

EE CprE SE 492 – MAY15-28

MicroCART Senior Design Team

Weekly Report 22

March 2 – March 8

Faculty Advisers

Phillip Jones

Nicola Elia

Member	Position	Weekly Hours	Total Hours
Paul Gerver	Key Concept	7	176
Tyler Kurtz	Key Concept	6	166.5
Ravi Nagaraju	Webmaster	6	107.5
Adam Campbell	Webmaster	2	104.5
Joe Benedict	Communications	5.5	203.25
Jacob Rigdon	Communications	2	115
Matt Vitale	Team Lead	2	140
Matt Post	Key Concept	-	36

Progress

- 1) Completed changes to the Zybo power control PCB and moved forward with ordering a second set of parts
- 2) Achieved a very stable and responsive Gyroscope PID for pitch

Plan of Action

- 1) Manual flight demonstration is the highest priority milestone at this time
- 2) Develop data capture from sensor board and camera system for comparative analysis
- 3) Develop data capture of PID coefficients, input signals and motor output (maybe) for plotting and analysis
- 4) Plan Poster and Final Document completion
- 5) Continue documentation process as background task

Pending Issues

- 1) None Reported

## Contributions

Paul – 7 Hours, 176 Total

- Helped Matt Post get Quad mounted on ECP machine for Pitch tuning - 2
- Tuned Pitch PID - 5

Tyler – 6 Hours, 166.5 Total

- Cleaned up PID tuning code
- Debugged some orientation issues
- Added inner/outer loop software structure
- Fixed dt for complimentary filter
- Worked on PID tuning

Ravi – 6 Hours, 107.5 Total

- Client Meeting - 1
- Updated website - 0.5
- Updated Zybo power PCB with updated inductor footprint and silkscreen - 2.5
- Updated motor power indicator PCB with silkscreen - 1
- Created PowerPoint documentation for board updates - 1

Adam – 2 Hours, 104.5 Total

- PID Tuning

Joe – 5.5 Hours, 203.25 Total

- Client Meeting - 0.5
- Compiled weekly goals and cleaned up documents on The Drive - 1.0
- Discussed and applied changes to the PCB layout for the Zybo power control circuit with Ravi - 3.0
- Began building 2nd prototype of Zybo power control circuit using parts currently on hand from the initial design - 1.0

Jacob – 2 Hours, 115 Total

- Client meeting – 1
- Team Documentation – 1
- Unforeseen conflicts

Matt V. – 2 Hours, 140 Total

- Started writing C program for serial connection

Matt P. – 4 Hours, 36 Total

- Nothing to report

## Meeting Minutes

### 1) Demo of Yaw PID

- Looks very nice
- Dr. Jones wants functionality to make the PID correct to a constant angular velocity, rather than only to none at all
- Overview of the progress that was made
- Next step for PID testing is to mount the quad to test Roll and Pitch

### 2) Administrative Gmail Account

- Need to establish an administrative Gmail account that will be for the lab and not an individual
- Drs. Jones and Elia will decide on a name (Gmail) and team members will set it up

### 3) Zybo Power Control Board

- First prototype failed
- Reason for failure unknown, possibly due to the inductor not completely mounted
- A second prototype will be built and tested with the inductor connected using jumper wires
- The PCB layout will be redesigned to accommodate the current inductor footprint and new parts ordered
- Silkscreens will be updated and added to both PCB files (motor and Zybo)