Sprint 3 Start

Long Flight Time Buoyant Drone February 11, 2021 7:30(PST)

horizontal lineATTENDEES

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

## AGENDA

* Administrative Stuff 7:30
  + New discord channels
    - Reorganized Discord into channels for each position
  + Changes to Trello cards
    - Added Help column
  + Slides
    - Only Ryan has new slide on PCB Design
  + Team Submissions
    - Microcontroller workshop turned in
* Define Goals (General, see where we need dependencies etc) 8:10
  + Dylan:
    - Optimize lift bag & envelope
    - Add detailed electronics to CAD
    - Force Diagram
    - Finalize motors and servos
  + Isaac:
    - Add physics to simulation environment(Need force diagram)
    - Fix CAD file exporting to simulation
  + Leon:
    - Get sensors and other parts working with microcontroller
    - Be able to read data from the sensors
  + George:
    - Complete root locus(control software) C library
    - Add throttle control for RC
  + Ryan:
    - Work on second PCB design with surface mounting
    - Implement raspberry pi into PCB
    - Help Leon with cameras
  + Jeremy:
    - Complete full power budget
    - Simulate power drain with first PCB design
* Define End Date 8:30
  + Sprint end: 2/20/21
* Tasks (Specific) List Requirement ID if available. Time estimate. 8:32
  + Leon (15 hours)
    - Program sensors with microcontroller and read data (15 hours)
      * IMU
      * Ultrasonic
      * Barometric
      * GPS
  + Jeremy: (12 hours)
    - Complete full power budget with Leon (6 hours)
    - Simulate power drain with first PCB design (6 hours)
  + Isaac (18 hours)
    - Implement buoyancy to balloon (6 hours)
    - Implement propeller forces (NEED FORCE DIAGRAMS) (6 Hours)
    - Implement servo movement (6 hours)
  + Dylan (20 hours)
    - Simulation for finding envelope design
      * Find force equations equations (3 hours)
      * Graph force equations (2 hours)
      * Force simulation (2hours)
      * Analysis (2 hours)
    - CAD Draft 2
      * Envelope/Balloon update (2 hours)
      * Update other parts to fit new envelope (2 hours)
      * Add in some electronics to gondola (2 hours)
    - Force Diagram (3 hours)
    - Decided on Motors and Servos (2 hours)
  + George (36 hours)
    - RC throttle control (2 hours)
    - Define characteristic differential force equations (7 hours)
    - Find transfer functions (5 hours)
    - Design overall controls (10 hours)
    - Use simulation to define gains (2 hours)
    - Implement in C libraries (10 hours)
  + Ryan (15 hours)
    - Work on second PCB design with SMD(4 hours)
      * Capacitors
      * Resistors
      * Diodes
    - Implement raspberry pi into PCB (8 hours)
      * Connect Arduino and Raspberry Pi compute module data bus
    - Help Leon with cameras, update block diagram with cameras (3 hours)
      * Decide on camera, transmitter and receiver components

Meeting End: 9:00