ROS Nodes, Topics, and Messages

Foundation Course

August 27, 2019

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1. Recap

Recap

Summary of yesterday's session

- ROS is a collection of libraries and tools that helps you when you develop software for robots.
- ROS provides several ways to transfer data between nodes:
    1. ROS topics and messages (**publish**/**subscribe**).
    2. ROS services (**request**/**reply**).
    3. ROS actions (**request**/**reply**).
    4. Parameter server.

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Recap

Summary of yesterday's session

- We will focus today on ROS topics and messages..

Master

Camera

Image
Viewer

Master

advertise **images**

Camera

Image
Viewer

Master

Subscribe to `images`

Image
Viewer

Camera

`images`

Master

Camera

Image
Viewer

images
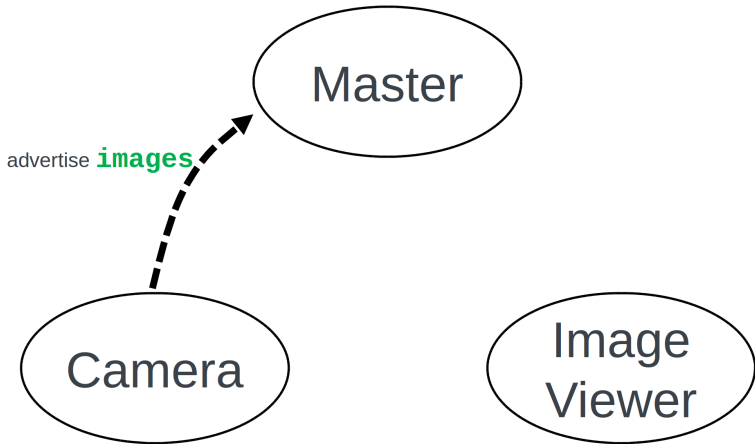
A simple ROS node

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


import rospy
from time import sleep

rospy.init_node("print_text")


while True:
    print "Hello world!"
    sleep(1)
```

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A simple ROS node

ROS Nodes

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

import rospy


rospy.init_node("print_text")
rate = rospy.Rate(1)

while not rospy.is_shutdown():
    print "Hello world!"
    rate.sleep()
```

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Three ways to run a node

ROS Nodes

There are 3 ways to run a node:

1. Like you do always. Example (in case of python node):

```
python <file name>
```

2. using rosrun commands:

```
rosrun <package name> <node name>
```

3. Using launch files. (we'll see it later)

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A simple ROS node

ROS Nodes