

EE CprE SE 492 – MAY15-28

MicroCART Senior Design Team

Weekly Report 25

March 30 – April 5

Faculty Advisers

Phillip Jones

Nicola Elia

Member	Position	Weekly Hours	Total Hours
Paul Gerver	Key Concept	7.5	203
Tyler Kurtz	Key Concept	-	174.5
Ravi Nagaraju	Webmaster	7	122.5
Adam Campbell	Webmaster	6	117.5
Joe Benedict	Communications	5.5	232.75
Jacob Rigdon	Communications	4	124
Matt Vitale	Team Lead	3.5	149.75
Matt Post	Key Concept	-	36

Progress

- 1) Batteries are stabilized and determined the quad's center-of-balance is comparable to an off-the-shelf vehicle
- 2) Feedback from Dr. Amariucaï
  - Only minor tweaks are necessary – almost there
  - Notes from the presentation were recorded
- 3) Videos show manual flight is taking place
  - Quad attached by one tether
  - Manual piloting skills must be honed

Plan of Action

- 1) Manual flight demonstration is the highest priority milestone at this time
- 2) Plan Poster and Final Document completion
- 3) Revisit PID tuning per Dr. Jones' instruction
- 4) Dedicate team members to website, archives and documentation

## Pending Issues

- Bluetooth communication rate is locked, and cannot be increased
  - Next suggested method is to go to packet-based approach rather than sending strings of data
- Emailed Matt Rich requesting the Controls Lab YouTube channel address, but no response at this time

## Contributions

### Paul – 7.5 Hours, 203 Total

- Worked with Tyler to test manual flight - 2
  - Used the aggressive method to take the quad off the ground quickly
    - Used only a single tether suggested by Matt Rich
- Made changes of presentation with Joe - 3
  - Updated most slides that Dr. Jones specified
  - Moved things around to make things flow better
- Presentation for George - 1
  - Collected feedback to improve final presentation
- Worked on improving Bluetooth speed to reduce wait time after flight - 1
  - Not successful
- Walked over new camera system to quad communication protocol with Adam - 0.5
  - Discussed new programs, Inter-process communication issues and solutions
- Helped Brain Anderson with his problems - 0

### Tyler – 0 Hours, 174.5 Total

- 

### Ravi – 7 Hours, 122.5 Total

- Updated website with videos page and some more documentation- 1.5
- Updated regulators documentation with new screenshots & resistor values - 1.5
- Updated wiki with link to videos page, some more documentation, and coordinated plan with Jacob - 1.5
- Updated circuits and sent updated PCB boards & BOMs to Lee to order - 1.5
- Meeting with client - 1

### Adam – 6 Hours, 117.5 Total

- Polished up Bluetooth documentation and posted it to drive - 1
- Meeting with client - 1
- Worked towards incorporating camera system; set up packet based communication protocol to distinguish between quad commands and cam system updates; mostly complete, testing needed - 4

Matt P. – 0 Hours, 36 Total

- Nothing reported

Joe – 5.5 Hours, 232.25 Total

- Compiled WSR, organized the Drive - 1.0
- Team meeting - 1.0
- Helping with manual test flight - 1.5
  - Measuring Bluetooth transmission rates
  - Balancing quad on center-of-gravity
- Updated PPT presentation with Paul -1.5
  - Adding pictures and videos
  - Updating project "current" status
  - Verbiage editing
  - Adding new team member
- Finished battery charging document - 0.5
- Requested creation of MicroCART ISU profile from ETG - 0.0

Jacob – 4 Hours, 124 Total

- Team Documentation – 1
- Project Presentation with Dr. Amariucaí – 1
  - Recorded and distributed feedback
- Wiki Editing - 2
  - Read Ravi's documentation on making changes to the websites
  - Pushed Documentation updates to the page

Matt V. – 3.5 Hours, 149.75 Total

- Demo for Wednesday - 2
- Camera System ready for logging - 1.5

Meeting Minutes

1) Final push game plan

- Dr. Jones reviewed each item and requested an update on each one
  - On-time results are more important than the man-hours necessary to complete the tasks
  - More details needed in the weekly progress reports

2) EE 429 meeting on Thursday, April 2

- Update the PPT presentation per advisor's notes
- Practice for the presentation

- 3) Final group presentation
  - During dead week on Thursday, April 30
  - Power Point presentation in Coover 3043 at 1:30-2:10
    - Dr. Jones suggested we request a longer time due to team size
    - Need to request different time slot due to schedule conflict with Dr. Jones
  - Atrium/lab demonstration 3:00-5:00
    - One person in atrium with PC looping videos
    - Poster and rest of team in the lab
- 4) Bluetooth
  - Documentation for latency, measuring and running base station program
  - Speed is good enough for current purposes (baud rate at maximum of 921600)
- 5) Data collection/analysis
  - Everything but camera data
  - Battery voltage capture not a priority
- 6) Manual flight demonstration
  - Deadline coming up Monday, April 13
  - This milestone must not be missed
- 7) PID tuning
  - Filter error found and corrected by Paul
  - Add specifics for each member in the notes section of tasks (responsibilities)
  - Ready for camera yaw to be integrated with gyro
  - 3-axis stand will be used by 488 class starting Wednesday, April 1 and will be returned on Wednesday, April 7
- 8) Documentation
  - All documentation will be sent to Ravi to be posted to proper sites/archives
- 9) Controls lab YouTube account
  - Contact Matt Rich for page address
  - Contact ETG for local MicroCART account or ISU account