1. Hector Slam must be completed before this process
2. Navigate to labs folder in f110\_ws
3. git clone <https://github.com/f1tenth/particle_filter>
4. Go into particle filter folder
5. Set Up map\_server:
   1. Sudo apt-get update
   2. rosdep install -r --from-paths src --ignore-src --rosdistro kinetic -y
6. Install RangeLibc
   1. Sudo pip install cython
   2. git clone <http://github.com/kctess5/range_libc>
   3. cd range\_libc/pywrapper
   4. ./compile\_with\_cuda.sh
      1. Cuda 9.0 and above require you to edit the setup.py file in this folder:
         1. -arch=sm\_20
      2. to:
         1. -arch=sm\_30
7. Navigate back to particle filter folder and go into the maps folder
   1. Add both of the map files created from hector slam into this folder
8. Edit the launch/map\_server.launch file to include your map instead of the levine map
9. Roslaunch wall\_following real\_world\_wall\_following.launch
   1. Odometry topic is needed simply running laser scanner will not work
10. Roslaunch particle\_filter localization.launch
11. Rosrun rviz rviz
    1. Global Options: Fixed frame = /map
    2. Grid: Reference Frame= <Fixed Frame>
    3. Add Map: topic = /map
    4. Add Laserscan: topic = /scan
    5. Add Pose array: topic = /pf/viz/particles