Test Bench Documentation

Tuning the PD attitude controller is difficult, and requires a lot of trial and error (at least the traditional way). To do this without repeatedly crashing the drone, we build a test bench that pins the drone in place but lets it rotate freely in roll, pitch, and yaw. It’s also meant to allow free movement in the z axis, but this component gets cocked, so the z-axis is effectively pinned. The drone should be screwed into the platform, and then the platform should be mounted to a table with at least 3 bar clamps. The rest of the operation should be fairly self-explanitory. Work with Pat McGuire if you need any spare parts or anything relating to this. He helped design and build it.

To set up the testbench, follow these steps in order:

1. Bring a table to the center of the flight room
2. Attach the test stand to the table with at least 3 bar clamps
3. Connect the weight to the drone. The weight is tied to two carabiners with paracord. Attach the two carabiners to the two square metal rings on the bottom of the drone. Put the weight on the floor next to the table
4. Screw the Drone to the test bench