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Lunar Scout: Task-4

Krutarth  e-Yantra Staff

Nov 2023

Excited ?

We too.

This task finally brings us to building the self-balancing bike!

We'll do it in two parts.

Task 4A : Construction & Balancing

In this sub-task, you have to **build the best suitable bike - following the Rulebook instructions and restrictions**. Consider the components, sensor placements, theme arena and tasks, while doing it.

You'll also have to **make the mathematical model for this bike and apply LQR/PID control to balance it on single point**. (As you did in Stage-1, but now for the real bike)

Here, one interesting **performance test** is added for your bike and the control algorithm → i.e. **Disturbance Rejection !!**

Task 4B : Bike Motion

You have already made the remote control circuit in Hardware Testing(🤖 Remember Joystick & NRF module). It's time to integrate it, and put it to a good use!

In this sub-task you have to use the **remote control** to give motion commands to the bike, in order to give the bike fundamental movements like **forward, backward, left & right turns**.

DEADLINE

Both task 4A & 4B will have same deadline :
[18/01/2024] Thursday, 23:59:59 hours.

Help & Troubleshooting

Since this will be the first task where you deal with extensive Arduino programming, we've created a page holding useful references that can help you write better code, debug common errors.






We hope you'll be able to make a smart use of the hardware & software toolchain that Arduino offers.

Learning : IMU data filtering & fusion

[🔗 \[Announcement\] Task 4 & Motor Shipment](#)

Closed on Nov 9, 2023

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Topic	Replies	Views	Activity
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 Doubt in Task 2A LS_3083 task-2	1	76	Oct 2023
Bike suddenly stops responding	23	174	Feb 22
 Doubt in task3B question 2	1	65	Nov 2023