Visual Odometry:

Completed Tasks:

Current Tasks:

Future Tasks:

Deadlines:

Problems/Issues:

Links:

Questions:

Dead reckoning Team:

Completed Tasks:

Brendan: Performed research on how the IMU collects data and how bias develops. Worked with team to test IMU and ensure quality data was being taken. Used data to estimate average bias and worked with Ryan in developing a first draft bias correction code. Working on developing code that will further eliminate bias.

Ryan: Testing of the IMU for bias. Orientated the IMU different ways each tests to look for bias in the negative direction also. Worked with Brendan to develop a bias correction code and looked at the output results for position. Readings were much better but method needs updating.

Current Tasks:

Future Tasks:

There may be the opportunity to work with an EKF code (Dr. Mekky working on it). Updating the first draft of the bias correction code.

Deadlines:

Problems/Issues:

First draft bias correction resulted in potential output errors due to sign convention of the bias values being subtracted (ex. A negative bias subtracted from a positive input results in an addition of bias, as opposed to removal or subtraction).

Links:

Questions:

Pi Integration/GPS:

Completed Tasks:

Josh: A connector was fabricated to allow data to be received from the Raspberry Pi's GPOI pins to the GPS_1 port of the PixHawk.

Vivian: Connection issues between GPS and Pi were diagnosed. I soldered a new GPS BerryGPS-IMU V3 and pin connection together and connected to the Raspberry Pi board. The subgroup and I tested the new GPS. I found a shell script to call NMEA codes in clear format.

Rushal: I researched issues with GPS communication and troubleshot error codes with the new GPS module. I helped set up the new GPS BerryGPS-IMU V3 and tested it with success. Assisted Vivian in writing the NMEA shell script.

Nick: I took the 3DR GPS home over the weekend and was able to get it to show data. Issues with connection between GPS and Pi were diagnosed. A new Pi case was assembled to house the raspberry Pi, GPS module, and cooling fan. I tested new BerryGPS-IMU V3.

Current Tasks:

NMEA data streaming to Pi. GPSMON, CGPS not working, need troubleshooting. Created a python file "GPSdisplay.py", to write script to display latitude and longitude coordinates.

Future Tasks:

The string of data observed in the Raspberry Pi's terminal will be simulated with a script and sent to the PixHawk to test its ability to read the data format sent from the Pi.

Deadlines:

Problems/Issues:

Links:

Questions: