EE CprE SE 491 - MAY15-28
MicroCART Senior Design Team

Meeting Minutes - Week 8

October 21, 2014

Attendance:

Team Members: (All Present)
Paul Gerver
Tyler Kurtz
Joe Benedict
Jacob Rigdon
Matt Vitale
Ravi Nagaraju
Adam Campbell

Advisors: (All Present)
Dr. Phillip Jones
Dr. Nicola Elia

Agenda Items and Discussion

1) Repository
   - Has been restructured and previous issues appear to be resolved
     a) One workspace for all projects
     b) Each project (task) has its own folder
2) Bluetooth and Wi-Fi communications
   - Zybo board is recognizing Bluetooth module
   - Able to send signal from laptop to Bluetooth
   - Next step
     a) Read register values and send via Bluetooth to laptop
3) Motors and Mixing
   - Signal mixing on Zybo board is successful
   - Able to send RF signals from RC transmitter to control motors
   - Next steps:
     a) Mount remaining hardware on chassis to begin roll/pitch/yaw testing
        (1) Battery for motors
        (2) Battery for Zybo
        (3) RF receiver
        (4) IR trackers

4) Chassis and Hardware
    - Design and produce adapter to mount quadcopter to test platforms
    - Design and produce adapter to mount IR tracker to quadcopter
5) 3-axis sensor
    - 2-way communication established with sensor
    - Able to read information from registers
    - Unable to interpret output data from sensor registers
    - Next steps:
        a) Configure sensor for continuous data output
        b) Interpret output data and relate to real-world values
6) Modeling
    - Refer to sections of Matt's thesis for overview on modeling quadcopters
    - Will start with Complementary filters
7) Battery regulators (motors and Zybo)
    - Initial schematic is finished
    - Integrated both regulators onto one PCB
    - Client requested separate and combined designs for comparison
    - Next step:
        a) Finalize designs for separate and combined regulators
8) Wiki Page and Website
    - Wiki page will hold all information and documents
    - Website will contain only final "polished" versions of product and documentation
9) First draft of Design Document is due on 10/28/14
    - Each member needs to upload items to Google Drive
10) Team needs to coordinate schedules in order to have someone available for demonstrations for tour groups through Coover

Deliverables for next week

Ravi
- Create PCB schematic of voltage regulator(s) on Eagle
- Consult with Ian McInerney on the final design and functionality of regulators

Matt
- Look into activating the FIFO for burst reads from 3-axis sensor board
- Continue to develop AutoCAD skills

Jacob

- Group task to get 2-way Bluetooth communication working

Paul

- Get I2C register writing working on 3-axis sensor
- Work on Design Document
- Finish scripting on MicroCART machine to open most recent test flight data in MATLAB

Tyler

- Reading data from the camera system to the computer
- Communicating with the FPGA board from the computer system (outputting RPY)
- Implementing a simple PID controller

Joe

- Read about Complementary filters
- Read selected sections of Matt's thesis on modeling
- Produce adapters for IR tracker to connect the quad to the test bench
- Upload my portion of Design Document

Adam

- Group task to get 2-way Bluetooth communication working
- Investigate, with Tyler, the current camera system and try to put together some simple proof of concept programs