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**Summary**

For the equipments were prepared completely, we started to work on building the actual vehicles. Packages were installed on Jetson Nano computer. The communication between ROS Master and Slave was tested. Also, searching for the Github repositories related to RGB-D SLAM was conducted. The blueprints of the frames were all set, therefore 3D printer was used, however, it was not successful.

**What FarmVroong completed this week:**

- 3D Printing

  The frame was attempted to print out, however the output was not successful. Creality CR-10S5 3D printer with 1.75mm of filament was available. The STL file was converted to G-code format using Cura, which slices application for 3D printers. . Figure 1. shows the results of the first attempt output.

  This shows abnormal output result. . It is judged to be a compatibility problem between the 3D design program, Blender, and Cura. The STL file was repaired using the free online STL repair by FormWare.
  After that, the second print was attempted. There were some parts that are not printed well.
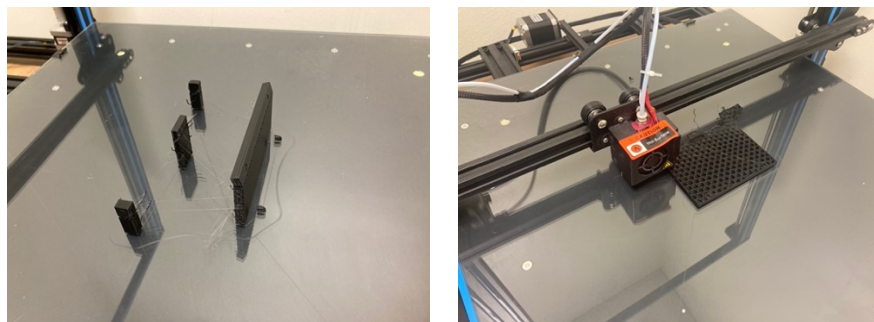


Figure 1. (a) The results of the first attempt (b) 3D printer in progress

- Package installation

  Packages that needed such as pyrealsense, OpenCV, ROS Melodic, catkin, numpy were installed.
  In the field of robotics, the networks between multiple devices are needed. Therefore the

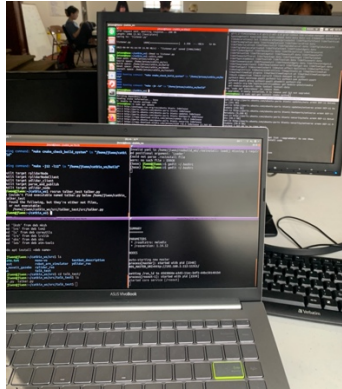connection between the laptop and Jetson Nano was established.


Fig. 2. Network test between master and slave computer using ROS.

**Things to do by next week**

- Connect Jetson Nano and servo motors so that the car can move
- Find the adequate example of implementing RGB-D SLAM in actual mobile car and analyze it
- Complete the hardware of the car by successfully printing the stand by 3D printer

**Problems or challenges:**

- Pyrealsense installation : Ubuntu does not support pip for installing pyrealsense so there were version mismatching problems
- Errors occurred during the 3D printing process

**References**

[1] A. Loriette, "pyrealsense: Cross-platform ctypes/Cython wrapper to the librealsense library.," *PyPI*. https://pypi.org/project/pyrealsense/

[1] "ROS/Tutorials/WritingPublisherSubscriber(python) - ROS Wiki," *Ros.org*, 2021. http://wiki.ros.org/ROS/Tutorials/WritingPublisherSubscriber%28python%29