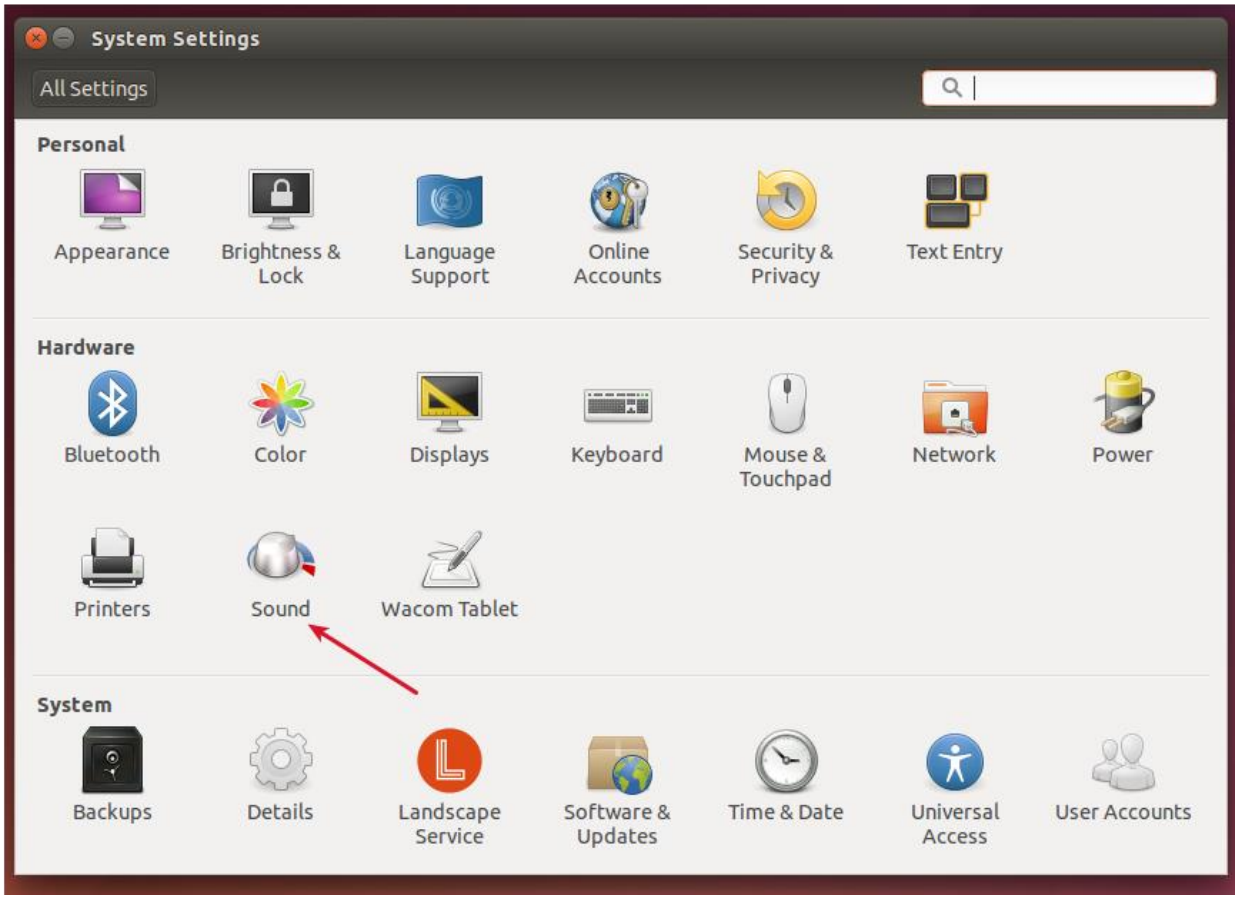
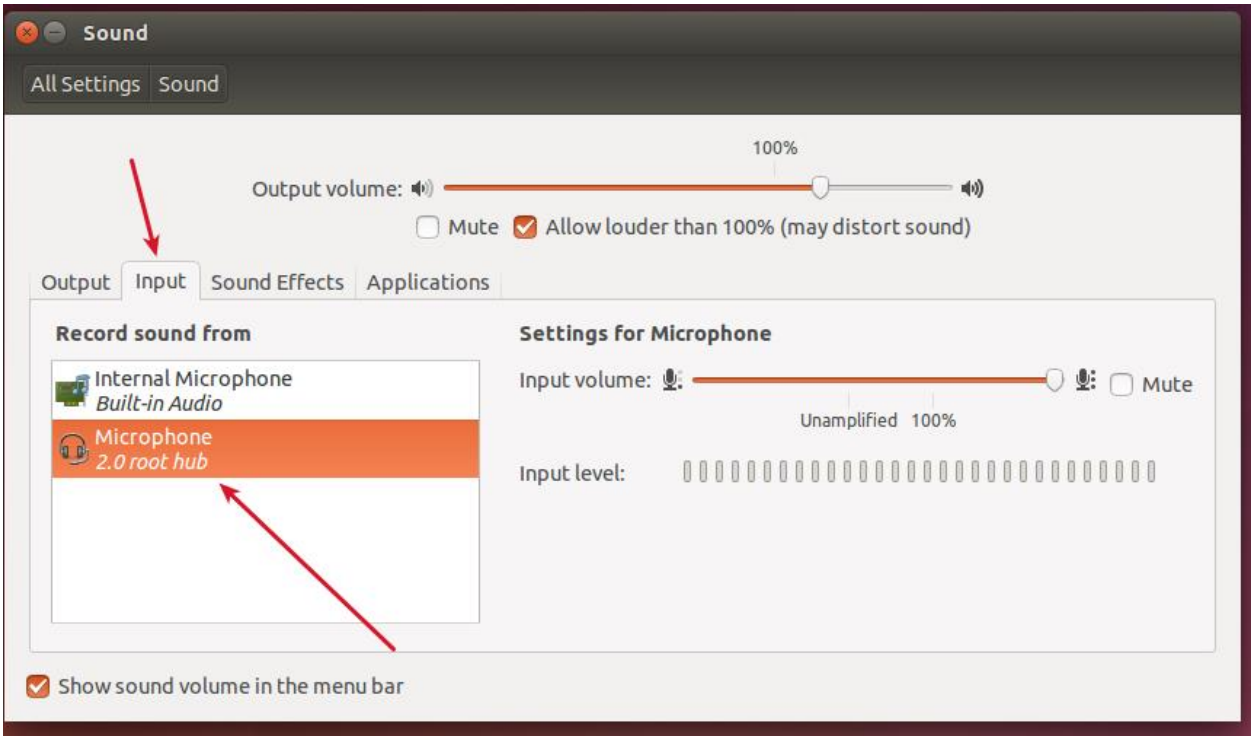
COMMANDS FOR BAXTER DEMOS—VOICE CONTROL

