

TASK 9

Interface Odometry – Create a message including odometry and IMU values and transmit message to Host PC.

1. Install latest Arduino IDE, open “Sketch” menu, “Include Library”, then “Manage Libraries..”, and install “Romi32U4” library
2. Open “Odom_data_read.ino” found within the GitHub repository for Task 9.
3. In this case, the parameters are the same as those established for Task 6. The exception here is the inclusion of the setup for the ros node and publisher. The message being passed is that of odom_msg and it is being published to the topic odom. The node only publishes when Romi is moving which in the code as set up, only occurs when the user pushes the button A. Note that the command “roslaunch roserial_python serial_node.py _port:=/dev/ttyUSB0” only works when the publisher is sending data which -again – only occurs when the user has pushed button A.
4. Connect RX & TX lines to the FTDI from the Romi32U4 board.
5. The values live readings of the x position can then be found by running the command “rostopic echo /odom” in a separate terminal. An illustration with all commands and from the echo terminal is shown in the Figure

The figure shows two terminal windows. The left window displays the output of a roslaunch command, showing the setup of a ROS master and a node. The right window shows the output of a rostopic echo command, displaying a series of odometry data points.

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glo@glo-VirtualBox:~$ roslaunch http://glo-VirtualBox:11311/
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.
started roslaunch server http://glo-VirtualBox:43823/
ros_comm version 1.12.14

SUMMARY
=====
PARAMETERS
 * /roslaunch: kinetic
 * /rosversion: 1.12.14
NODES
auto-starting new master
process[master]: started with pid [2293]
ROS_MASTER_URI=http://glo-VirtualBox:11311/

setting /run_id to 77937d14-1ed8-11ea-a5a2-0800273c69ae
process[roslaunch]: started with pid [2306]
started core service [/roslaunch]

glo@glo-VirtualBox:~$ rostopic echo /odom
data: 1277.31298828
---
data: 1278.68266113
---
data: 1280.19555664
---
data: 1281.71191406
---
data: 1283.00061035
---
data: 1284.66833496
---
data: 1286.10864258
---
data: 1287.47314453
---
data: 1289.14086914
---
data: 1290.65698242
---
data: 1292.09729004
---
data: 1293.53759766

```

Fig. 10: Odometer X-axis readings bottom left terminal

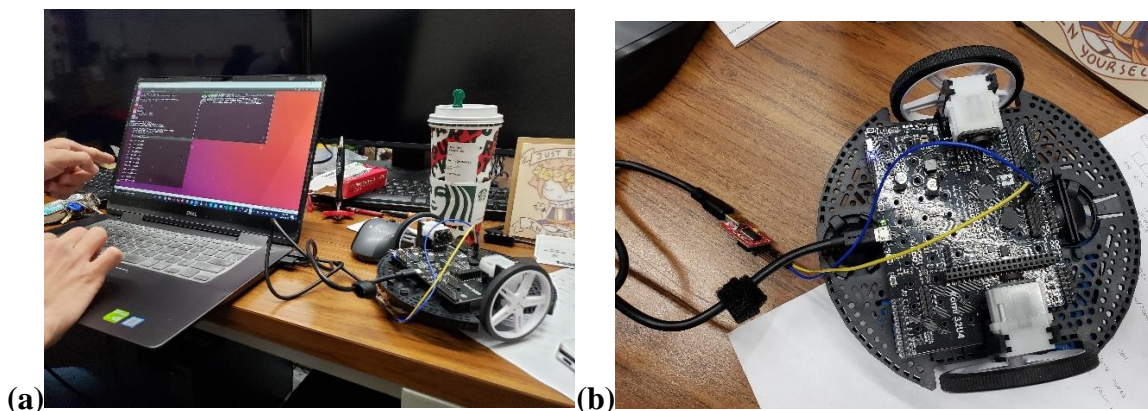


Fig. 11: (a) Romi setup with connection to laptop (b) Romi setup isolate

Video:

<https://www.youtube.com/watch?v=nxGHbqge3Rc>