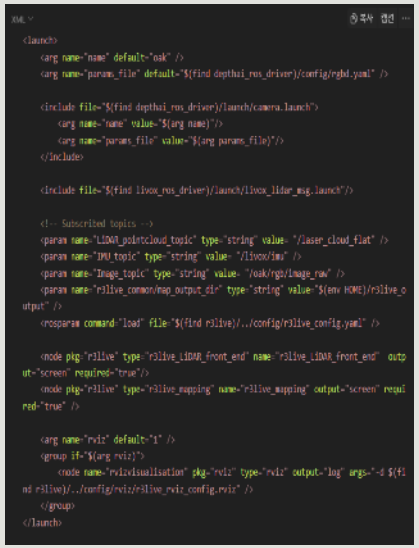
3D MAPPING

정영락, 조명근

프로젝트 진행도



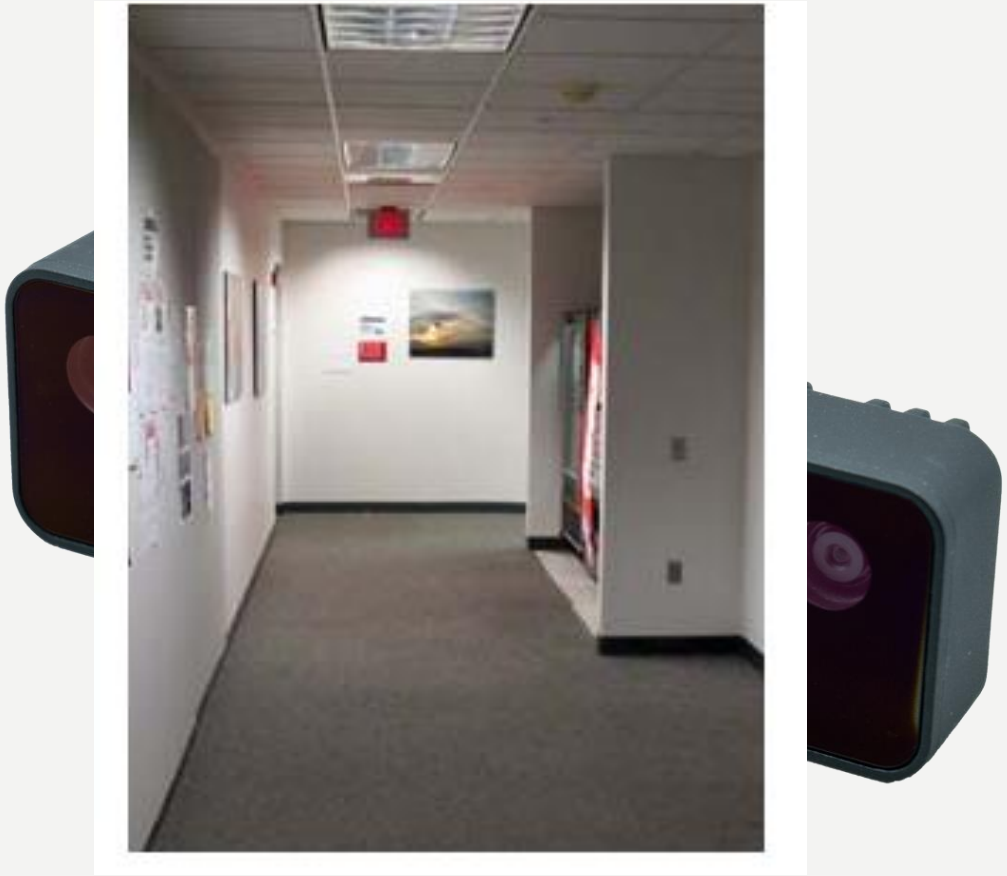
1 — 드라이버 및 패키지 세팅

2 — Hardware 제작

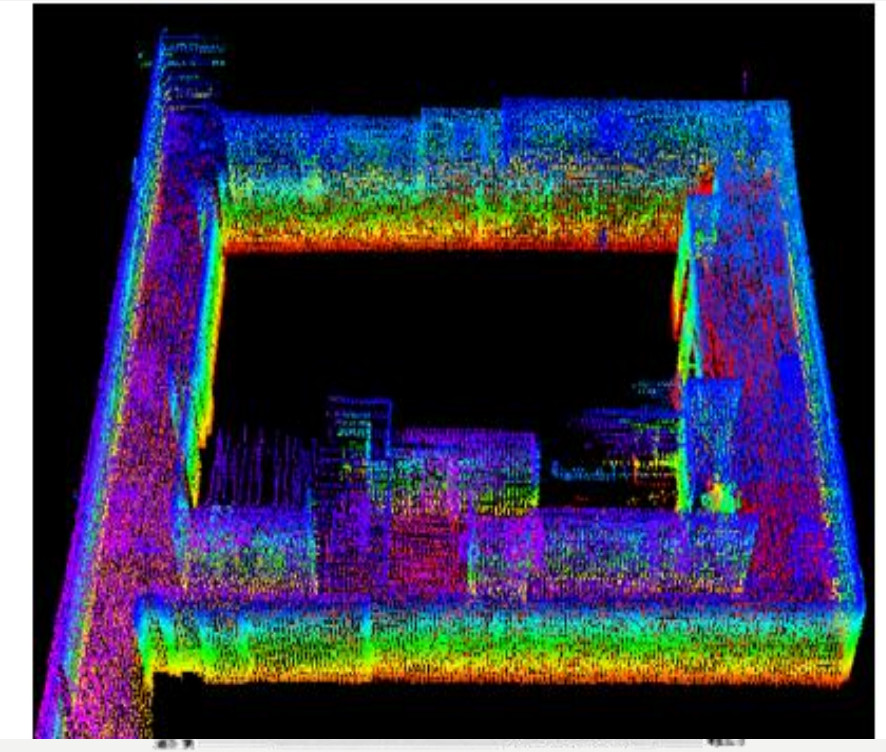
3 — Calibration 진행

4 — Mapping 진행

HARDWARE



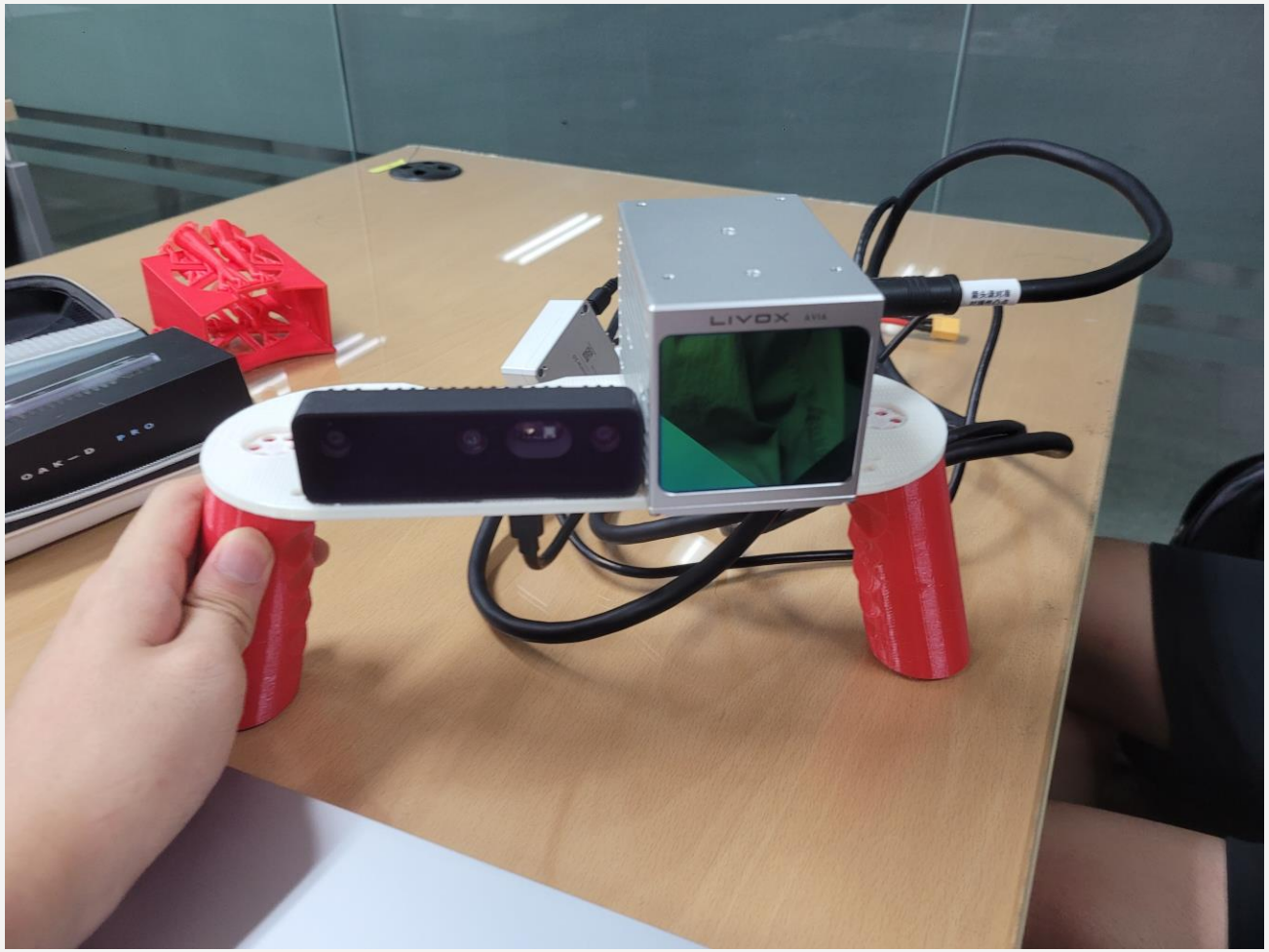
oak-d-pro



Livox Avia

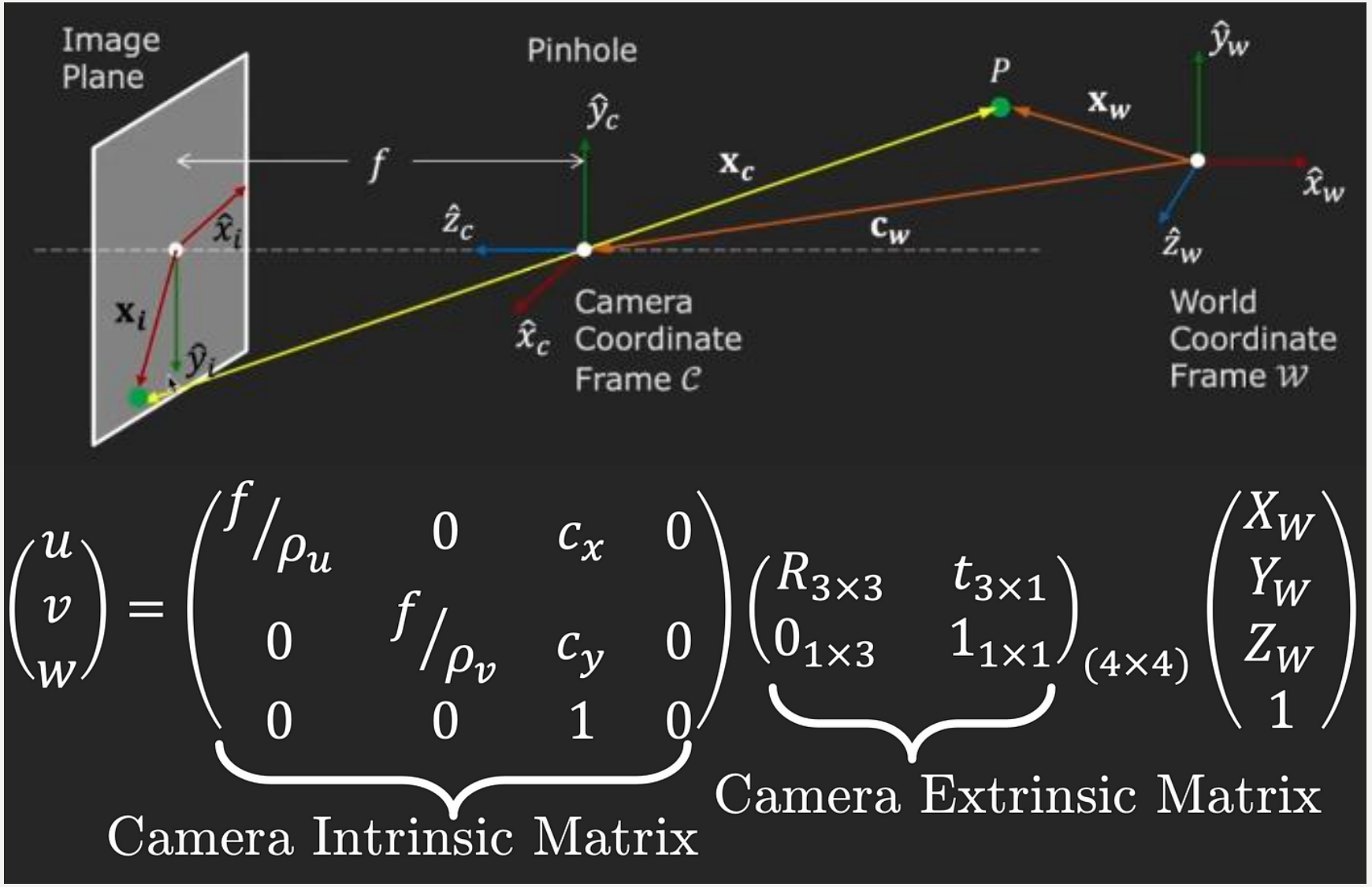
HARDWARE

HARDWARE

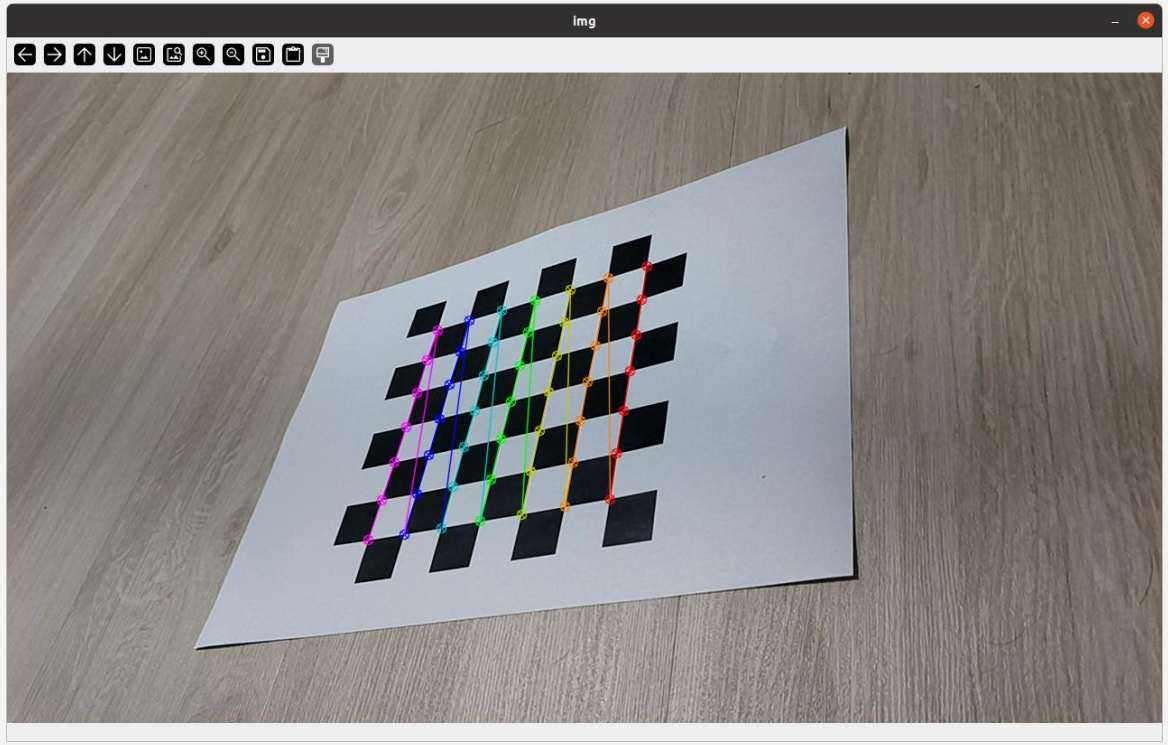


