Task 4A : Bot Fabrication and Test Run

Objective:

Now that we have our first iteration of designs ready let's get into Task 4A

1. Fabrication and Assembly of all the mechanical and electronic components of the bots.
2. Test the assemblt by programming the bots to spin on the spot.

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1. Bot Fabrication

Building a dependable robot requires paying great attention to design and fabrication, of both the chassis and the circuit board. Here are some points to think about:

1. Regarding the dimensions of the bot: As the height of the bot increases, the impact of parallax error becomes more significant as we move away from the center of the arena. Larger width may have an advantage at orientation control theoretically, but the likelihood of collisions clearly rises significantly.

2. The importance of reliability cannot be overstressed. Loose wires and makeshift mechanical solutions cause unpredictable behavior, compromising the system's dependability. For example perfboards, PCB and JST connectors are way way more reliable than breadbard and jumpers. similarly nut and bolts (with lock tight or lock nuts to prevent loosening due to vibrations- although this may be bit of overengineering for some situations) are more reliable than double sided tape for mounting components on the chassis.

3. Apart from achieving functionality and reliability, we encourage you to go the extra mile to keeping ergonomics and aethetics in mind. But do note that, this effort will be rewarded only at the finals at IIT BOmbay and not in the online final task of Stage 2.

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2. Assembling the 3 bots and finally spin the bots

Now that the robot is fully assembled, let's initiate its movement. The focus is on implementing some basic motion on the bots using the ESP32. We won't need the overhead camera feedback or ROS to do this; instead, we'll directly code the motion on ESP32. The objective is to make the bots spin on the spot at their maximum velocity.

Submission instruction

- Take photos of the assembled bots.
- Record a video of the bots spinining on the spot.

- Add both the above in a single video (using your favourite video editing software)
- Upload the video with the title `HB23_<Teamid>_Task4a` (For example: If your team ID is 1234 then, save it as HB23_1234_Task4a).
- Please note that while uploading the video on YouTube select the privacy setting option as **Unlisted**.
- Submit the unlisted youtube link on eYRC Portal
