OptiTrack

DOCUMENTATION

Introduction

The **Motive**, which is installed in a Windows environment, is used to calibrate and use the Optitrack. An Ethernet connection is being established to connect Motive with an Ubuntu environment to transfer rigid bodies poses as ROS topics.

Use Motive

There is a full documentation in reference to the Motive software [1]. For the basic navigation control for easy use of Motive please refer to [2].

After turning on and connecting the cameras to the Windows PC, open Motive and start a New Project. You will see the cameras in a linear configuration. For the cameras to be in the right position in the world frame you need to calibrate them [3], [4].

After calibration is done and you have set the world coordinates, you can set a rigid body and it's frame (*pivot*) and track it [5]. You can create and edit a rigid body by going to the *Project Pane*, under *View*.

Establish a connection

Finally, it's time to set a connection and stream the position and orientation of the rigid bodies created [6]. A VRPN connection is going to be established. For that reason, all three *Broadcast Frame Data* will be checked. *Local Interface* will be set to the other system's IP Address (169.254.213.89).

In the Ubuntu environment you will need to have ROS as well as the vrpn package [7]. You will need to set a connection to pair with the Windows PC. So, you set a connection: 169.254.213.77, 255.255.0.0, 0.0.0.0 to the correct Ethernet port. Then you run:

- roscore
- roslaunch vrpn_client_ros sample.launch

and if the frames are sent correctly you can print the rostopic:

- rostopic echo vrpn_client_node/pose1/pose

You can aslo install the ros_tf package for further visualization in Rviz [8] and run

- roslaunch ros_tf_configuration ros_tf_configuration.launch

References

[1] OptiTrack, “OptiTrack Documentation Wiki.” [Online]. Available: http://wiki.optitrack.com/index.php?title=OptiTrack_Documentation_Wiki.

[2] OptiTrack, “Motive Basics.” [Online]. Available: http://wiki.optitrack.com/index.php?title=Motive_Basics.

[3] OptiTrack, “Calibration Pane.” [Online]. Available: http://wiki.optitrack.com/index.php?title=Calibration_pane.

[4] OptiTrack, “Calibration.” [Online]. Available: http://wiki.optitrack.com/index.php?title=Calibration.

[5] OptiTrack, “Rigid Body Tracking.” [Online]. Available: http://wiki.optitrack.com/index.php?title=Rigid_Body_Tracking.

[6] OptiTrack, “Data Streaming Pane.” [Online]. Available: http://wiki.optitrack.com/index.php?title=Data_Streaming_Pane.

[7] GitHub, “vrpn_client_ros.” [Online]. Available: https://github.com/clearpathrobotics/vrpn_client_ros.

[8] GitHub, “optitrack_ros_tf.” [Online]. Available: https://github.com/ADVRHumanoids/optitrack_ros_tf.