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Summary
A paper team completed a paper draft, and all the team members had a meeting with Minji. Following the road map, which was revised after the meeting, each team did their work making a prototype, connecting a LiDAR to Raspberry Pi, and researching several communication methods between units.

What C.C completed this week:

- Wrote and revised the introduction of the paper
- Reviewed related studies
- Studied computer networking via online lecture [1]
- Made a prototype of the robot which can move back and forth and right and left
- Connected a YDLiDAR to the Raspberry Pi and studied usage of it [2]
- Drew a relation diagram of modules

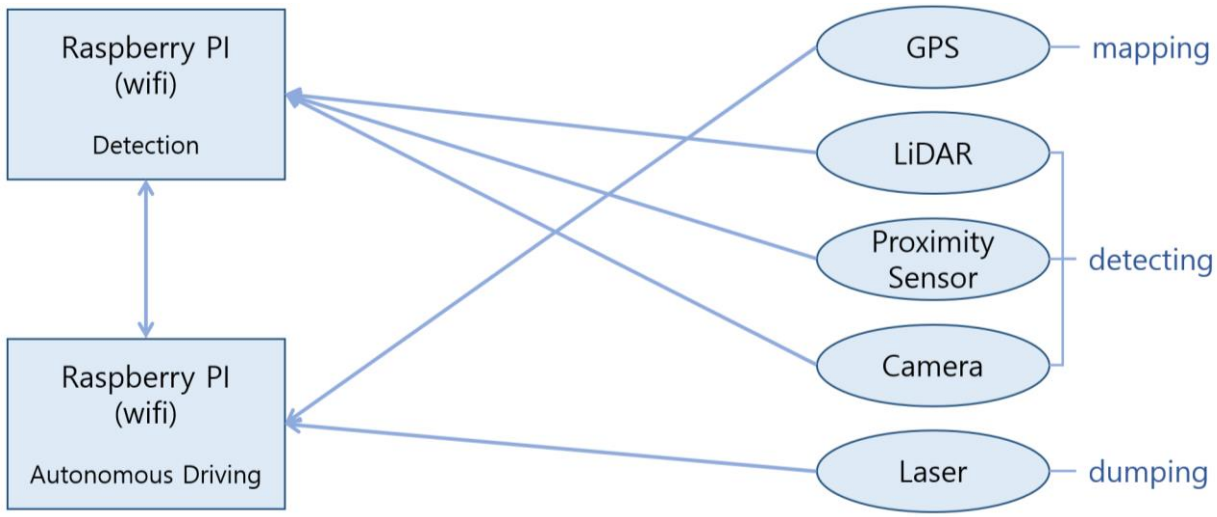

Fig.1. A relational diagram

- Decided not to use a remote server
- Discussed Pi to Pi connection and decided to do socket programming using Python
- Set the road map of each team
- Reinstalled Ubuntu on to Raspberry Pi
- Had a paper draft meeting with Minji
- Did research about various kinds of communication methods
- Studied LiDAR point-cloud based 3D object detection implementation with colab [3] and Complex-YOLO [4]
- Made a connection with a proximity sensor to the robot [5]
- Attached three motors to the robot and successfully operated it [6], [7]

Things to do by next week

- Will decide to do the research and edit abstract and introduction by reflecting the feedback
- Will study MQTT 3.1.1 [8]
- Will compare every way how to connect each unit of the robot
- Caleb will do more research and study networking.
- A physical team is going to attach GPS to the robot [9].

Problems or challenges:

- As all connections between modules of the robot need to be efficient, tests about how to connect each part will be conducted.
- Due to the wrong cable connections, one Raspberry Pi board was broken.
- As it is impossible to install ROS Melodic in Raspbian because of ROS repository key setting, a Linux development environment is necessary.
- Because all the team members have different aspects in terms of the paper. Whenever the team reviewed the draft, the paper team had to start over.
- Model of motor driver was different from the reference so once it was changed to motor driver L293D, the motors worked.
- Due to the lack of power, the robot didn't work normally. Only its left wheel worked. After changing the battery, it worked well.

References

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