ME 410 - Week 8 Summary

Logan Boswell

Summary

This week introduced the final 6 milestones for this quarter: camera integration, autonomous yaw, autonomous z, autonomous x and y, autonomous flight, and autonomous flight in a 6 inch sphere. The camera integration, autonomous yaw, and autonomous z milestones were the main focus for this week.

Before we started on the new milestones, we spent a portion of the beginning of class letting Ben attempt to get the flight milestones from the previous weeks. After spending a good amount of time on this, we shifted our focus to the camera integration milestone. We switched our sd card, installed our camera to our drone, and began adding the necessary changes to our code so we were able to recognize the ArUco marker and obtain values for x, y, z, and yaw angle. After confirming our values, we got checked off and moved on to the autonomous yaw control milestone.

The yaw control milestone took longer than expected. Ben had some confusion about implementing the new controller that calculates a speed based on yaw error that is then fed into our P controller that we had already written, so we spent some time talking it over so we both understood how this new controller would be added to our code. After clearing this up, we added the controller to our code, along with the x button functionality to toggle autonomy on and off, but we ran into a few issues. One issue was our toggle button logic. When we pressed the button it would debounce and would not switch modes reliably. Another issue we experienced was a small error in our code where our x, y, z, and yaw values were not updating correctly, so our new controller was not functioning at all. Ben and I spent some time discussing both of these issues and eventually sorted them out, but wasted a lot of class time doing so. Once we dealt with these issues, we got the new yaw controller to work correctly, but it still needs tuning. We are very close to finishing this milestone and moving on to the autonomous z milestone.

Assessment - What Went Well

This week was a rough one. I feel like we encountered issues that could have definitely been avoided or overcome quicker. Although we did run into issues, once we sorted them out, it did not take us long to make our changes to the code and start heading in the right direction.

Assessment - What Did Not Go Well

Overall, I think smaller issues just piled up this week from the controller confusion to the toggle button logic to the camera data not updating correctly, we wasted a lot of time that could have been used better.

Assessment - Adjustments for Next Class

Next class, I think we just need to debug our issues in a quicker manner or ask for help earlier. If we could have been a little quicker with debugging our issues, we could have made much more progress.

Team Member Effort

Me - 46% (Helped Ben with editing our .cpp file; Kept batteries charging; helped with debugging)

Ben - 54% (Flew drone for flight milestone; Worked on .cpp file on Ben's laptop; helped with debugging)