Sprint 7 Start

Long Flight Time Buoyant Drone April 30, 2021 6:00 PM(PST)

horizontal lineATTENDEES

* Excused absences: N/A
* Unexcused absences: N/A
* Late: N/A

## AGENDA

* Administrative Stuff
* Sprint Reports
* Leon: Still working with the receiver, using C++ experience in other class to switch over with the raspberry pi

6:05

* Jeremy: Will try to test motors next with Leon
  + Else was just working on writing the final report

6:07

* Isaac/Dylan: 3D printed ultrasonic mount
  + Finished envelope sewing, currently working on inflating balloon inside of envelope as a test

6:09

* George: Seeing if servo speed can be inputted into the controls system for better responses

6:10

* Ryan: Catching up with ordering sparkfun parts that were delayed. Digikey is also shipped, waiting for delivery

6:11

* Weight allocation columns have been added for actual weight of components
  + This is to make sure the weight budget is still within limitations
* Sprint report will be finished on friday
* Everyone should have slides to show by friday for TA meeting

6:14

* Planning for writing the final paper
  + Hours will be assigned in sprints to work on writing, should be specific in the section of writing that is assigned instead of hours worked
* Sprint 7 will be started on Friday
  + Goals should not be defined per person, but related to the areas that need work
  + SCRUM master will be Jeremy
* Define Goals (General, see where we need dependencies etc) 6:20
  + Hardware
    - Finish fabrication of PCB design and test bugs and power usage
    - Finish drone prototype
    - Test RC on drone prototype
  + Software
    - Autonomous and remote control implementation in sim
    - Finish remote control implementation in software
    - Implement autonomous control in software and test in simulation
    - Implement closed loop remote control in software and test in simulation
    - Design and program the state machine
    - Fix V1.9 PCB bugs in V2.0
    - Order V2.0 PCB
    - Implement inductor capacitor circuit design for 1.8V, 3.3V and 5V rails in V2.0 PCB
  + Miscellaneous
    - Work on design report
* Define End Date 6:32
  + Sprint end: talk to tanner about sprint goals before deciding on end date (5/15/21)
* Tasks (Specific) List Requirement ID if available. Time estimate
  + Leon (**130 hours**) - 6:49
    - Assemble first PCB board with all components and test for bugs (**15 hours**)
      * Solder PCB board (5 hours)
      * Test for bugs (10 hours)
    - Get total system power draw (**2 hours)**
    - Finish remote control implementation (**15 hours**)
      * Finish connecting RC receiver to Raspberry Pi (5 hours)
      * Implement servos and motors to move in four basic directions (10 hours)
      * Implement servos and motors to move in any direction (10 hours)
    - Implement system state machine with remote control functionality (**20 hours**)
      * Implement state machine for PIC32 (10 hours)
      * Implement state machine for Raspberry Pi (10 hours)
    - Implement autonomous control (**20 hours**)
      * Implement Raspberry Pi data processing (20 hours)
    - Add autonomous control functionality to system state machine (**20 hours**)
      * Add autonomous control to PIC32 state machine (10 hours)
      * Add autonomous control to autonomous control state machine (10 hours)
    - Write sections for report (**20 hours**)
      * Sensors programming (5 hours)
      * Remote control implementation (5 hours)
      * Autonomous control implementation (5 hours)
      * System state machine (5 hours)
    - Group meetings (**8 hours**)
    - Sub-team meetings (**10 hours**)
  + Jeremy (63 hours) - 6:51
    - Test Motor Power at different throttles and compare it to estimates(5 hours)
    - Test Servo Power and compare it to estimates(3 hours)
    - Adjust Power budget with tested power values(2 hours)
    - Group meetings (8 hours)
    - Sub-team meetings (10 hours)
    - Writing Final Report Chapter 7, (10 hours)
    - Write Final Report Chapter 12, legal and safety concerns(10 hours)
    - Help Leon with state machine coding(15 hours)
  + Isaac (79 hours) - 6:53
    - Finish adding noise to sensors in sim (7 hours)
    - Implement closed loop Finishing V-rep (25 hours)
    - Finish other 3D printing parts (10 hours)
    - Attach 3D printed parts to envelope (10 hours)
    - Inflation test of lift bag inside envelope with air (5 hours)
    - Attach servo and motor shafts to brackets (4 hours)
    - Writing simulation section (21 hours)
    - Group meetings (8 hours)
    - Sub-team meetings (10 hours)
  + Dylan (100 hours) - 6:53
    - Finish other 3D printing parts (10 hours)
    - Attach 3D printed parts to envelope (10 hours)
    - Inflation test of lift bag inside envelope with air (5 hours)
    - Attach servo and motor shafts to brackets (4 hours)
    - Add ultrasonics to bracket (1 hour)
    - Add electronics to gondola (5 hours)
    - Wire prototype (10 hours)
    - Second Inflation test of lift bag inside envelope with air (5 hours)
    - Order helium and pick up helium (3 hours)
    - Do initial RC test at Delaware (10 hours)
    - Start Helium loss test (3 hours)
    - Writing Considerations of a buoyant drone draft(16 hours)
      * Intro 4
      * General goals 4
      * Implications of a buoyant drone 4
      * General design overview 4
    - Group meetings (8 hours)
    - Sub-team meetings (10 hours)
  + George (105 hours) - 6:57
    - Implement and test closed loop RC (15 hours)
    - Design autonomous controls (25 hours)
    - Implement and test autonomous (15 hours)
    - Test auxiliary functions (15 hours)
    - Design filters (15 hours)
    - Design estimators (20 hours)
  + Ryan (72 hours) - 7:01
    - Fix V1.9 PCB bugs in V2.0 (20 hours)
    - Order V2.0 PCB (1 hour)
    - Order new parts for V2.0 (1 hour)
    - Implement Inductor Capacitor circuit for 1.8V, 3.3V, and 5V (10 hour)
    - Help coding with George and Leonid (20 hours)
    - Sub-team meeting(10 hours)
    - Final Report (10 hours)

Etc: 7:07

* Writing sprint 6 report

Meeting End: 7:40