VERY IMPORTANT BEFORE STARTING

Check the sound setup before starting. Under System Settings, click on the Sound ICON. Click on the Input tab and make sure that the microphone is selected as the sound input. (the default is the internal microphone….this is why it is important to check).


System Settings
All Settings
Personal
Appearance
Brightness & Lock
Language Support
Online Accounts
Security & Privacy
Text Entry
Hardware
Bluetooth
Color
Displays
Keyboard
Mouse & Touchpad
Network
Power
Printers
Sound
Wacom Tablet
System
Backups
Details
Landscape Service
Software & Updates
Time & Date
Universal Access
User Accounts


Sound
All Settings
Sound
100%
Output volume:
Mute
Allow louder than 100% (may distort sound)
Output
Input
Sound Effects
Applications
Record sound from
Internal Microphone
Built-in Audio
Microphone
2.0 root hub
Settings for Microphone
Input volume:
Mute
Unamplified
100%
Input level:
Show sound volume in the menu bar

STEP 1

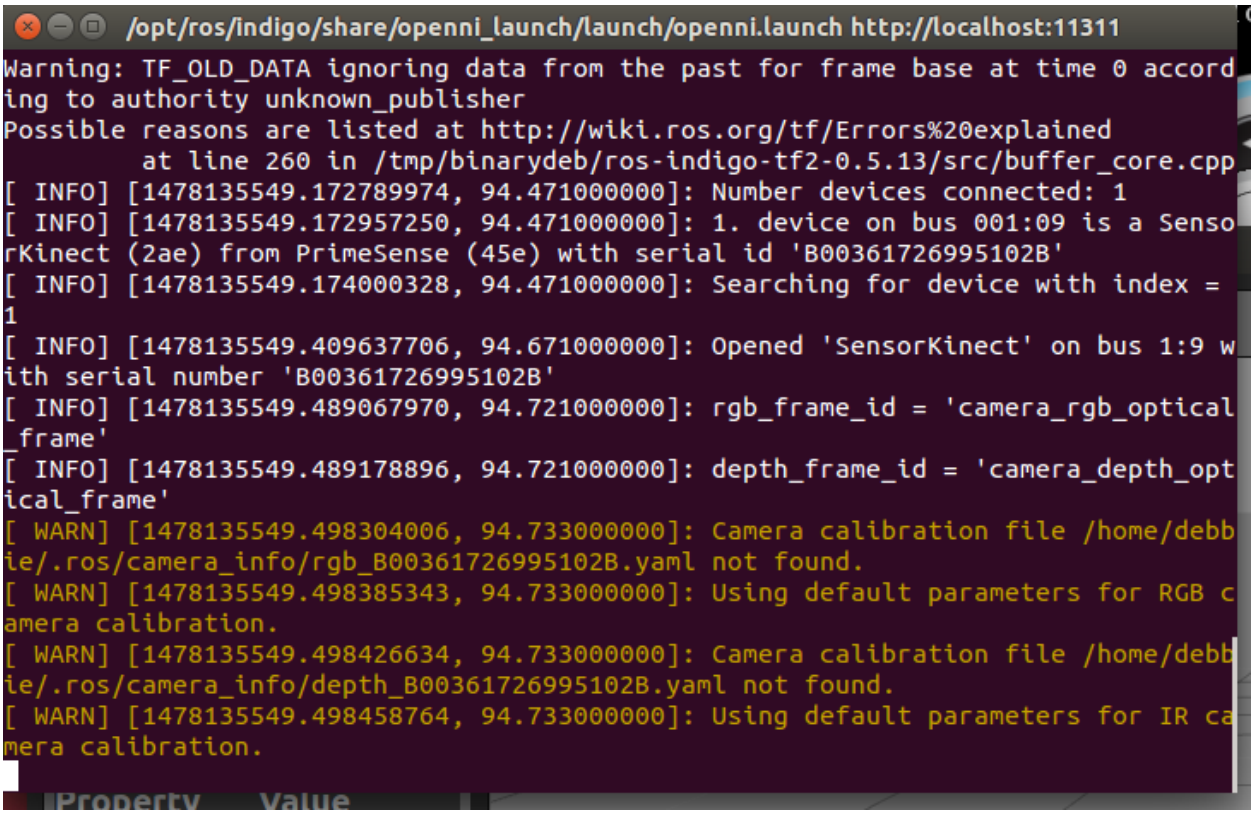
To start the XBOX 360, start a terminal
Please note that after typing in each line which is bolded, press enter. This means that this step has three commands.

cd ros_ws

./baxter.sh

roslaunch openni_launch openni.launch

Sometimes it takes more than one try to get the camera to launch. Here is a picture of what it should look like when completely launched. Don't worry that it uses the default calibration. It is just important to see the "yellow" writing at the bottom of the picture.



