

# EE CprE 491 – Fall 2019

## MicroCART Senior Design Team

### Weekly Report 11

*Jan 13th - Feb 2nd*

*Faculty Advisors: Phillip Jones, Matt Cauwels, James Talbert*

#### Team Members:

Evan Blough -- Technical Team Lead, Embedded Software Lead  
Kynara Fernandes -- Ground Control Station Lead  
Aaron Szeto -- Controls Lead  
Joe Gamble -- Embedded Hardware Lead  
Shubham Sharma -- Crazy Fly Implementation Lead, Website Manager  
Jacob Brown -- Physical Hardware Lead

#### Summary for Progress this Week

For the past 3 weeks we have worked on supporting autonomous flight capabilities for the second drone, focusing on outlining realistic work goals for this semester, and adapting the Windows 10 VRPN capture platform.

#### Past Week Accomplishments

- Debugged drone flight issue. Polarity on ESC connection was wrong. Rewired it and autonomous flight is supported for both drones. (Evan)
- Made a bash script for loading node parameters from drone and exporting them to a .txt file. (Evan)
- Tried to bind HKT6A-V2 transmitter to AR610-X RC receiver. Multiple attempts failed. Found some forum articles supporting that generally RC transmitters and receivers should have the same brand to support compatibility.(Evan)
- Tried to reflash firmware to Dx6 controller, but to obtain the firmware files you need to register the product. The controller software contains the serial number. Researched a cheap 6 channel transmitter (Evan) (See Appendix)
- Initial progress on separating GUI into components to make changing controller algorithms and mult drone features easier to approach (Kynara)
- Set up the Windows 10 computer for the camera system. Backed up the previous computer keeping all original files.
- Set up Optitrack using the original licensing. Calibrated all cameras to exceptional accuracy.

#### Pending Issues

- Need to update the backend code to set up communication between the new camera system computer and the ground station

## Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Evan Blough	Debugged drone flight issue. Polarity on ESC connection was wrong. Rewired it and autonomous flight is supported for both drones. Made a bash script for loading node parameters from drone and exporting them to a .txt file.	10	10
Kynara Fernandes	Initial progress on separating GUI into components to make changing controller algorithms and multidrone features easier to approach	4	4
Joe Gamble		4	4
Jacob Brown	Began design of crazyflie testing platform	4	4
Aaron Szeto	Downloaded encoder schematics and started looking into how to apply them to turntable	4	4
Shubham Sharma	Set up the Windows 10 computer for the camera system. Backed up the previous computer keeping all original files. Set up Optitrack using the original licensing. Calibrated all cameras to exceptional accuracy.	6	6

## Plans for Coming Week

- Modularity for GUI. Create a design for other control algorithms GUIs
- Backend code modification to set up communication between the new camera system computer and the ground station

## Appendix:

[https://www.amazon.com/Spektrum-2-4GHz-6-Channel-Transmitter-SPMR1000/dp/B015ZOEVBVY/ref=asc\\_df\\_B015ZOEVBVY/?tag=hyprod-20&linkCode=df0&hvadid=312136795426&hvpos=1o1&hvnetw=g&hvrnd=10370356451097238739&hvpon=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=1015640&hvtargid=pla-402285378173&psc=1](https://www.amazon.com/Spektrum-2-4GHz-6-Channel-Transmitter-SPMR1000/dp/B015ZOEVBVY/ref=asc_df_B015ZOEVBVY/?tag=hyprod-20&linkCode=df0&hvadid=312136795426&hvpos=1o1&hvnetw=g&hvrnd=10370356451097238739&hvpon=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=1015640&hvtargid=pla-402285378173&psc=1)

Cost: \$70.00

