



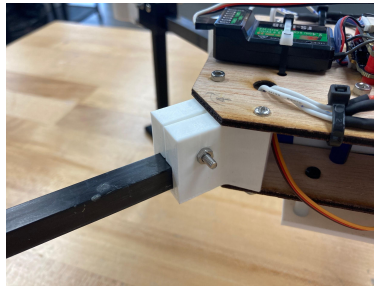
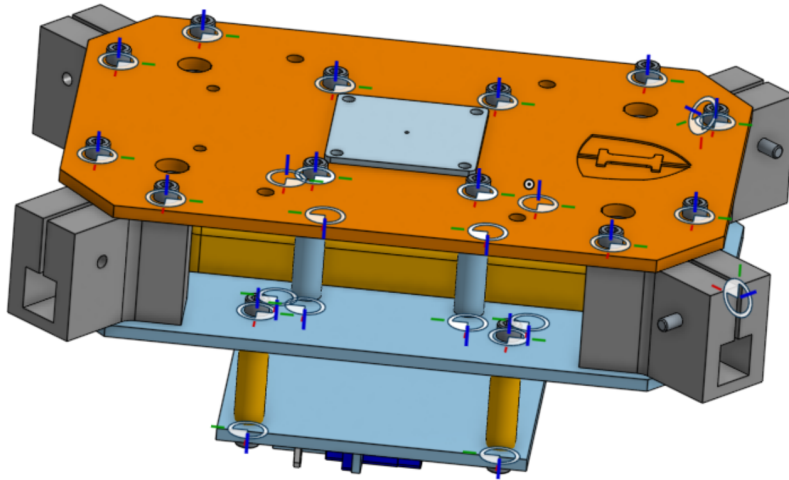
Quadcopter Project

Robotics 3 (Pd. 1)

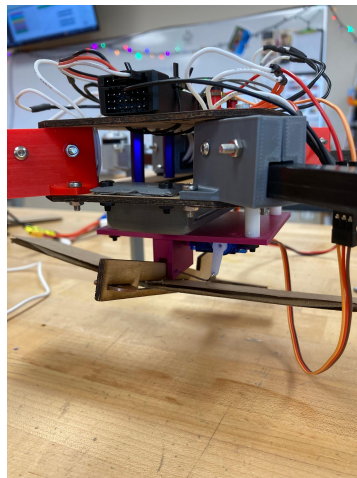
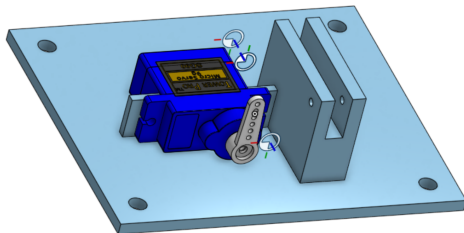
Mrs. Heshiki

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CAD:

We adjusted the height of the arm attacher (white) so that there was more support between the layers of the drone. We also made part of the clamping gap solid to make the clamp stronger and more effective.

Drop Mechanism:

For the dropping mechanism, we decided to use a micro servo. As one can see in the pictures above, the top of the glider gets put into the slot making sure that the holes are aligned. Then the wire gets put through the holes and goes all the way through. Once the servo is turned, the glider is released and falls.

[Final Project Video](#)

REFLECTION:

Successes:

- We have been most successful in putting in a lot of time to build, redesign, and rebuild our drone that can fly.
- We have been successful in designing and assembling the drone at a very early stage, but got stuck on INAV because of receiver issues.

Problems Faced:

- One problem we faced was supporting the layers of the drone with the arm connectors so that when the drone lifts up, the arms do not droop down.
- Another problem we faced was that the first few times we tried to fly, the receiver was not working properly, so we could only fly it up to a certain altitude, and then the throttle stick did not work.
- Another problem we faced was the design of our drone. Specifically, the arm attachers. For the arm attachers, the gap to clamp the rod was too big; therefore, when tightening it, the piece cracked and was very delicate when we were flying the drone.
- Finally, when designing the drone, we did not think about getting the battery in and out of the drone, so whenever we wanted to charge the battery, we had to take apart the whole drone.
- We also forgot to tighten the propellers sometimes.

Future Improvements:

- Next time, we could redesign the arm attacher so that the gap for the clamping design and the hole for the rod is a little smaller.
- We could also redesign the drone so that we can take the battery out easier instead of taking apart the whole drone.
- I think a square or circle base design easily distributed the mass around, so the force on impact wouldn't focus one dimensionally.
- Perhaps we could've made the leg length shorter and the density higher.