CPRE 491

Senior Design May 22, 43

MicroCART Senior Design Team

Week 20 Report

March 21 - March 28

Faculty Advisor: Philip Jones

Members:

Ryan - System architect

Zach - Groundstation lead, co system architect

Reid - GUI team lead, Test station sub-team

Ellissa - GUI sub-team

Colton - Git manager, Firmware lead

Carter - Web Master, OptiTrack Lead

Brandon - Project Lead, Test Station lead

Links

- Shared Google drive folder
- Order list
- Crazyflie inventory

Summary of Progress this Week

- Lots of progress on the GUI. All functionality working, now working on tuning the graphing / logging system. - Colton, Ryan, Zach
- All test stands for the lab printed and sensors mounted - Brandon
- Added additional details to the lab doc about the GUI, test stand, and performing various tasks for the lab - Colton, Reid
- Worked with ETG to flesh out a plan for deploying the VM image to all of the lab computers. I will set it up on one machine and they will then copy that installation to all other computers. - Colton, Ryan

Pending Issues

- Additional spool of filament may be needed to finish printing as the test stands consumed most of the existing supplies
- Need to finish writing the ground station code before we can load the VM image onto the lab computers.

Individual Contributions

Team Member	Contributions	Hours	Total Hours
Brandon Cortez	- Completed printing of test stands for lab - Began the mass production of drone mounts - Assembled some backup PCB circuits on breadboards in case PCBs do not arrive in time - Worked with Reid to modify test stand firmware to provide both position and yaw rate - Scheduled soldering equipment training with Reid	11	123
Reid Schneyer	Updated control board firmware to support position and rate Scheduled time to get trained on SICTR's soldering equipment Waiting for PCBs	8	112
Colton Glick	- improved gamepad configuration tab. Users can now specify the joystick scaling and invert joysticks - Created new custom mixed attitude setpoint packet decoder to crazyflie firmware - Added mixed attitude setpoint packet sending to the GUI - Found issue with Crazyflie where the motors sometimes interfere with communication and the connection to the CF is dropped. Not sure how to fix going forward. - Worked with Zach to figure out why CF was disconnecting. The command to send setpoints to the CF has a set buffer size, when sending a thrust of 5 digits and a negative roll and negative pitch, was overflowing that	26	189

	buffer and the command wasn't getting sent. No communication with the CF for a time caused the backend to disconnect. Fixed by increasing the packet buffer size from 70 to 128 - Improved the lab doc, adding details and refining - Worked on debugging new disconnection issue when getting and setting parameters, increased num of allowed pending responses on CF ground station - Worked with Ryan and Zach on GUI graphing - Worked with Zach on debugging reading data from the test stand into the ground station - Got the VM image setup with all the required files for the lab, waiting on ground station software		
Ellissa Peterson			78 + _
Ryan Hunt	-added graphing to GUI -assisted in vm installation -updated lab document with GUI instructions -took part in multiple dry runs of lab taking notes on what doesn't work out what could be improved	24	127
Carter Irlmeier			70 + _
Zachary Eisele	-solved many bugs mentioned above -worked to get logging working	20	188

Comments and Extended Discussion

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Plans for coming Week

- Complete printing of drone mounts and PBC housings for the lab- Brandon
- Load the VM image on lab computers. Attend Friday lab times to help troubleshooting - Colton
- Get lab doc in a state that it is ready for students - Ryan

- Assist and get feedback during lab sessions - ryan