NOVEL
Weekly Progress Report #2
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4/10/2019

## This Week's Goals

Based on our project proposal, the goals for this week were:

- Software
    - Write node for object detection based on LIDAR
    - Write node object classification/localization based on Realsense images
    - Create xacro model of robot
- Hardware
    - Design / 3D print holder for camera to attach to robot chassis
- Testing
    - Test LIDAR object detection in simulation
        - Compare single object detection performance versus multi-object detection (up to 3 novel objects)
    - Test object classification/localization using actual images from Realsense camera

## This Week's Progress

- Software
    - Xacro model written with RPLidar and kinect
        - Sensors function in gazebo
    - Lidar object detection written, untested
    - Full integration of ar_track_alvar package
        - RViz and Gazebo environment also constructed for proper simulation of marker detection
- Hardware
    - N/A
- Testing
    - Kinect tested
- Other
    - N/A

**Changes in Project Scope/Goals**

- Switched to using Kinect instead of R200 due to existing support for the kinect being much greater and already existing hardware mount

**Lessons Learned**

- Extensive support is more useful than mild experience (I.e Kinect vs R200)
- R200 has a minimum range

**Next Week's Goals**

Slightly altered from our project proposal and incorporating our lessons learned, next week's goals are:

- Software
    - Write node for controlling camera orientation based on LIDAR and integrate LIDAR detection with camera classification/localization
    - Write action node for deciding what action to take based on detected object and its location
    - *Write object localization for both kinect / Lidar*
- Hardware
    - N/A
- Testing
    - Evaluate how long it takes to classify and localize novel object
    - *Test LIDAR object detection in simulation*
        - *Compare single object detection performance versus multi-object detection (up to 3 novel objects)*

These goals have been updated due to missing a few testing goals this week. The changes have been *italicized.*