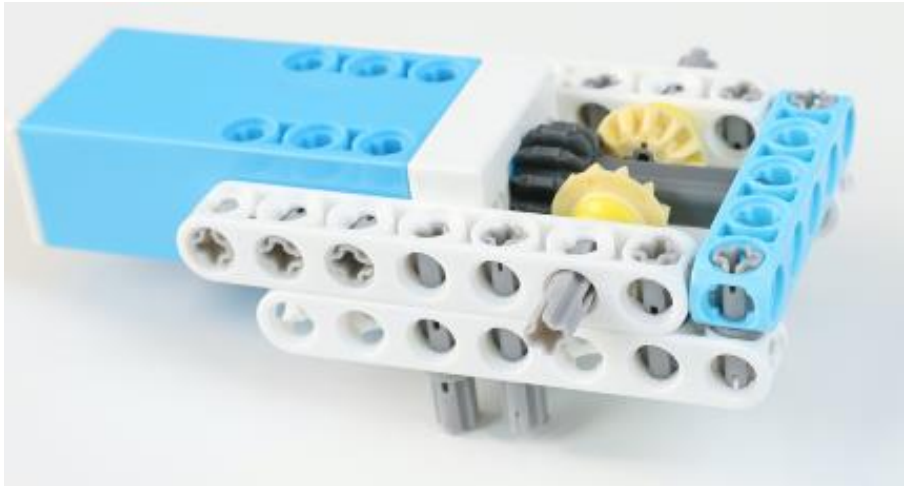
These two types of structures are frequently used in the tasks.
The rotation structure is used in: Firework Display, Artistic Performance
The push-and-pull structure is used in: Delegation Entry, Closing Speech, Flag Handover, Medal Presentation, Torch Dousing, 8-minute Showcase

Task Analysis

The use of the push-and-pull structure may conflict with the way in which the rotation structure spins.
So, how do we install the motor without causing the conflict? Maybe we can install the motor on the front or at the side of the robot.

Try to find the best solution for your motor!

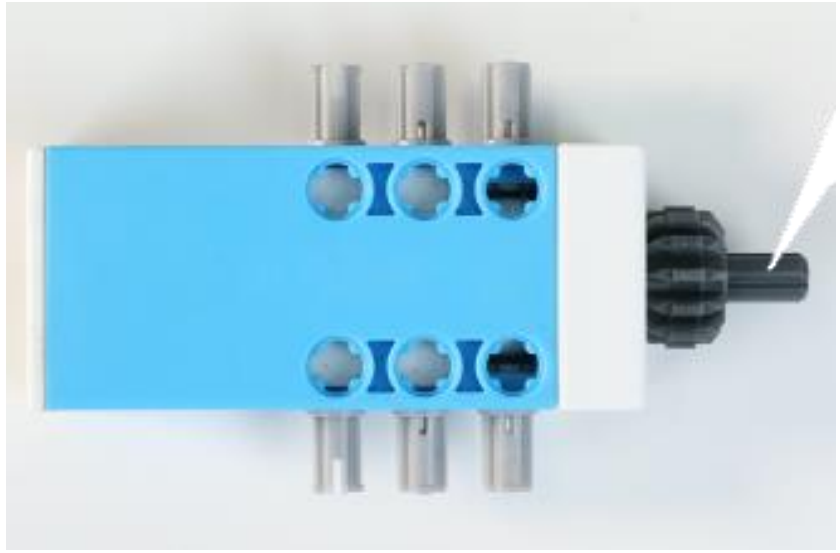
Challenges



Here’s our solution. Let’s build this device and see what happens!

