Group: May 1738

Project: Flying flashlight

Advisor: Professor Gary Tuttle

Members: Peter Bonnie, Brady Koht, Sebastian Roe, Joseph Wickner, and Scott Melvin

- **Weekly Summary**

  As we approach the final presentation date for senior design, our group is attempting to finish our rudimentary proof of concept. Having put together a few hardware and software components already, our group is confident that the second semester of senior design will go well.

  The week before thanksgiving was spent toying with the flight controller, frame design, and power management. The flight controller will constantly need to be experimented with to find a user friendly design. The frame design could use some minor improvement to allow for a lighter cargo and better structural support. Lastly, several ideas were discussed to see how power management should be designed. This is a crucial component that we will not take lightly since cable management is important to a good quadcopter.

- **Past week accomplishments**
  - Minor changes were made to the frame to improve various characteristics like weight, heat dissipation, and cable management. This new version of the frame will likely be fabricated during the next semester.
  - Wireless communication between the flight controller and the user controller was established. This means a user can now control the quadcopter wirelessly via Xbee radio communication. There are still some issues with the communication but that will be discussed in the extended discussion section.
  - Several ideas were debated for a power management board. However, it was decided that a crude but usable board will be made and a better design will be created during the spring semester.

- **Pending issues**

  No real pressing issues. Our group is working to get as much as we can to show for our final presentation at the end of the semester.

o   **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Peter	Established communication between two Arduinos using XBee radios. This allows for a cheap transmitter and receiver design to be used. Upon first tests, there seem to be some small errors can be corrected. These will be solved with more experimentation.	7	47
Brady	Started on the revisions to the quadcopter frame. Proposed various changes upon testing and inspection of the current frame design.	5	39
Scott	Started prototyping a power distribution board after several ideas were discussed. Decided to use a perfboard for now and will create a PCB design for next semester	5	39
Sebastian	Continuously has updated the website and fixed some errors that were mentioned in the most recent feedback from blackboard.	5	39
Joe	Also helped start the power distribution board. Worked on the communication with the Arduinos and creating new ideas for a user interface.	5	39

o   **Comments and extended discussion**

Upon the first couple tests of the XBee radios there appears to be some small error generated when the receiver Arduino actually received the data package. The throttle value jumps up for a brief instant, and this causes the motors to also briefly rev up and then settle. Currently there has been no solution to this problem but with more experimentation we are confident we can find where the problem is coming from.

o   **Plan for coming week**

We are attempting to finish a proof of concept design by the presentation date. This would entail create a rudimentary power distribution board and fine tuning the wireless communication. Also, since presentations are dead week, we must also create a slide show presentation as well.

o   **Summary of weekly advisor meeting**

We did not meet with Professor Tuttle this week.