# **Visual Odometry:**

## **Dead reckoning Team:**

Current Tasks:

Ryan:

- Researching methods to rid the IMU of bias
- Found a MTALAB code on Mathworks that explains a method (<u>https://www.mathworks.com/matlabcentral/fileexchange/33252-mems-accelerometer-calibration-using-gauss-newton-method</u>)
  - They use measurement from the IMU in bits and convert to G
  - 10 different static tests in the input file that the code reads
  - They seem to divide by gravity for their readings
- Trying to understand the method and compare their inputs to our accelerometer inputs

#### Brendan:

- Researching Methods to reduce bias correction error accumulation
  - Testing self-developed program that utilizes both the overall data averages and the averages of the max and min values of the data set to try and account for the fluctuations in bias during each time step.

Future Tasks:

Ryan: Research on bias and noise correction will continue.

## **Pi Integration/GPS:**

Current Tasks:

Josh: Integration research was started to begin converting Matlab code from IMU testing to Python code that will be run on the Raspberry Pi in conjunction with GPS data. Previous work is being researched to find existing solutions to GPS module miscommunication with the Raspberry Pi. Literature has noted that a stronger signal from external antennas was required to view NMEA data with gpsd for some users.

## Links:

Josh: Translating between Python and Matlab <u>https://www.youtube.com/playlist?list=PLn8PRpmsu08oBSjfGe8WIMN-</u> <u>2 rwWFSgr&disable polymer=true&s v1=28772&elgem=2888726 EM WW 19-</u> <u>10 NEWSLETTER EDU-DIGEST-STUDENT 0-3</u>