HARDWARE

CAMERA CALIBRATION



CAMERA CALIBRATION



여러 각도에서 찍은 25장의 사진으로 진행함

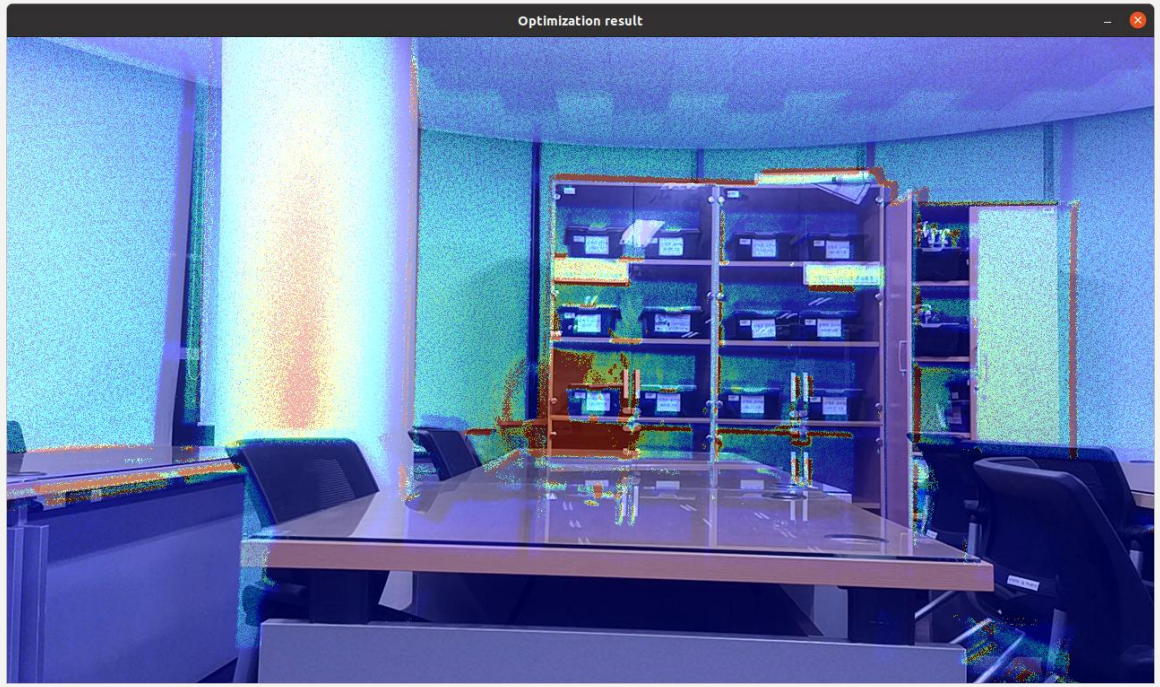
calibration_matrix.yaml

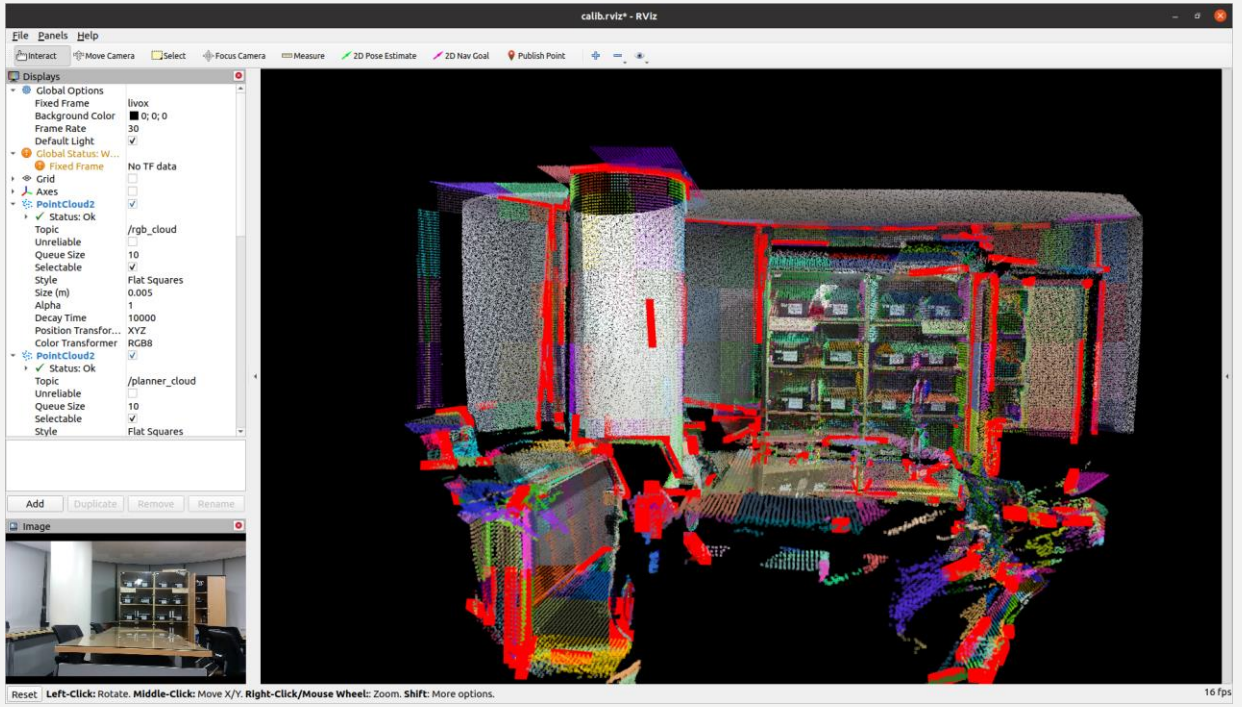
my > scripts > ! calibration_matrix.yaml

```yaml
camera_matrix:
- - 1044.3072166731486
  - 0.0
  - 635.550171548197
- - 0.0
  - 1050.1536943550861
  - 306.38481831991885
- - 0.0
  - 0.0
  - 1.0
dist_coeff:
