FlyNet Team Minutes

8 September 2015 3:00PM – 5:00PM

Recorded by: Drew Ellison

Attending: Drew, Steve, Matt, Bryce, Taylor, Tyler, Prashant

PM gave overview customer meeting.

Customer Meeting takeaways:

* Flying through 3D map with static 3D obstacles
* 2 autonomous vehicle minimum
  + At least one flying
* Vehicles should share pose info and maps/obstacle locations
* Onboard processing for all vehicles. No ground station in loop.
* Total autonomy, no human input
* 15-20 minute endurance
* May have building blueprint, does not include obstacles
* Focus on:
  + Perception
    - SLAM, Visual Target ID/Tracking
  + Planning
    - Group coordination for search, SLAM
* RFID Tags or QR codes on target for target confirmation (tagging)

PM gave overview of org chart. See project charter for assigned roles.

The team has a point of contact at BYU for support for aerial vehicles performing SLAM.

The team now has bi-weekly customer meetings during our normally scheduled meeting on Wednesdays. The customer meeting will take place from 11:00AM to 11:30AM. This week, it will take place in the Lockheed Martin room, a conference phone for Fleming is being investigated.

The proposed solution was discussed in detail. Points included

* RGBD SLAM is a go
  + Steve has contact with ASUS Xtion running RGBD SLAM on a NVIDIA Jetson 🡪 Proposed setup
* Vision Team is investigating feasibility of running SLAM in parallel with visual odometry for velocity measurements
* 6 Ultrasonic sensors are proposed as a fast way of providing obstacle avoidance measurements, as well as providing additional feedback to estimators.

Action Items:

* Vision team will start prototyping SLAM on a laptop 🡪 Demonstration in 2 weeks (9/23/15)
* Vision team will investigate visual odometry feasibility
* Controls team will develop quadrotor and controller models for position and velocity control 🡪 Presentation next week (9/16/15)
* Controls team will begin development of controller implementation by interfacing computers with a Pixhawk
* Simulation team lead will work with controls team to develop robust matlab interface for quadrotor simulation
* PM will get card access for team members
* PM will start purchasing procedure for onboard computers and cameras