October 23rd
6:30 PM - 8:00 PM

In attendance: Yulin, Kojo, Sam, James, Matt, Dean

Topics of Discussion:
1. Available hardware options for LoRA communication
   a. Raspberry pi (device) hardware
   b. Gateway hardware
2. List needed hardware to request by December 2nd
3. Testing Criteria options

Meeting minutes:
- Hardware usable for both transmitting and receiving:
  https://www.cooking-hacks.com/documentation/tutorials/extreme-range-lora-sx1272-module-shield-arduino-raspberry-pi-intel-galileo/
  https://www.cooking-hacks.com/sx1272-lora-module-for-arduino-raspberry-pi-intel-galileo-868-mhz
  - Above link explains the difference regarding LoRa vs LoRaWAN communication, ours would need to be the former (peer-to-peer connection over LAN with a single node optionally being connected to WAN)
  - Liberium platform has advantage of being able to inferface directly with the Raspberry pi, eliminating some cost of buying a shield (reference RPIgateway.html)
  - Example of Liberium platform being used for LoRa gateway:
    http://cpham.perso.univ-pau.fr/LORA/RPIgateway.html
  - Datasheet: http://www.semtech.com/images/datasheet/sx1272.pdf
- Testing Criteria:
  - Transmission speed and data volume tests based on the sensor parameters that will ultimately need to be retrieved from the device
    - Device name/id
    - Runtime since last power on
    - Total life runtime
      - All 3 of the above determined by Pi hardware
    - Gyroscope/accelerometer data?
      - Velocity and acceleration?
      - Directional data?
    - Room Temperature
      - http://wiki.seeedstudio.com/wiki/Grove_-_Temperature_Sensor
      - http://wiki.seeed.cc/Grove-Temperature_and_Humidity_Sensor_Pro/
      -
  - Bitrate for sx1272 architecture: 33kb/s, consider for speed tests

- - - This limitation will apply to the gateway as well if using the same hardware (I.E. need to account for a max number of devices connectable to a single gateway)
  - RPIgateway.html document listed above contains details for field testing a raspberry pi-based LoRa gateway

Responsibilities for next week:
- Compile more complete list of required hardware with total cost
- Evaluate acceptance criteria and determine minimum volume/speed requirements of LoRa transmitter
- Choose sensor hardware for quadcopter
  - http://www.dexterindustries.com/GrovePi/supported-sensors/
- Begin to evaluate security considerations:
  - https://labs.mwrinfosecurity.com/assets/BlogFiles/mwri-LoRa-security-guide-1.2-2016-03-22.pdf
- **Tenative next meeting schedule:** 10/28 10:00 AM ~ 12:00 PM