Pepper Guide

UTS:
CAS

DAVID DAO

Quick Start

This quick start tutorial will show how to operate and run scripts on the pepper robot.

1. Turn on the pepper by pressing the button under the chest (do not hold).
2. Wait for initilization.
3. Connect to magiclab wifi:
    - SSID: magiclab
    - password: mRpr342kz
4. Press the button again to get the ip of the robot in the form of [192.168.1.XX]
5. SSH to the robot:
    - ssh -X nao@192.168.1.XX
    - password: Habanero1
6. In the terminal, make your own directory and copy and paste the python tutorial script into your directory.
7. Run the script using:
    - ipython altexttospeech_say.py

NAOqi API

The pepper robot can be controlled through NAOqi API “services”. The standard method to script any services is to:

1. Connect to the pepper robot using session.connect.
2. Create the service using the session object.
3. Use the service functions based on online documentation.

Any of these services may come with 3 lists: Method, Event and Signal.

Method is the function that operates the robot.
Event is the name of the relevant variables stored in ALMemory.
Signal is callback function.

For more information, there are plenty of services available on softbank documentation. Some of the recommended modules to start with would be:

- ALTextToSpeech
- ALMotion
- ALMemory

Pepper ROS

ROS description: “Pepper is a commercially available humanoid robot built by Aldebaran and Softbank Robotics. Since the robot uses Aldebaran's **NaoQI framework**, we can use **naoqi_driver ROS driver** that is common for Nao, Pepper, and Romeo. It wraps the needed parts of **NaoQI API** and makes it available in ROS.

There are two sources found for controlling the pepper robot, one directly using NaoQI API and one makes use of ROS:

- http://wiki.ros.org/pepper (ROS pepper website)
- http://doc.aldebaran.com/2-5/index_dev_guide.html (NAOqi APIs)

List of tutorials:

- http://wiki.ros.org/pepper/Tutorials (Displaying real pepper in rviz)
- http://wiki.ros.org/nao/Tutorials/Installation#NAOqi (NAOqi installation)
- http://ros-naoqi.github.io/naoqi_driver/ (naoqi driver tutorial)

List of packages:

- https://github.com/ros-naoqi/naoqi_driver (Publishes sensor and actuator data)
- https://github.com/ros-naoqi/naoqi_bridge (Python version of driver)
- https://github.com/ros-naoqi/pepper_dcm_robot (Robot controller)
- https://github.com/ros-naoqi/pepper_moveit_config (Pepper moveit config)
- https://github.com/ros-naoqi/pepper_robot (URDF + Model)
- https://github.com/ros-naoqi/pepper_virtual (Pepper gazebo simulation)

Choregraphe Suite

Choregraphe is a multi-platform desktop application, allowing you to:

- Create animations, behaviors and dialogs,
- Test them on a simulated robot, or directly on a real one,
- Monitor and control you robot,
- Enrich Choregraphe behaviors with your own Python code.

Choregraphe allows you to create applications containing Dialogs, services, and powerful behaviors, such as interaction with people, dance, e-mails sending, without writing a single line of code.

Magic Lab

Magic Lab shared libraries

Work in Progress