- - 0.08573328231870057
  - -0.32288400152266655
  - -0.02345181204235055
  - 0.0012276569497375728
  - 1.2867009157995
```

intrinsic matrix (camera parameters)

CAMERA & LIDAR CALIBRATION





601호에서 진행함

R3LIVE PACKAGE

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About

A Robust, Real-time, RGB-colored, LiDAR-Inertial-Visual tightly-coupled state Estimation and mapping package

slam sensor-fusion 3d-reconstruction 3d-mapping mesh-reconstruction lidar-odometry lidar-camera-fusion lidar-slam lidar-inertial-odometry

Readme
GPL-2.0 license
Activity
Custom properties
1.9k stars
51 watching
421 forks
Report repository

ziv-lin [Enh] update README.md 6143a38 · 2 years ago 16 Commits

.github	[Update] update of README.md	2 years ago
config	[Fix] fix the image resolution bugs, now allows user to set th...	3 years ago
papers	[Enh] update README.md	2 years ago
r3live	[Fix] fix a bug in vio_photometric	2 years ago
supply	[Enh] update README.md	2 years ago
LICENCE	[Release] release source code of R3LIVE	3 years ago
README.md	[Enh] update README.md	2 years ago
control_panel.png	[Release] release source code of R3LIVE	3 years ago
envs.png	[Add] add "Report our problems and bugs" in README.md	3 years ago

