

EE CprE SE 492 - MAY15-28  
MicroCART Senior Design Team

Meeting Minutes - Week 13

April 13, 2015

**Attendance:**

**Team Members:**

Paul Gerver  
Adam Campbell  
Matt Vitale  
Matt Post  
Joe Benedict  
Ravi Nagaraju  
Tyler Kurtz  
Jacob Rigdon

**Advisors:**

Dr. Phillip Jones  
Paul Uhing

**Agenda Items and Discussion**

- 1) Manual flight demonstration
  - Awaiting delivery of replacement blades before testing can resume
  - Aiming for Monday, April 20 for client demonstration
- 2) PID tuning
  - D component is tuned in the outer loop the final PID tuning
  - Matt Rich advised of a possible issue with simultaneous rotation on multiple axis
    - It may return poor Euler angle data
    - He suggested applying another matrix to the gyroscope data to correct this
- 3) Camera system
  - Camera data is now being sent to the quad via the base station through the Bluetooth connection
  - Bluetooth transmission is using packets
  - Next step: Integrate camera's pitch and roll data into the analysis tool for comparison with the quad's onboard pitch and roll data (yaw?)

#### 4) Kill Switch

- Tyler created hardware-based control
- Continuously checks the PWM output signal
- Stops the system if signal is unchanged for 0.7 seconds

#### 5) Robust connections

- Matt P. installed IDC connectors on the Zybo board for the sensor board inputs, receiver power, receiver input signal and ESC output signal
- ESC ground wires soldered together as a common ground

#### 6) Zybo power

- Awaiting delivery of v2.0 regulator PCB
- Source 7.4V 2-cell LiPo batteries to replace current 4 AA batteries
  - Determine ideal package size and capacity requirements for 2-cell battery (current pack supplies 1300mAh or 2100mAh depending upon the batteries)