Assembling

Assembling



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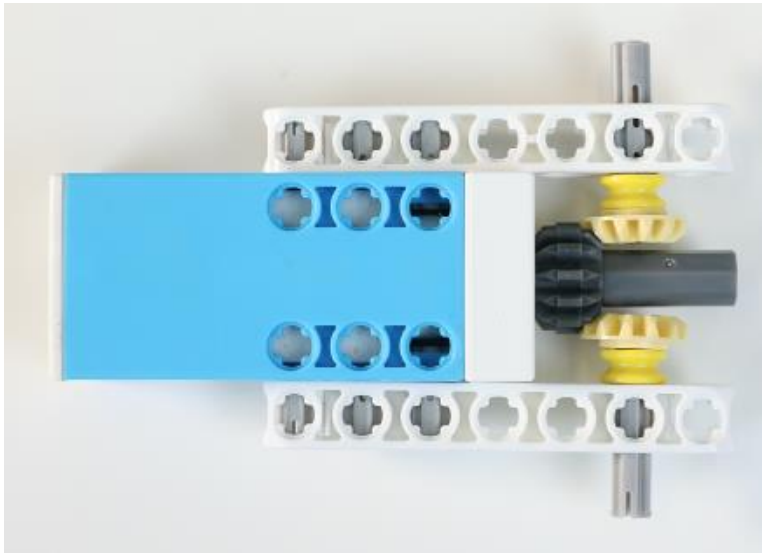

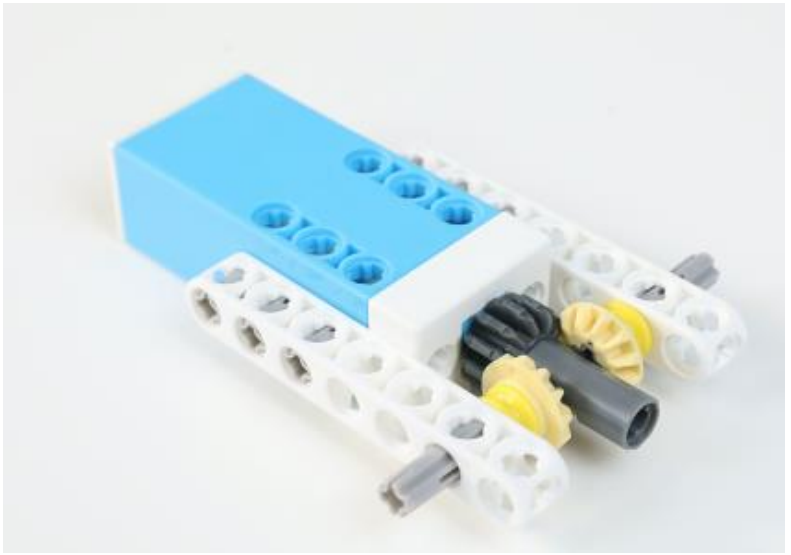

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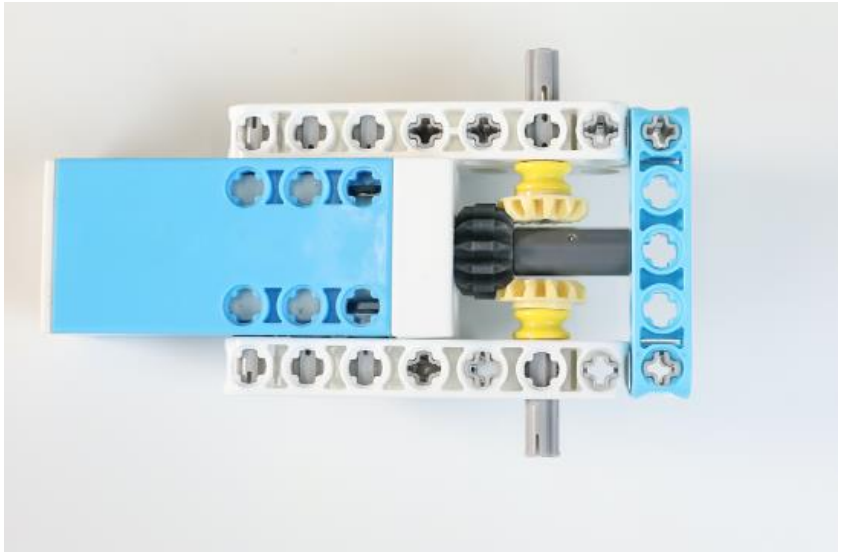
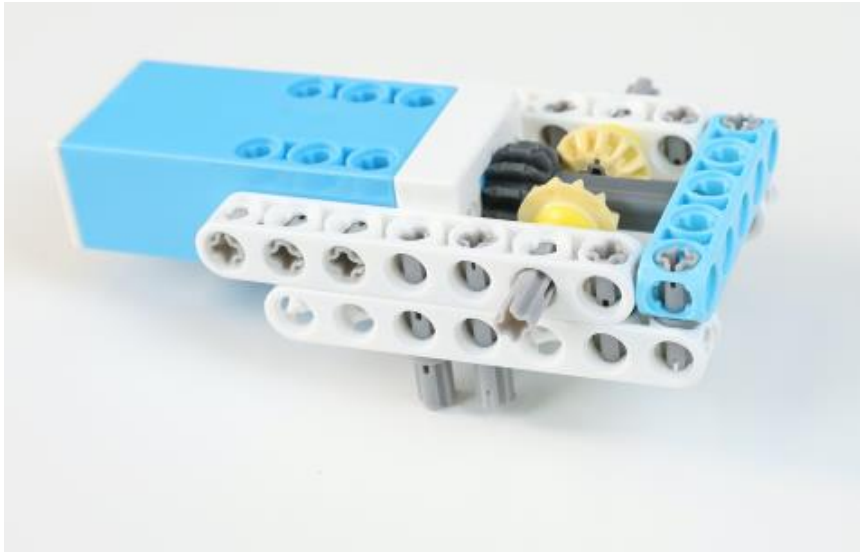


