

EE CprE SE 491 - MAY15-28

MicroCART Senior Design Team

Meeting Minutes - Week 13

December 2, 2014

Attendance:

Team Members:

Paul Gerver
Joe Benedict
Jacob Rigdon
Matt Vitale
Ravi Nagaraju
Adam Campbell

Advisors: (All Present)

Dr. Phillip Jones
Dr. Nicola Elia

Agenda Items and Discussion

- 1) Task documentation
 - Client reviewed all items and asked for a status report for each one
 - Client stressed the need to clean up and properly comment all programming code
 - Client requested video tutorials for using CAD tools (AutoCAD and SolidWorks)
- 2) Milestone presentation
 - Wednesday, December 10 from 12:30-12:55 PM
 - Held in Coover 3041
- 3) SD card for Zybo
 - Need to find out maximum size accepted by Zybo
- 4) Wi-Fi communications
 - Current PMOD unit cannot use UART protocols
 - Will need to use SPI and initiate communication from the Zybo board
 - Need to connect PMOD to local router first to get MAC address
- 5) Chassis and hardware
 - New RF receiver needs to be bound to transmitter
 - Need to improvise an onboard power supply for Zybo board and receiver pending the delivery of the power control circuit board
- 6) PID controls
 - Need to work on mixing signals (with sensor board feedback) with focus on RC flying

7) 3-axis sensor

- Current data from accelerometer and gyroscope good enough for initial flight tests
- Need to integrate sensor data with PWM signal from RC controller
- For next semester: better filtering needed to correct actual gyroscope drift

8) Power control circuit boards (motors and Zybo)

- Some traces on the Zybo control board are too narrow and need widening to ~40 mil to prevent excessive heat build-up
- The voltage required to enable the switching regulator on the Zybo control board is above the voltage level that would damage the LiPo battery, so it acts as the over-discharge protection circuit for the battery (no extra components are needed)

9) PID controls

- Next step: work on mixing signals (including sensor board) with focus on RC flying

Deliverables for next week

Joe

- Mount batteries and RF receiver for client demo
- Design and implement solution for powering the Zybo board and receiver
- Finish documentation assignments

Paul

- Finish task documentation as needed
- Finish final version of Project Plan and Design Document
- Integrating sensor board data with pitch and roll PID controllers

Matt

- Help with power control boards project (remove road blocks, if any)
- Help with PID controls testing
- Proof read slides and prepare for presentation

Ravi

- Send list of parts and PCB gerber files to Lee Harker for ordering
- Push documentation on repo
- Create and send updated presentation slides

Jacob

- Read Wi-Fi documentation
- Help with creating milestone presentation
- Any help with meeting our team goals

Adam

- Working on the yaw PID and then moving to the roll and pitch PIDs

Tyler

-