Astra SDK:

https://orbbec3d.com/develop/

Installed:

1. **Astra_SDK**

Basic run test:

~/Desktop/AstraSDK-v2.1.3-Ubuntu-x86_64/AstraSDK-v2.1.3-94bca0f52e-20210608T062039Z-Ubuntu18.04-x86_64/bin$ ./DepthReaderPoll

2. **Orbbec_OpenNI**

Basic run test:

~/Desktop/Linux/OpenNI-Linux-x64-2.3.0.66/Tools$ ./NiViewer

Both tests run with this warning:

Warning: USB events thread - failed to set priority. This might cause loss of data…

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Astra Body Tracker:

https://3dclub.orbbec3d.com/t/ros-package-for-astra-sdk-body-tracking-available/1797

https://github.com/shinselrobots/astra_body_tracker

https://github.com/shinselrobots/body_tracker_msgs

1. **Can't run `SimpleBodyViewer-SFML:`**

```
./bin/ColorizedBodyViewer-SFML: error while loading shared libraries:
libsfml-graphics.so.2.4: cannot open shared object file: No such file or
directory
```

https://itsfoss.com/solve-open-shared-object-file-quick-tip/

ladak@ladak-ThinkStation-P330:~/Desktop/AstraSDK-v2.1.3-Ubuntu-x86_64/AstraSDK-v2.1.3-94bca0f52e-20210608T062039Z-Ubuntu18.04-x86_64$ apt search libsfml-graphics

Sorting... Done
Full Text Search... Done
libsfml-graphics2.5/focal,now 2.5.1+dfsg-1build1 amd64 [installed,automatic]
  Simple and Fast Multimedia Library - Graphics part

-maybe I need the older version of SFML?

How to reinstall libsfml-dev (2.4 instead of 2.5) to Ubuntu 20.04:

- sudo apt-get install libsfml-dev
  => installed 2.5

- sudo apt-get remove libsfml-dev
- sudo apt autoremove

https://askubuntu.com/questions/1365914/error-while-loading-shared-libraries-libsfml-system-so-2-4

- cd ~/Downloads
- wget -c http://archive.ubuntu.com/ubuntu/pool/universe/libs/libsfml/libsfml-audio2.4_2.4.2+dfsg-4_amd64.deb
- wget -c http://archive.ubuntu.com/ubuntu/pool/universe/libs/libsfml/libsfml-graphics2.4_2.4.2+dfsg-4_amd64.deb
- wget -c http://archive.ubuntu.com/ubuntu/pool/universe/libs/libsfml/libsfml-network2.4_2.4.2+dfsg-4_amd64.deb
- wget -c http://archive.ubuntu.com/ubuntu/pool/universe/libs/libsfml/libsfml-system2.4_2.4.2+dfsg-4_amd64.deb
- wget -c http://archive.ubuntu.com/ubuntu/pool/universe/libs/libsfml/libsfml-window2.4_2.4.2+dfsg-4_amd64.deb

- sudo apt-get install ./libsfml*.deb

OK, now it's working -tested by SDK sample ./SimpleBodyViewer-SFML.

2. Missing license for Body Tracking – Issue #1

ERROR [astra] Body Tracking Error: 0x50000c39 Invalid Orbbec Body Tracking license. Please purchase Orbbec Body Tracking License.

- https://3dclub.orbbec3d.com/t/body-tracking-not-free-after-january-31-2018/1273/17
- https://3dclub.orbbec3d.com/t/orbbec-2-0-9-body-tracking-sdk-expiration/2020

- https://3dclub.orbbec3d.com/t/no-response-on-body-tracking-license/1776/3

- https://3dclub.orbbec3d.com/t/regarding-to-body-tracking-license/2856

dshinsel, Jun '18

Due to ambiguity of the license, I have moved my efforts to using the NuiTrack SDK.
It seems to work at least as well as the Astra SDK. There is a license fee for NuiTrack, but it also works with other cameras, (I want to use Orbbec and Intel RealSense D435 cameras).

Unfortunately, this is not stated anywhere in the description for the Shinsel's Robots ROS package:

https://3dclub.orbbec3d.com/t/ros-package-for-astra-sdk-body-tracking-available/1797

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Astra Body Tracker – Installation & Setting:

set variables for Orbbec Camera

export OPENNI2_INCLUDE=/home/ladak/Desktop/Linux/OpenNI-Linux-x64-2.3.0.66/Include

export OPENNI2_REDIST=/home/ladak/Desktop/Linux/OpenNI-Linux-x64-2.3.0.66/Redist

export ASTRA_SDK=/home/ladak/Desktop/AstraSDK-v2.1.3-Ubuntu-x86_64/AstraSDK-v2.1.3-94bca0f52e-20210608T062039Z-Ubuntu18.04-x86_64
as
export ASTRA_ROOT=/home/ladak/Desktop/AstraSDK-v2.1.3-Ubuntu-x86_64/AstraSDK-v2.1.3-94bca0f52e-20210608T062039Z-Ubuntu18.04-x86_64

export ASTRA_SDK_INCLUDE=/home/ladak/Desktop/AstraSDK-v2.1.3-Ubuntu-x86_64/AstraSDK-v2.1.3-94bca0f52e-20210608T062039Z-Ubuntu18.04-x86_64/include

export ASTRA_INCLUDE_DIR=/home/ladak/Desktop/AstraSDK-v2.1.3-Ubuntu-x86_64/AstraSDK-v2.1.3-94bca0f52e-20210608T062039Z-Ubuntu18.04-x86_64/include

export ASTRA_SDK_LIB=/home/ladak/Desktop/AstraSDK-v2.1.3-Ubuntu-x86_64/AstraSDK-v2.1.3-94bca0f52e-20210608T062039Z-Ubuntu18.04-x86_64/lib

