530.707 Robot System Programming

3D Visual SLAM and Motion Planning using AR Drone

Weekly Progress Report #2

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1. This Week's Goals

1. Test the LSD-SLAM on the AR Drone
2. Add filter to point cloud to reduce noise
3. Build Rviz world and connect it with LSD-SLAM viewer
4. Start working on path planning package

2. This Week's Progress

1. Successfully apply LSD-SLAM on the AR Drone
2. Visualize the point cloud data offline in Rviz
3. Successfully 3D reconstruct the drone lab (but contain big noise)

3. Changes in Project Scope/Goals

1. Change real time reconstruction on Rviz to offline reconstruction
2. Leave motion planning task to next week

4. Lessons Learned

1. How to apply LSD-SLAM on AR Drone
2. Real time LSD-SLAM reconstruction on Rviz will cause computation overload (should not do real time LSD-SLAM)
3. How to visualize point cloud data on Rviz offline
4. Learn point cloud in .PLY format
5. Know how to control AR Drone through ROS and joystick

5. Next Week's Goals

1. Start working on motion planning package
2. Further improve reconstruction on Rviz

Schedule:

Items	Start Date	End date
Install necessary packages in ROS Kinetic	March 27	March 28
Convert the LSD SLAM from rosbuild+Indigo to catkin+Kinetic	March 28	April 4
Be able to implement LSD-SLAM under ROS Kinetic on our own laptop independently with sample data as input	April 4	April 11
Communicate with AR Drone and get the image data	April 11	April 13
Tesing the LSD SLAM on the AR Drone	April 13	April 15
Path planning package	April 15	April 30
Test LSD SLAM & path planning on AR Drone	May 1	
Wrinting final report and making poster	May 1	