

## Week 11 - Making Pointcloud Map Outdoors

The procedure for making an actual pointcloud map outdoors is the same as the material covered in week 10. The only difference is that now the 120V power source must be unplugged.

The procedure to drive the car with the PC and autonomy components on is as follows:

1. Turn the vehicle on by stepping on the brake and pressing the power button. **The vehicle is a hybrid that uses battery only when available, so do not be alarmed you do not hear the engine start.** One way to check if the car is drive-ready is to put it in D (drive). If it goes into drive you may hear the engine start. Either way the car is drive-ready.
2. Unplug the 120V plug and any accessories plugged into the vehicle's PC: mouse, keyboard, video cable plugged into the GPU, etc. Triple check that nothing will be snagged when the car drives off.
3. With the car in drive-ready mode and external accessories unplugged, the PC and the sensors should be live. You can now drive off and follow the procedures from Week 10 to create an actual outdoors.

When recording the ROSBAG file, do your best to keep a consistent speed less than 7 MPH. Drive around in a safe area with minimal distractions and moving objects for the cleanest map possible.

After running LIO-SAM using the outdoor ROSBAG file, it should look like the following:

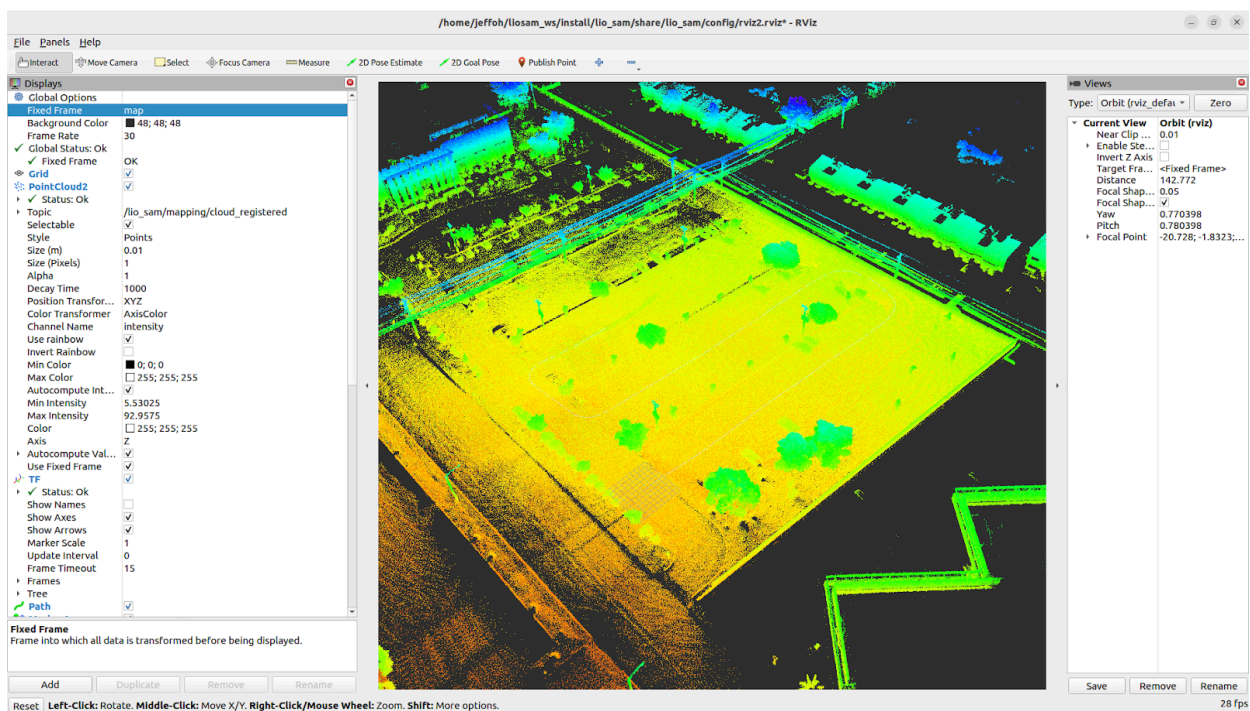


Figure 1: Pointcloud map made at a library parking lot

### Returning Car to Workstation:

When returning the car back to the indoor workstation, the following procedures must be followed:

1. Park the car but KEEP the ignition on
2. Plug in the 120V power cable
3. Shut vehicle off

If done correctly, the computer and sensors will all remain on.