README GPL-2.0 license

R3LIVE

A Robust, Real-time, RGB-colored, LiDAR-Inertial-Visual tightly-coupled state Estimation and mapping package

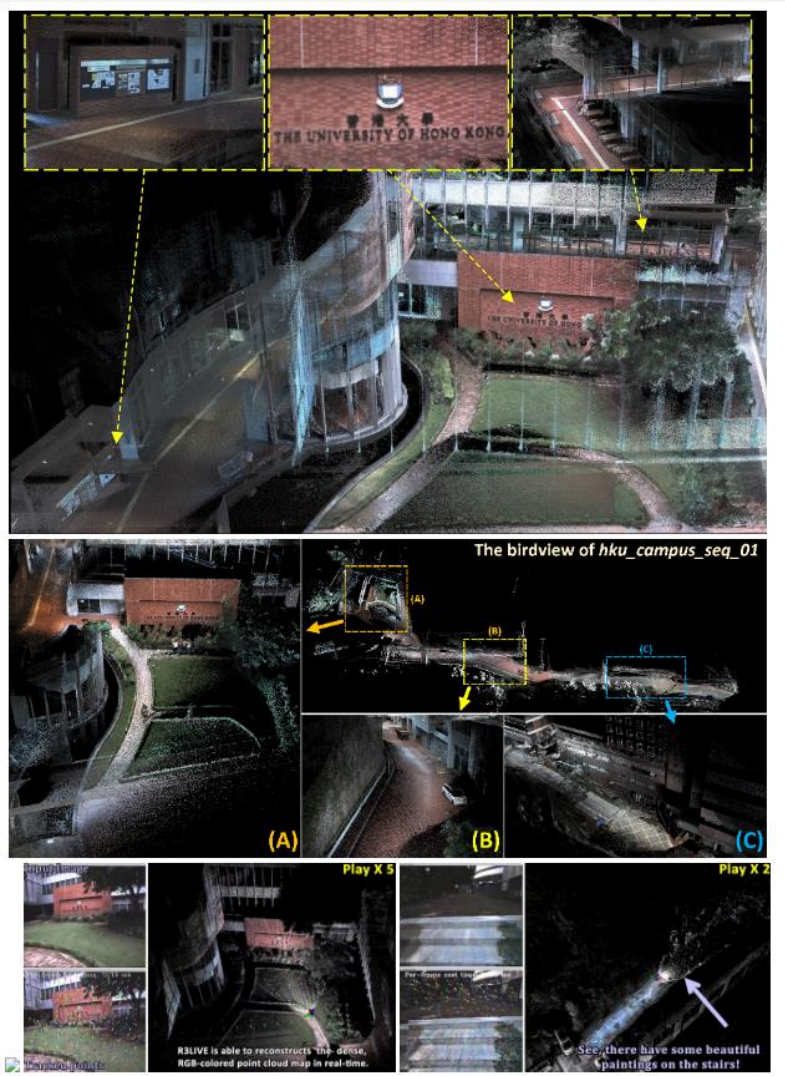
Releases 1

R3LIVE_V1.0: [Update] Release o... Latest
on Jan 29, 2022

Packages

No packages published

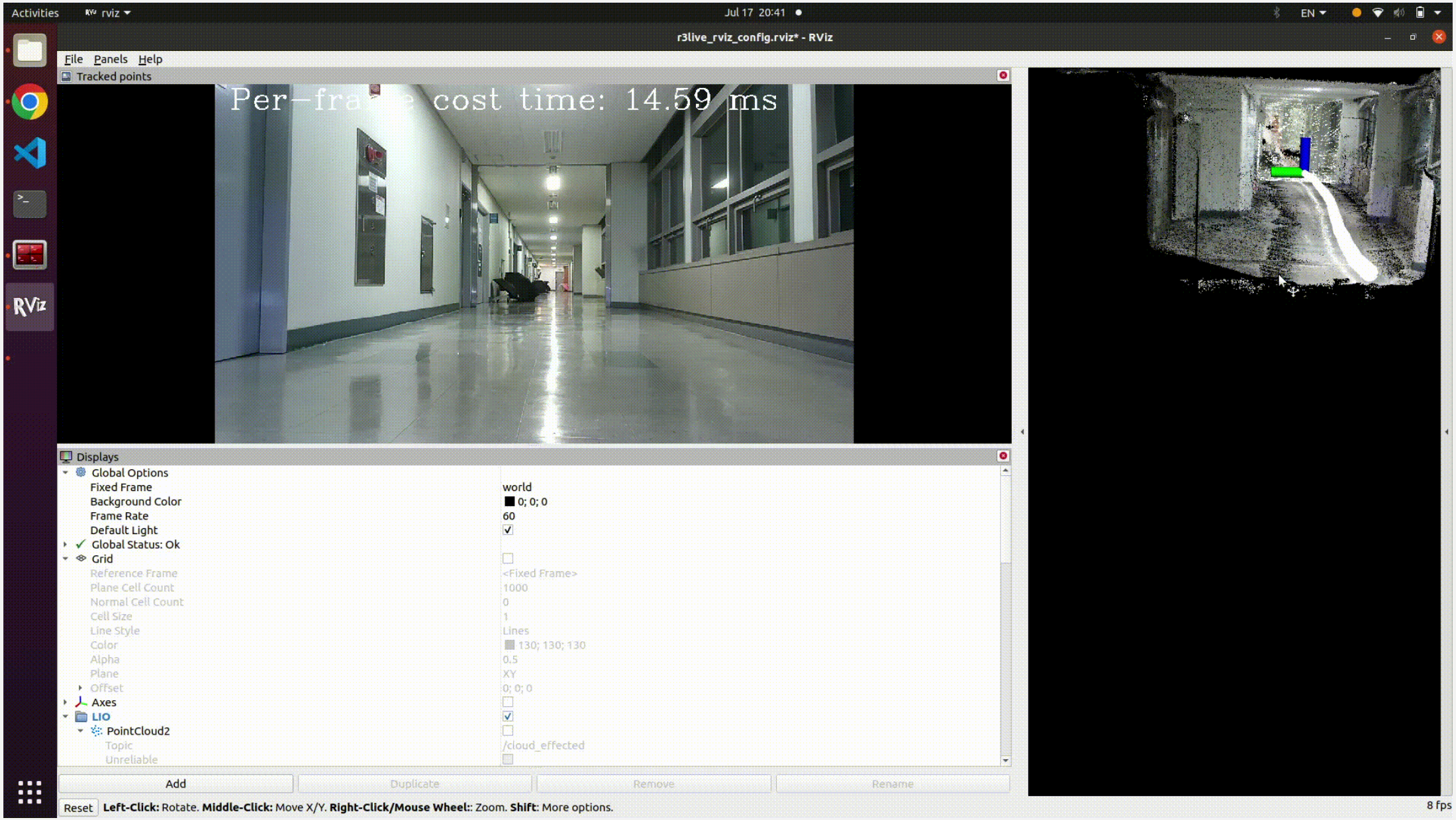
Languages



RESULTS (하이테크 6층)

