

Robotics Lab - 221 LIA 001

Assignment 3

Due: November 29, 2022, 2.00 pm IST

Submission via Github classroom

Question 1: M1RAA 2022 batch is building a mobile robot for assistance in the classroom. Write a rospy code to publish the battery information of the bot and subscribe it via a topic. The battery information is published every 0.25 seconds. ROS nodes and messages as shown in the figure 1.

- Commit the final python scripts to your assignment folder
- *You have to commit to the assignment folder from terminal. Uploads via graphical interface will get penalised*

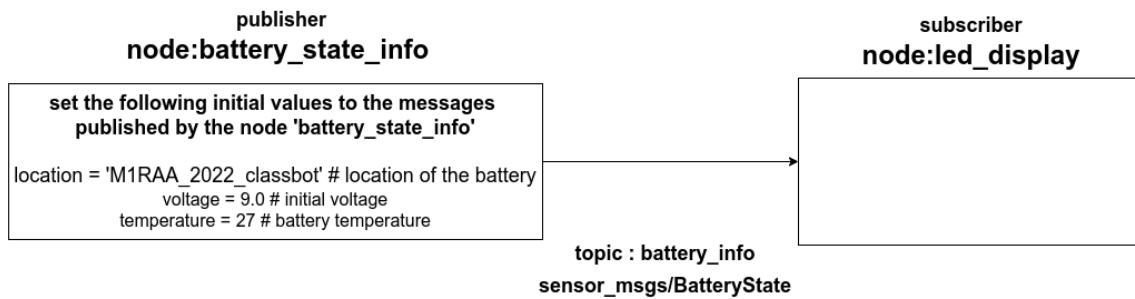


Figure 1: Illustration of nodes and messages for assignment 3 question

Run the code for nodes and answer the questions below. Type down the questions and answers in the a text file "<your name>assign2_answers and commit to assignment git folder.

1. List the currently running nodes
2. List the currently running topics
3. Run the rqt_graph tool and save the node graph as 'assign3_rosgraph'
4. Screenshot the terminals, save the screenshot as 'assign3_1.webm' and commit to git

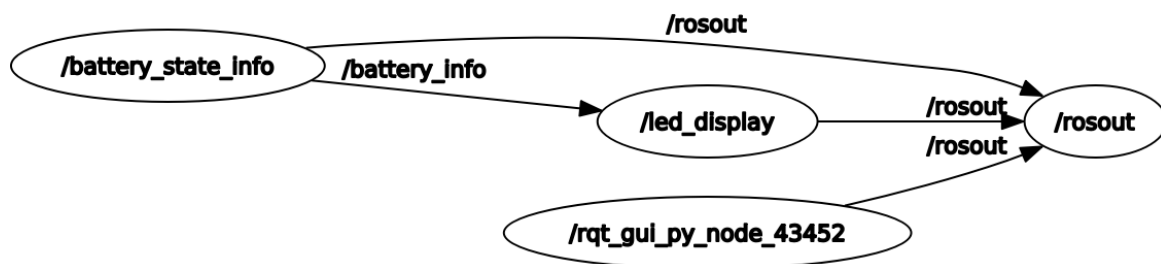


Figure 2: Expected ros graph

Question 2: This is a modification on the question 1. When you run the question 2 code, the battery voltage values go all the way to negative range. Modify the code to increment the battery voltage values to 9.0 reset to zero; repeat the process. *hint use python module % operator*

1. Commit the final python scripts to your assignment folder
2. Screencast the terminals, save the screencast as 'assign3_2.webm' and commit to git

In a practical situation the node `led_display` can turn on/off a set of 10 LED's in a led bargraph as in figure 3 based on the `battery_info` updates

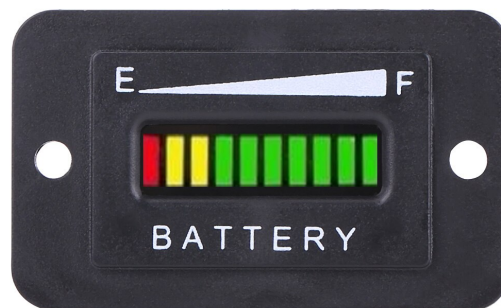


Figure 3: An LED bargraph

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