Manual

Xela Sensor Server Nodes for ROS
v.0.0.3b

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Prerequisites:

Primary requirement is to run the code with **Python 2.7** as the files have been pre-compiled and therefore give an error if run in different Python version. (You might see following error: RuntimeError: Bad magic number in .pyc file)

The following packages are required to run the sensor service and tools:

1) Tkinter
2) numpy
3) matplotlib
4) easygui
5) python-can

Set up

First copy the nodes to your catkin workspace folder (src).

Compile the nodes with `catkin_make`

Start `roscore`

Run the configuration tool `user@localhost:~$ rosrun xela_server xConf`

Start the server `user@localhost:~$ rosrun xela_server xServer`

Start the sensor service `user@localhost:~$ rosrun xela_server xSensorService`

Start the visualization tool `user@localhost:~$ rosrun xela_server xViz`

Use

Access the stream by subscribing to the /xServerPub topic

For single set of data, use one of the following service calls:

user@localhost:~$ rosservice call /xServXY 1 2 Get X and Y from taxel 2 on sensor 1	values: [16439, 16647]
user@localhost:~$ rosservice call /xServXYZ 2 6 Get X, Y and Z from taxel 6 on sensor 2	values: [16451, 16517, 35901]
user@localhost:~$ rosservice call /xServX 2 1 Get X from taxel 1 on sensor 2	value: 16681
user@localhost:~$ rosservice call /xServY 2 2 Get Y from taxel 2 on sensor 2	value: 16721
user@localhost:~$ rosservice call /xServZ 2 3 Get Z from taxel 3 on sensor 3	value: 37009
user@localhost:~$ rosservice call /xServStream 1 Get full sensor data from sensor 1	xyz: [1: [16457, 16553, 32057], 2: [16775, 16958, 31886]…]

Node:

xela_server

A node running server for all sensors. Includes the server, service and visualization tool

Example usage:

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

import rospy

from xela_server.srv import XelaSensorXYZ

import sys

rospy.init_node('use_service')

#wait the service to be advertised, otherwise the service use will fail
rospy.wait_for_service('xServXYZ')

#setup a local proxy for the service (we will ask for X,Y and Z data)
srv=rospy.ServiceProxy('xServXYZ',XelaSensorXYZ)

#use the service and send it a value. In this case, I am sending sensor: 1 and taxel: 3
service_example=srv(1,3)

#print the result from the service
print(service_example)
```

Common errors

Error	Reason
RuntimeError: Bad magic number in .pyc file	The version of the Python doesn’t match the version it was compiled with (We used Python 2.7.15)
Unable to register with master node [http://localhost:11311]: master may not be running yet. Will keep trying.	Node couldn’t communicate with the ROS master node. Make sure it is running
Error connecting to CAN: IOError:[Errno 19] No such device	No CAN device found. Make sure your CAN-USB device is connected, accessible for all users and set in the configuration correctly (see /etc/xela/xServ.ini)
Error writing config file: IOError: [Errno 2] No such file or directory: '/etc/xelas/xServ.ini'	Ensure there **is /etc/xela** folder and that it has **777** permissions
Xserver doesn’t stop after pressing CTRL + C	There is an issue with threads where the cancellation doesn’t get fed back to the main code. Use **pkill -9 xServer** to exit

if you find errors, not listed in this file, please send an email regarding it to info@xelarobotics.com