ROS Hydro Tutorial
- Launching Fisheye camera with Turtlebot

In this tutorial, we are going to launch 2 Fisheye cameras mounted with the Turtlebot. For the annotations, # means explanation, and $ means commands to be excuted in the terminal. For another tutorial, please refer to Sperical Camera system setup by Jeremie Deray.

Step 1. Install the Fisheye camera driver

download the driver to install: https://en.ids-imaging.com/download-ueye.html#4.61_Linux

choose the correct version to download.

Step 2. Install the ROS Fisheye camera package

install ueye_cam for single fish eye camera visualization, detailed in ROS Wiki.

go to the source folder of the catkin workspace, download the package, go back to the root path of
the catkin workspace and compile the package.

$ cd catkin_ws/src

$ git clone https://github.com/anqixu/ueye_cam.git && cd ..

$ catkin_make

$ rospack profile

to test the camera working, you can run the software

$ sudo /etc/init.d/ueyeusbdrc start

$ ueyedemo

$ sudo /etc/init.d/ueyeusbdrc stop

Step 3. Install the ROS package for 2 Fisheye camera

$ cd catkin_ws/src

$ hg clone https://bitbucket.org/kmhallen/ueye && cd..

$ catkin_make

test software working

$ sudo /etc/init.d/ueyeusbdrc start

$ rosrun ueye camera

for left and right camera visualization

$ rosrun ueye stereo

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open a new terminal

$ rosrun image_view image_view image:=left/image_raw

open a new terminal

$ rosrun image_view image_view image:=right/image_raw

Step 4. Remote control with Turtlebot

we assume that the 2 Fisheye cameras are connecting with the Turtlebot laptop, and the Turtlebot laptop is consider as the master. The remote work station is connected with the Turtlebot with router.

 # running the commands on Turtlebot terminal

launch the Turtlebot base.

$ roslaunch turtlebot_bringup minimal.launch

start the driver of the fisheye camera

$ sudo /etc/init.d/ueyeusbdrc start

start the ueye packages

$ rosrun ueye stereo

configure the streaming of the images

$ rosrun rqt_reconfigure rqt_reconfigure

click on the camera item, and then change the streaming rate to be 1 fps (depends on your router).

 # running the commands on the work station

$ rosrun image_view image_view image:=left/image_raw

$ rosrun image_view image_view image:=right/image_raw

for saving the image, right click on the image window.

Step 5. Controling the motion of the robots

this part is specified to our testing

control turtlebot go straight

$ rosrun rbx1_nav straightTurtlebot.py

control turtlebot rotate

$ rosrun rbx1_nav rotateTurtlebot