실제 모습

pcd, ply 파일

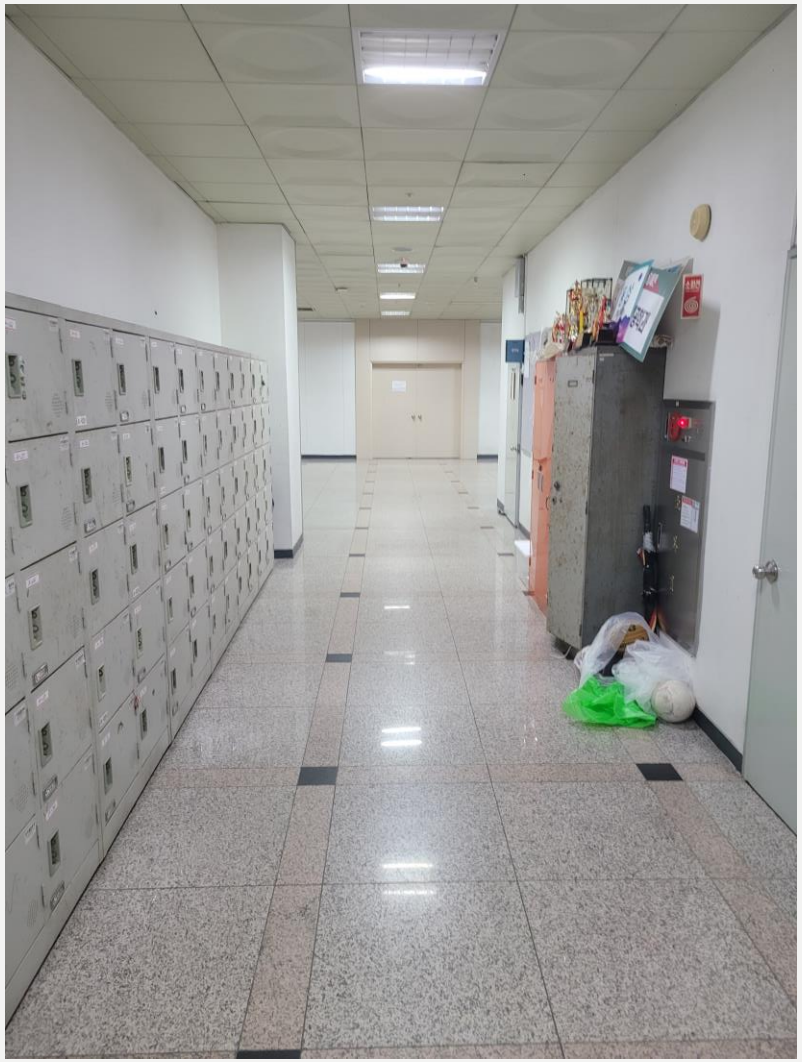

Activities
rviz
Jul 17 20:41
EN
r3live_rviz_config.rviz* - RViz
File Panels Help
Tracked points
Per-frame cost time: 14.59 ms
Displays
Global Options
Fixed Frame
world
Background Color
0; 0; 0
Frame Rate
60
Default Light
Global Status: Ok
Grid
Reference Frame
<Fixed Frame>
Plane Cell Count
1000
Normal Cell Count
0
Cell Size
1
Line Style
Lines
Color
130; 130; 130
Alpha
0.5
Plane
XY
Offset
0; 0; 0