==========

3. Cannot build package 'astra_body_tracker'

catkin_make:

- body_tracker_msgs OK
- ros_astra_camera OK

- astra_body_tracker ERROR

1. Solve errors one by one:
   deprecated 'rebind':
   - add_compile_options(-std=c++11)
   - doesn't work.

2. Solution from https://github.com/shinselrobots/astra_body_tracker/issues/4:

use older code:

- body_tracker_msgs; commit 104097b8a4
- doesn't work.

catkin build:

- body_tracker_msgs OK
- ros_astra_camera OK
- astra_body_tracker OK

31. 1. 2022
- the same issue again:

1. error while loading shared libraries: libastra_core.so: cannot open shared object file: No such file or directory
LD_LIBRARY_PATH = /home/ladak/catkin_ws/devel/lib:/opt/ros/noetic/lib:/home/ladak/Desktop/AstraSDK/lib
   - add to the LD_LIBRARY_PATH dir with libastra_core.so -OK

2. error: no class template named 'rebind' in 'class:
   no idea how to solve it:
   https://github.com/oneapi-src/oneTBB/issues/383
   - -CMAKE_CXX_FLAGS=-DTBB_ALLOCATOR_TRAITS_BROKEN
   … doesn't work.

==========

Astra Body Tracker in Rviz

T1: rosrun tf static_transform_publisher 0 0 0 0 0 0 1 map my_frame 10

T2: rviz -f my_frame

T3: rosrun astra_body_tracker astra_body_tracker_node

- T1, T2 as single launch file:

https://answers.ros.org/question/232731/how-to-start-rviz-with-a-fixed-frame/

Topic: /body_tracker/markerastra_core

After the skeleton has been recognized:

astra_body_tracker/2 (../3, ...)
For frame [astra_camera_link]: Frame [astra_camera_link] does not exist

TODO:

- create URDF and include the camera link
- if the camera is mounted on a robot, and included in the URDF, the /body_tracker/marker topic will show the position of the user (spine joints) as balls in RVIZ.

==========

PCL Object Detection

https://github.com/shinselrobots/pcl_object_detecton

- upgrade C++ version to 14

- sudo apt-get install ros-kinetic-tf2-sensor-msgs → sudo apt-get install ros-noetic-tf2-sensor-msgs

- build ok;

- TODO: no object detected!

==========

- markers in rViz:

some error when converting coordinates:

```
SetJointPositionByWorldPosition(body, ASTRA_JOINT_HEAD, skeleton_data.joint_position_head);
```

-inside this method it's working fine;

-after that all zero (before PublishCubeMarker

- it seems like the reference is missing

-DONE

Display skeleton markers in rViz:

T0: roscore

T1: rosrun pointing_gesture pointing_gesture_node

T2: roslaunch urdf_tutorial urdf_display.launch model:='$(find urdf_tutorial)/urdf/robot_0.urdf'

T3: This is part of launch file: (rosrun pcl_object_detection pcl_object_detection_node)

DEBUG: Marker for test coordinate (1; 1; 1)

Body Id : 145 Status : Tracking started

[INFO] [1650120983.712187097] : /astra_body_tracker : detected person ID 145

[INFO] [1650120983.712266015] : Body 145 CenterOfMass (-410.734497, -103.706284, 1184.744995)

[INFO] [1650120983.712308464] : Joint Tracking Enabled : True Hand Pose Recognition Enabled : True

...

[INFO] [1650120983.712416856] : SetJointPositionByWorldPosition :1.234081 ; -0.426162 ; 0.180569

[INFO] [1650120983.712491600] : PublishPointMarker :1.000000 ; 1.000000 ; 1.000000

Body Id : 145 Status : Tracking

DONE.

==========

Objects detection

sudo apt-get install ros-noetic-tf2-sensor-msgs

...

ros-noetic-tf2-sensor-msgs is already the newest version (0.7.5-1focal.20220107.002056).

The following packages were automatically installed and are no longer required:

Cannot run both nodes at once:

pointing_gesture_node:

data from **astra sdk object** → ERROR on astra::nitialize()

pcl_object_detection_node:

depth points msg from **ros_astra_camera** → ERROR on start

2022-04-23 18:46:05,946 ERROR [orbbec.ni.device_streamset] failed to open device: Could not open "2bc5/0401@1/13": Failed to set USB interface!

Skeleton data are not published in **ros_astra_camera,**

so I need to get them from **astra sdk object** and published them the same way.

Another way is to run at first the detection node, do a snaphot and publish them;
after termination run the pointing_gesture_node.