CMPE 195A

August 27, 2017

Update for Project ARD

Group Updates: Met up to test both drones in our possession, crazyFlie 2.0 and Xiro drone. Attempted to flash firmware on crazyFlie 2.0. The firmware that we are attempting to flash on there will allow us to achieve stable flight with the crazyFlie. Additionally, we have established functionality of the LED array from the Raspberry Pi. We took the Xiro drone on a test flight and were able to witness its power and durability, both attributes are crucial for the ruggedness required for the future drone.

Anahit

* Implemented RGB led matrix for RPI
* Uploaded custom firmware to crazyflie
  + <https://dev.px4.io/en/setup/dev_env_mac.html>
  + <https://wiki.bitcraze.io/doc:crazyflie:client:pycfclient:index#bootloader>
* Photos attached.

Ali

* Located the Pixhawk PX4 autonomous flight package
* Assisted with flight tests

Max

* Researched options for sensors enabling autonomous flight
* Found solid option which can enable a range of up to 20’ proximity detection
* Found information on ultrasonic sensor which also has information on integrating the sensor

Brian

* Conducted several test flights using the Xiro Explorer drone
  + Z-axis ascend and descend
  + Z-axis rotation
  + XY-plane movements high and low altitude
  + Performed compass calibration
  + Set FCC mode
  + Tested lift off in doors with attitude mode
* Setup crazyflie suite
* Flashing crazyflie with new bootloader and firmware
  + This update is to install the autopilot software as specified by Ali (PX4). It should allow us to gain autonomous flight via the crazyflie core.
* Questions moving forward
  + How to call the drone to a users phone GPS location via phone app?
    - If we can command the drone to a GPS location using our computer or phone (base station), then we could relay the GPS location of a user to the base station, and use it to command the drone to fly autonomously to the destination...
* Tasks moving forward
  + Connect 4 chan esc to some motors, observe outputs, using crazyflie control app.
    - This will confirm functionality of bigquad and esc
  + Run tests using new autopilot firmware
  + Figure out GPS

*Appendix*

***Photos***