Axes
LIO
PointCloud2
Topic
/cloud_effected
Unreliable
Add
Duplicate
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More options.
8 fps

RESULTS (하이테크 지하 1층)

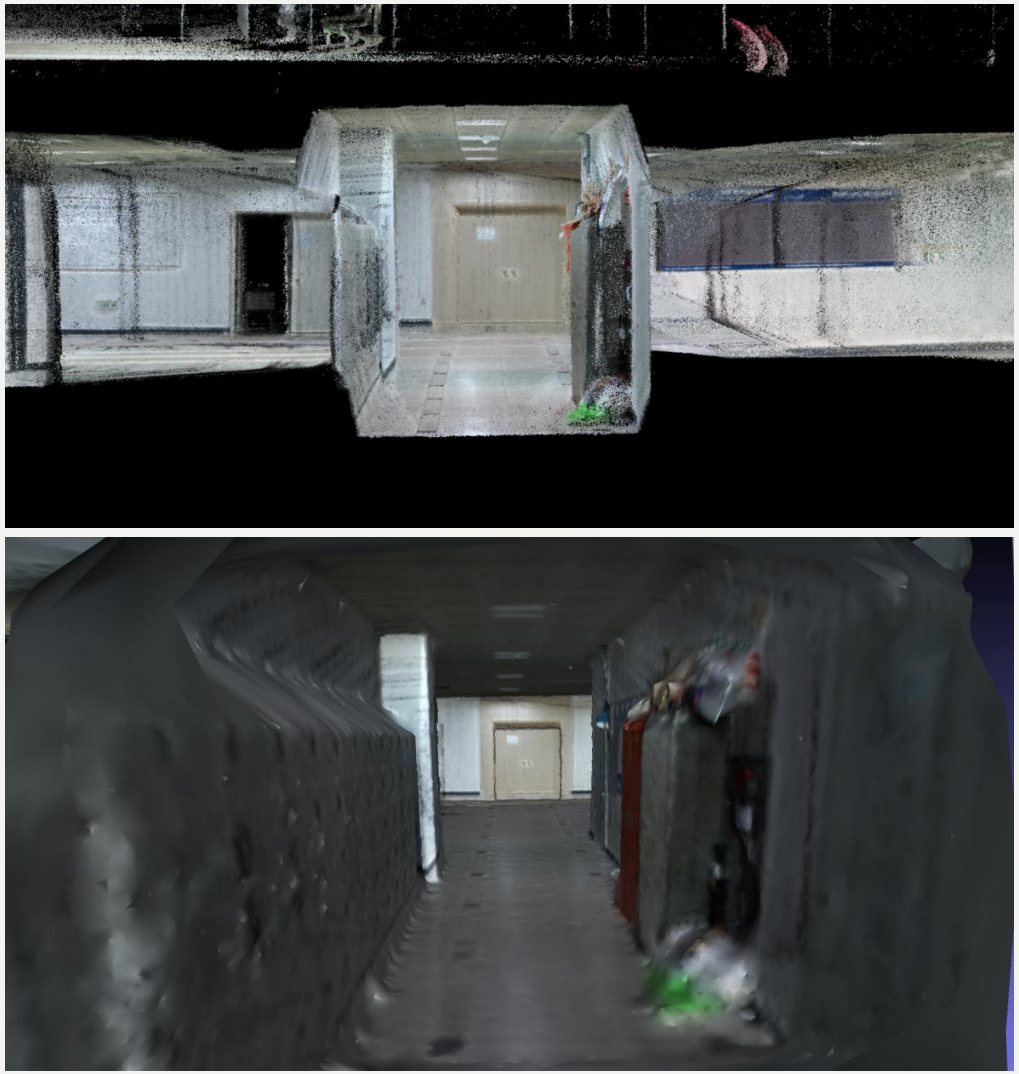
실제 모습

pcd, ply 파일

RESULTS (하이테크 지하 1층)



실제 모습



pcd, ply 파일

Activities
vtk
Jul 22 01:30
EN
PCD viewer
high.pcd

참고 문헌

- https://github.com/hku-mars/r3live
- https://github.com/Livox-SDK/livox_ros_driver
- https://github.com/luxonis/depthai-ros