User Manual 2 for ODI

This is the second documentation for the robot ODI. The first one explains how to connect to the robot and how to navigate it from ROS commands. This one is more centrated on GenoM modules.

Find the first documentation is here : https://project.isir.upmc.fr/redmine/projects/two-ears/documents (odiDoc1.pdf).

A numerical copy of this documentation is available on the same adress.
The user manual of the mobuile base perpared by the Enova robotics is also here.

Defined aliases :
>   This document assumes that you defined the following aliases.

On the host computer :
>   alias sshKemar="ssh -X user@192.168.11.1"

On the robot computer :

>   alias kMotor="roslaunch kemar_robot kemar_driver.launch"
>   alias kLaser="roslaunch kemar_robot kemar_base.launch"
>   alias kNavig="roslaunch navigation_kemar move_base_amcl.launch"
>   alias kView="roslaunch navigation_kemar view_navigation.launch"

>   alias kJoy="roslaunch kemar_teleop kemar_joystick.launch"
>   alias kKeyboard="roslaunch kemar_teleop kemar_keyboard.launch"

>   alias kTf="roslaunch learning_tf tf.launch"
>   alias kSendPosition="sendPosition-ros /sendPosition/Position:=/move_base_simple/goal"

>   alias kQr="roslaunch visp_auto_tracker tracklive_usb.launch"

Synch the Clock :

>   The ROS systems needs the clock of the robot computer to be synched with the host computer's clock.
>   Install and run chrony on both computer. Than run the ntpKemar bash script from https://project.isir.upmc.fr/redmine/projects/navigation/files on the host computer.

Navigation :

On the robot computer run kMotor, kLaser, kNavig and on the host computer run kView. You will be able to control the robot from the RVIZ.

If you need to re-install the navigation files, src_18-12-12-30.tar.gz and src_kemar.tar.gz files from https://project.isir.upmc.fr/redmine/projects/navigation/files were proposed by the Enova Robotics as the navigation files. However they are not tuned propoerly. https://project.isir.upmc.fr/redmine/projects/navigation repository contains all the navigation files with a working set of parameter. In addition to this files, you will need to have the driver of the variators. See L.Billard, who has a system backup from the ODI's first day in ISIR.

Find the created Ros maps here as well :
https://project.isir.upmc.fr/redmine/projects/navigation/files (rosMaps.zip). There are maps of salle SIMA (salleSIMA), anecoic chamber (salle 300, ancChamber) and the ISIR's underground floor (right the exit of the stairways, couloirISIR).

Matlab Navigation :

You can control the robot from Malab. On the robots computer run kTf and kSendPosition. On the host Matlab controle the robot by the SendPosition GenoM component.

If you need to re-install the Matlab navigation files, install « sudo apt-get install ros-indigo-tf » and the sendPosition GenoM module from https://project.isir.upmc.fr/redmine/projects/send-position/repository

Find a example Matlab script (sendPosition.m) in https://project.isir.upmc.fr/redmine/projects/send-position/repository

Reading QR Codes

Run the kQr and QR2matlab-ros (https://project.isir.upmc.fr/redmine/projects/qr2matlab/repository) on the robot's computer.

If you need to re-install the module : Check the readme file
https://project.isir.upmc.fr/redmine/projects/qr2matlab/repository/changes/README.md?rev=master

See an example script here :
https://project.isir.upmc.fr/redmine/projects/qr2matlab/repository/changes/QR2matlabClient.m?rev=master

Control the Neck

Run kemar-ros module to control the neck.

Find the doumentation and the installation guide here
https://project.isir.upmc.fr/redmine/projects/basc2/documents (.zip coyed from the TWO!Ears git).

ATTENTION. The kemar component isn't installed on the robot. This component needs the peak usb-can converter driver and the elmo-axis-library to be installed on the computer. However even thought the driver and the library are installed on the computer, the module can't reach to the elmo library.

The ODI's computer has a SSH user. While connecting to the computer by ssh, we control a user different from the one which when we plug it to a screen and log in directly. I think this is the source of confusion for the system. One solution is to plug it to a screen to install all directly without ssh, the other solution is to configure ../configure flags right in order to make visible the elmo library.

The kemar component is installed on the Two!Ears laptop.

ATTENTION 2 : Don't forget to check the Install_Kemar_head_control.txt file even though the README.md file explains the installation.