Checkpoint Report

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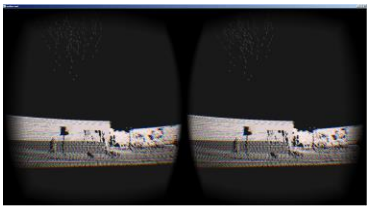
Progress to Date

So far, I have done the following:

- Set up Oculus Rift hardware
- Download, compile Oculus SDK code with sample programs
- Read Oculus API documentation
- Write a test Oculus program that shows a simple room
- Write a point cloud viewer that supports viewing through the Oculus Rift with full positional and rotational tracking (supports point cloud data of the format from http://homes.cs.washington.edu/~kevinlai/datasets.html and has been tested with the urban scenes on that page). A video can be found at https://www.youtube.com/watch?v=R9XcvrQ-9Mo and a screenshot below:



The project source code and documentation (such as this file and the proposal presentation) are available on GitHub with full development history.

Readings: “Kintinuous: Spatially Extended KinectFusion” by T. Whelan, M. Kaess, M.F. Fallon, H. Johannsson, J.J. Leonard and J.B. McDonald; Oculus Developer Guide; Oculus User Guide; "AR-Rift" by William Steptoe

Current Difficulties

I am currently waiting on shipment of a new desktop computer that should speed up development considerably due to increased computing resources. The expected time of arrival is in the next week. My old computer didn’t have a USB 3.0 port which was required to get the Intel depth camera working. I haven’t faced any blocking technical issues so far – most trouble with the APIs etc. was quickly resolved through searching online or experimentation.

Next Steps

One key next step would be to figure out the concrete project plan and goals – so far I’ve been going based on the proposal presentation which isn’t very in-depth. This should help direct development in the coming weeks. Another would be to get the depth camera up and running with its API etc., and then work on a test program to feed data from the camera into the point cloud viewer described above.