Kinect with ROS Tutorial

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Kinect Review

• Motion sensing input device
• Sensors:
  – RGB camera (center)
  – Depth camera (left, right together)
  – Microphone array (side)
• SDK (Software Development Kit)
  – Provided by Microsoft, only for Windows
• OpenNI
  – SDK provided by manufacturer of Kinect.
  – Ported to ROS!
CAUTION!

• Do not try to TILT OR MOVE Kinect too hard.
  – There is a motor in it. It is best to adjust manually by books or tripods.
openni_kinect stack

• Search openni to get to the page
openni_kinect stack (cont.)

• To install the package, just use `apt-get`
  – You don’t need to care about source based installation

3. Installation

3.1 Ubuntu installation

Make sure you have followed the setup instructions at electric/Installation/Ubuntu. Then:

```
sudo apt-get install ros-electric-openni-kinect
```

• After the installation, You can find the packages: `openni_launch, openni_tracker`
Packages

• You only use following
  – openni_launch
  – openni_tracker

• With openni_launch, you can get the images from camera

• With openni_tracker, you can get the skeleton (joint positions, joint angles)
openni_launch

- Refer to the page: [http://www.ros.org/wiki/openni_launch](http://www.ros.org/wiki/openni_launch)
- First type this command to start the Kinect driver:
  ```
  > roslaunch openni_launch openni.launch
  ```
- To watch the RGB image, type this command:
  ```
  > rosrun image_view image_view image:=/camera/rgb/image_color
  ```
- To watch the Depth image, type this command:
  ```
  > rosrun image_view disparity_view image:=/camera/depth_registered/disparity
  ```
• Note:
  – It is possible to use *rviz* to visualize the images BUT it often conflict when you visualize the skeleton at the same time.
openni_tracker

• Refer to the page:
  http://www.ros.org/wiki/openni_tracker

• To start tracking, type this command

  > rosrun openni_tracker openni_tracker

  – On the terminal, you can see the status of tracking
  – It will start calibration when you perform the surrender pose like following
openni_tracker (cont.)

- As soon as calibration is completed, openni_tracker will generate the topic called tf
- You can use rviz to visualize the skeleton.
  - Add tf window
  - Choose openni_depth_frame as fixed frame
Tips about *rviz*

- *rviz* is a good tool to visualize *topics* in ROS but it is very **unstable** and has many bugs.
- When you have some problem with starting *rviz*, try to remove files in `~/.rviz/` then restart the *rviz*

```
> cd ~/.rviz
> ls
config  display_config
> cp config config_bk
> cp display_config display_config_bk
> rm config
> rm display_config
> rosrun rviz rviz
```
Tips about *rviz* (cont.)

- Sometimes, when you try to add a window in *rviz*, you may not get the list of window categories. Then, restart the *rviz*, it should work fine.