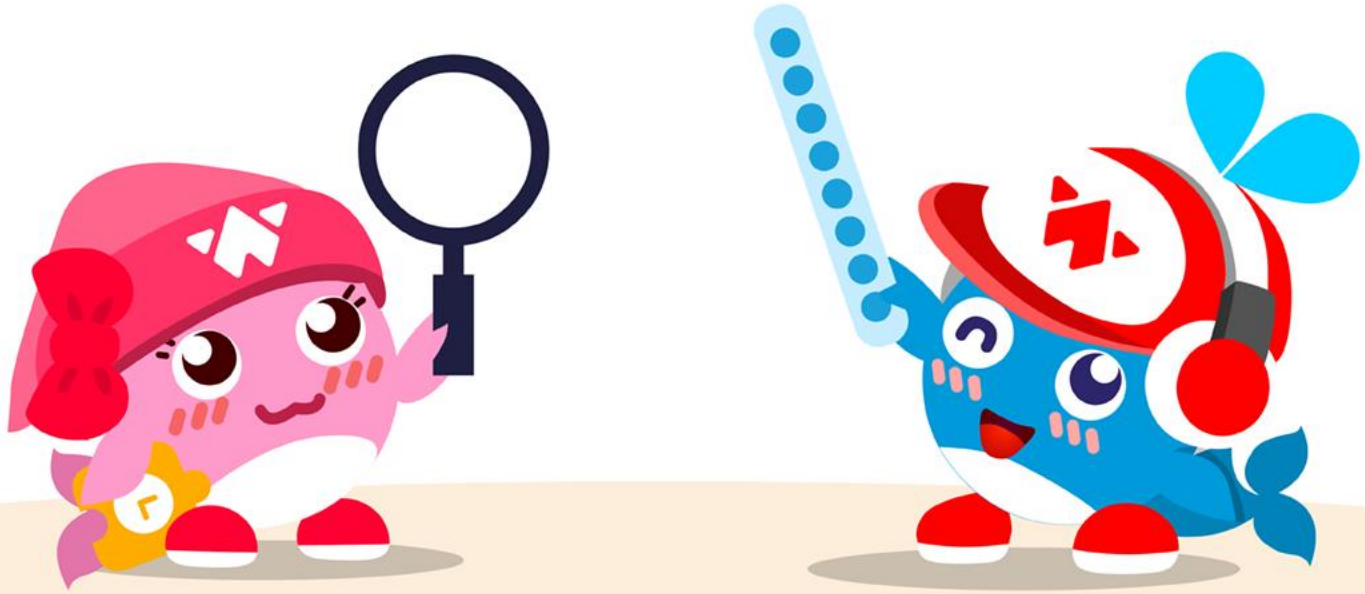


Challenges

Challenges accepted!

Congratulations! You have built this device! Now, let's install this device onto the robot and see what happens!
To watch a demo, go to
https://www.youtube.com/watch?v=jn6KJHc9a2E

Challenges

Let's use this new device in a practice competition!
Do we finish the tasks more quickly?

See you next time!