Team 3 Bi-weekly Report : 04
February 24th - March 9th

Summary:

Object Detection: Was able to get the most significant coordinates of the bounding boxes. Most of the image detection work has been completed and we have started looking into ways to integrate with the distance measurements.

Distance Measurement: This work period we were successfully able to implement scale invariant feature transform through OpenCV to find matching objects in stereo video feeds.

Pending Issues

We were unable to acceptably calibrate the cameras this work period, meaning that the distorted image from the wide angle lense is still present. Additionally, we have found that we are unable to adjust the focus on one of the cameras using the dedicated screw, since it has sheared off, so we are discussing a fix for this with our client.

Plans for the Upcoming Work Period

We plan to begin integrating the two systems this week. This will involve setting up the neural network to detect an object through one video feed and then using SIFT to find the object in the second video feed. Once this is successful, we will be able to measure the performance and see if this is an acceptable method to carry forward with. In addition to this, we will begin coding the stereoscopic distance measurement system.

Individual Contributions

John:

- Team Role: Communications Lead
- Contribution:
    - Unsuccessfully tried to implement MSER to find matching objects in stereo images and looked in into alternative methods to do so
    - Implemented SIFT (Scale Invariant Feature Transform) through OpenCV to successfully find matching objects in stereo video feeds
    - Looked into neural network code to try to find where bounding box coordinates are returned

- Hours Worked: 4
- Total Hours: 30

Souparni:

- Team Role: Meeting Facilitator
- Contribution: Worked with Bowen and Eric to get coordinate of the bounding boxes and manipulate the image in other ways.
  - Hours Worked: 4
- Total Hours: 31

Fahmida:

- Team Role: Tester
- Contribution:
  - Researched SIFT(Scale Invariant Feature Transform) algorithm which can be used to find similar features from different images
  - Debugged and resolved OpenCV errors related to our code on finding corresponding object on both of the video feeds
  - Hours Worked: 7
  - Total Hours:

Ashley:

- Team Role: Document Manager
- Contribution:
  - Explored the different use cases for circular patterns versus grid patterns in stereo camera calibrations
  - Identified key value categories in stereo camera calibration for the grid pattern
  - Total Hours: 6

Eric:

- Team Role: Webmaster
- Contribution:
  - Worked with Soup and Bowen to solve getting coordinates from bounding boxes
  - Spent time going back over our code to understand why it works the way it does instead of just trusting the tutorial
- Hours Worked:8

- Total Hours:

Bowen:

- Team Role: Hardware Maintainer
- Contribution:
  - Worked with Souparni and Eric to export four corner coordinates of boundary boxes.
  - Setup Paper Space for training.

- Hours worked:6
- Total Hours: