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Summary

SLAM algorithm finally became stable after adding GPS part. It was affirmed by the experiement at the outdoor. In addition, we installed every package at the new Jetson Nano. Lastly, we finished writing the 'Methodology' part of the paper.

What FarmVroong completed this week:

- Stabilized the pose of camera in SLAM

    The pose of the camera in the map has been unstable during the process. We thought that the gps data that we inserted are causing errors while calculating the covisibility graph. Therefore, we fixed that part and stabilized the pose.
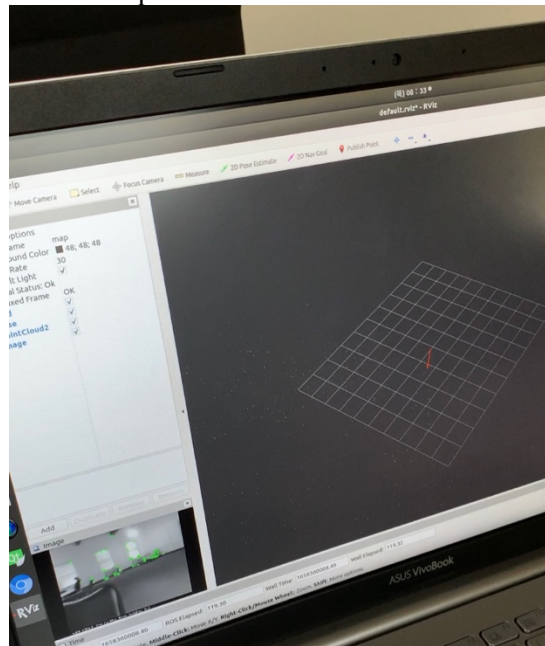

Fig. 1. Visualization of SLAM output

- Outdoor experiment
    We conducted the outdoor experiment and checked the pointcloud map.

Fig. 2. Conducting an outdoor experiment

- Setting up another Jetson Nano

    We thought that the previous Jetson nano was fried because of the overvoltage, (it turned out to be wrong at last, though) so that we set up another jetson and reinstalled all the packages.

- Converting image to map at the 'gazebo' simulator

    SLAM output will be shown as a image. Therefore, on the purpose of path planning it is necessary to convert image into map. By installing 'map_server' package, the converting process succeeded.

- Wrote 'Methodology' part of the paper

    'Methodology' part was written which consists of 'System Overview', 'RGB-D SLAM', 'Path Planning.' Moreover, the outline of the 'Experimental Result' were decided.

Things to do by next week

- Changing the SLAM output to image format. The reason why we need image is that Path Planning algorithm requires image as an input.
- Experiement at the Prof.Smith's farm
- Writing the 'Experiment' part of the paper.

References

[1]   J. Gammell, S. Srinivasa, and T. Barfoot, "Batch Informed Trees (BIT*): Sampling-based Optimal Planning via the Heuristically Guided Search of Implicit Random Geometric Graphs.", 2015.

[2]   R. Mur-Artal and J. D. Tardos, "Orb-slam2: An open-source slam system for monocular, stereo, and RGB-D cameras," IEEE Transactions on Robotics, vol. 33, no. 5, pp. 1255–1262, 2017.

[3]   IntelRealSense, "IntelRealSense/realsense-ros," GitHub, Dec. 11, 2019. https://github.com/IntelRealSense/realsense-ros