**Test Objective/Description:** Visual Odometry Verification and Characterization

**Location:** Fleming VICON Space

**Date:** December 3, 2015

**Hardware Needed:** Guidance sensor, IR orbs, VICON sensors, laptop

**Procedure:**

Check to make sure Guidance cameras are mounted properly.

Attach IR markers to guidance sensor.

Connect guidance sensor to laptop and power on.

Turn on VICON and create a guidance\_standalone from detected markers .

Place guidance sensor on rolling cart with test laptop

Make sure bottom camera view is not blocked.

**Requirements Met**

|  |  |
| --- | --- |
| **1.1** |  |
| **1.2** |  |
|  |  |
|  |  |

**Test Anomalies and Predicted Solution**

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| --- | --- |
| Guidance sensor internally disconnects USB communication | See if recycling via UART reestablishes communication |
| Velocity only seems to be updating when sensor is stationary. | Only use gray scale for forward and down facing cameras. Compare to other visual odom. results. Use a software visual odometry pipeline |
| SW visual odometry gets lost due to lack of features on bare carpet | A wall foam insulation piece was laid on the floor to provide texture for the camera system |
|  |  |

**Test Results:**

Visual odometry depends on bottom facing camera.

Power cycling restores operation of Guidance

Addition of foam provides sufficient texture for the visual system

Accuracy of Guidance visodo system pending analysis