Report Date: 11/11/2022
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Summary

A wheel was connected to the motor but still needed to be connected. Connection between several relays and RPi was successful and writing the code had been doing well.

What C.C completed this week:

- Studied ROS2 tutorials [1]
- Built the platform
- Studied rclpy [2]
- Studied relay module and GPIO [3]
- Connected Pi camera to ROS2 and RViz
- Made package in ROS2 and implement it on RPi
- Wrote the test code about driving motors forward and backward using 6 relays
- Wrote the test code about GPS data parsing [4]
- Wrote the test code about a magnetometer [5]
- Set the custom dataset with COCO dataset [6] and TACO dataset [7]
- Studied how to train YOLOv5 on a custom dataset such as COCO [6] dataset and TACO-trash-dataset [7]
- Connected a HC-SR04 sensor and RPLiDAR with RPi
- Connected the relay modules and a magnetometer sensor to operate the motors considering the angles
- Studied to visualize the GPS data using Google Maps API

Things to do by next week

- Will implement App interface used for setting reference GPS coordinates
- Will train the YOLOv5 using COCO dataset and TACO dataset
- Will make a camera detection node and fusing node
- Will complete ABCbot platform
- Will write the methodology

Problems or challenges:

- It was hard to check the dependency attributes on the package.xml file.
- The poor connections and battery between physical elements caused problems.

References

[1] "ROS 2 Documentation: Foxy." ROS.org. http://docs.ros.org/en/foxy/Installation/Ubuntu- Install-Debians.html (accessed Oct. 17, 2022).
[2] “rclpy.” ros2.org https://docs.ros2.org/foxy/api/rclpy/ (accessed Nov. 07, 2022).
[3] B. Croston. "raspberry-gpio-python Wiki." sourceforge. https://sourceforge.net/p/raspberry-gpio-python/wiki/BasicUsage (accessed Oct. 31, 2022).
[4] B.Reselman. "An architect's guide to GPS and GPS data formats." medium. https://www.redhat.com/architect/architects-guide-gps-and-gps-data-formats#GPGGA (accessed Nov. 9,

2022).
[5] “Adafruit BNO055 Library.” docs.circuitpython.org
https://docs.circuitpython.org/projects/bno055/en/latest/ (accessed Nov. 9, 2022)
[6] COCO dataset, 2017 to 2020, COCO Consortium, 2020. [Online]. Available:
https://cocodataset.org/#download
[7] TACO dataset, Pedro Proença 2022, 2022. [Online]. Available: http://tacodataset.org