ROBOTICS LAB
221 LIA 001

Lab Record

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Semester 1
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KERALA

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DEPT. OF ELECTRONICS & COMMUNICATION ENGINEERING
COLLEGE OF ENGINEERING TRIVANDRUM
2022 - 23

CERTIFICATE

Certified that this is a bonafide record of work done by **Student Name** (TVE22ECRA0XY) in the ROBOTICS LAB during the academic year 2022 - 23.

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List of Experiments

Experiment 1

Familiarization with ROS

Objective : Familiarize with Robot Operating System

Include a brief introduction to ROS covering basics, not to exceed 4 pages

Experiment 2

ROS Publisher and Subscriber nodes

Objective : Study of ROS publisher and subscriber nodes

Terminologies & key concepts :

Nodes : ROS nodes are Processes that perform computation. Nodes communicate with each other through topics, services, parameter server.

Messages :

Algorithm :
The publisher node 'M1RAA_2022' publishes the message 'Hi CET' on the topic 'Hello_CET'. The message is published at a rate of X Hz as specified by rospy.Rate()

Code

The code for the publisher and subscriber are implemented as two separate python script files.

Publisher Script

```
#!/usr/bin/env python

import rospy
from std_msgs.msg import String

if __name__=='__main__':

   rospy.init_node('M1RAA_2022')
   pub = rospy.Publisher('Hello_CET', String, queue_size=10)
   rate = rospy.Rate(10)

   while not rospy.is_shutdown():
      msg = String()
      msg.data = 'Hi CET !'
      pub.publish(msg)
      rospy.loginfo(msg)
      rospy.loginfo("Node:" + rospy.get_caller_id() + "publishing")

      rate.sleep()
```

Subscriber Script

```
#!/usr/bin/env python

import rospy
from std_msgs.msg import String

if __name__=='__main__':

    rospy.init_node('M1RAA_2022')
    pub = rospy.Publisher('Hello_CET', String, queue_size=10)
    rate = rospy.Rate(10)

    while not rospy.is_shutdown():
        msg = String()
        msg.data = 'Hi CET !'
        pub.publish(msg)
        rospy.loginfo(msg)
        rospy.loginfo("Node:" + rospy.get_caller_id() + "publishing")

        rate.sleep()
```

Results

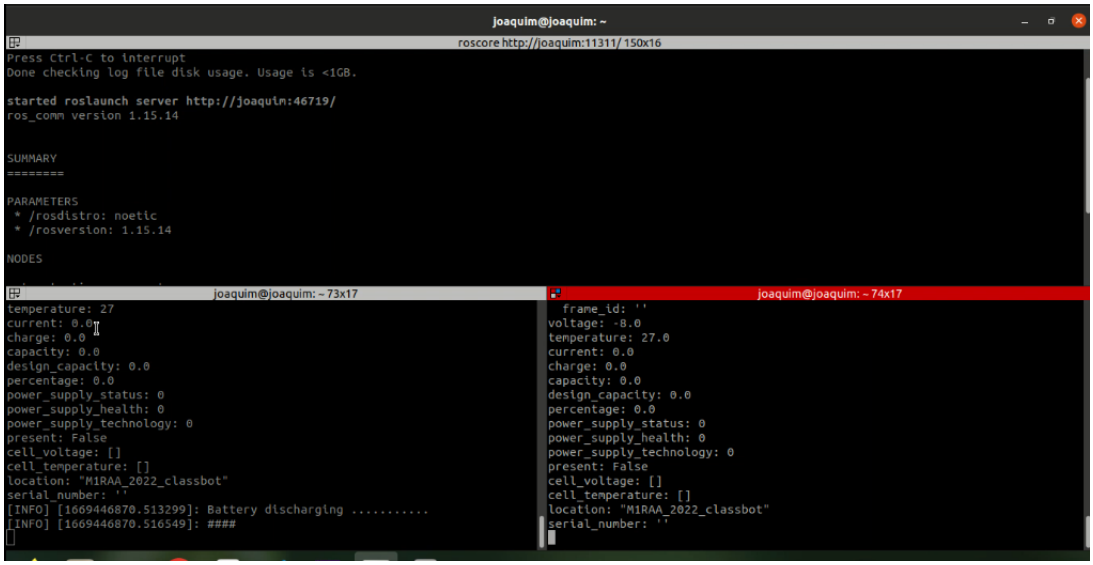

Figure 2.1: Terminal windows showing code execution

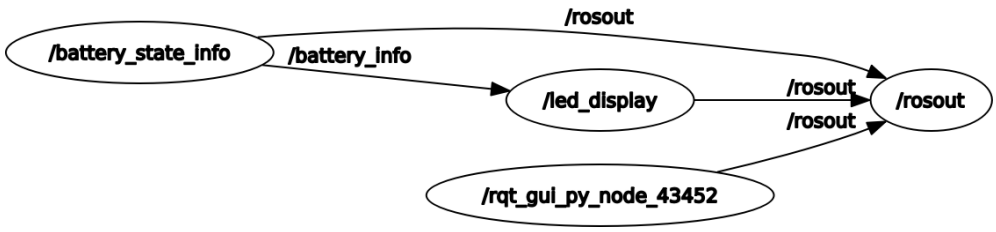

Figure 2.2: ROS graph showing the publisher and subscriber nodes