STEP 2

Start the openni_tracker

Open a new terminal

cd ros_ws

./baxter.sh

rosrun openni_tracker openni_tracker

Initially, you will not see anything, the tracker will start reporting the user index once the program is started.

STEP 3

Now we start the node that controls speech recognition

Open a new terminal…. this is the third terminal that is open.

cd ros_ws

./baxter.sh

roslaunch speech speech_commands.launch

Before proceeding, it is always a good idea to test the speech recognition function to make sure everything is working.

You can check the topic /recognizer/output by using the following command in a new terminal:

cd ros_ws

./baxter.sh

rostopic echo /recognizer/output

Now say some words such as “stop” “continue” or “right green” to make sure the headset is picking up your speech. Once you are satisfied that all is working, you can close this terminal if you want.

Or you will be able to see the words the program picks up in the terminal where you launched the speech recognition node.

STEP 4

Now we start rviz.

Open a new terminal…. this is the fourth terminal that is open.

cd ros_ws

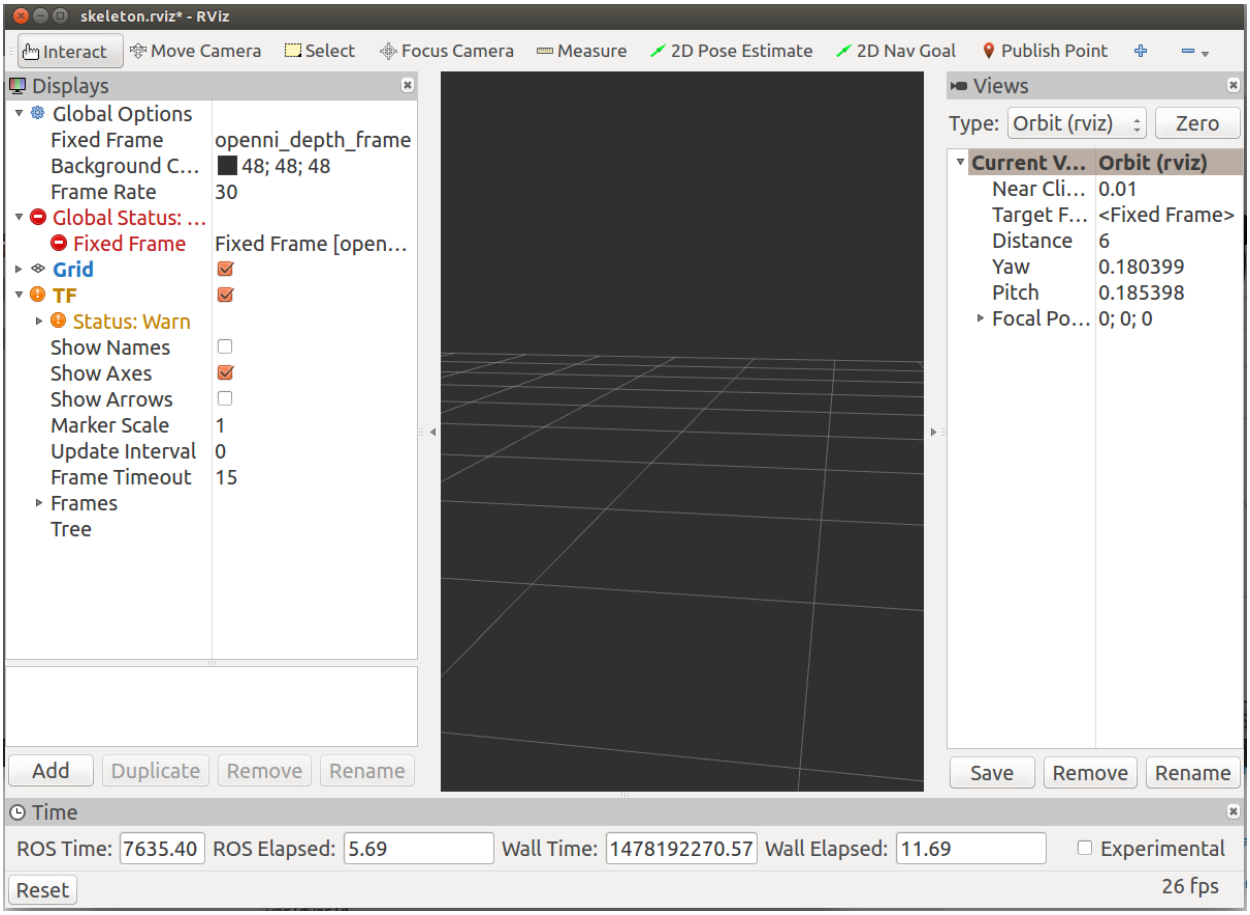
./baxter.sh

roslaunch mimic_voice rviz.launch

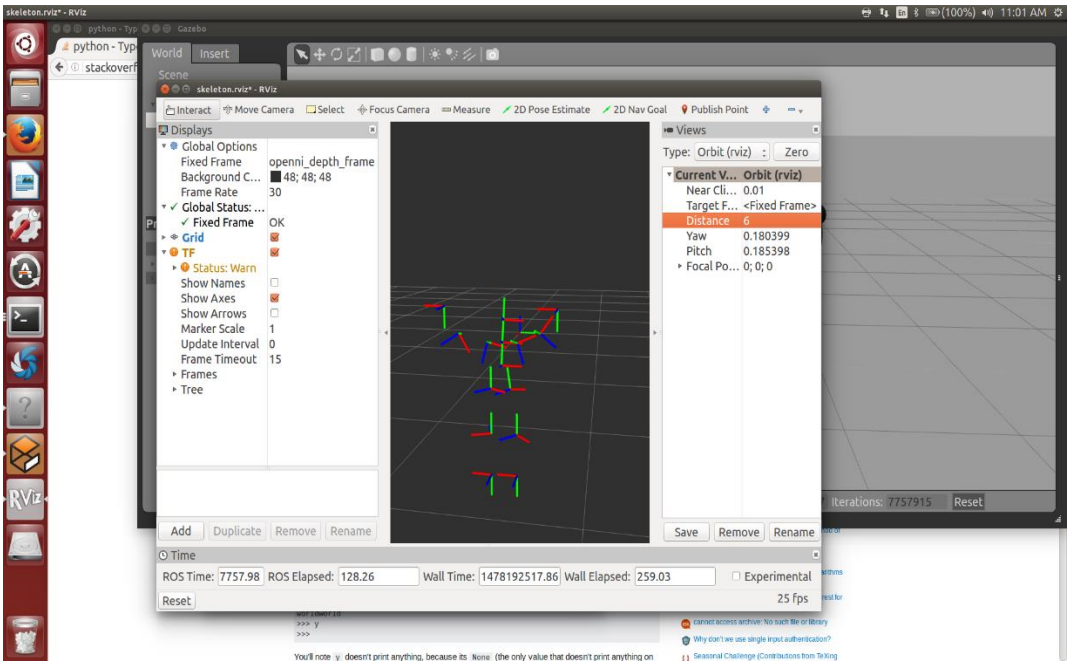
The picture below is what you should see open up.

Look at the Global Options → Fixed Frames. It should say openni_depth_frame.

You should also see TF in yellow. If you do not, then rviz did not open properly.



A skeleton appears once the tracker picks up the user.



STEP 5

Open a new terminal…this is terminal 5 and the last one you need.

Decide which program you want to run. There are 4 options.

1) mimic_voice_basic.py---Baxter does not talk. He just mimics and uses voice control
2) mimic_voice_hello.py—Baxter says hello first then mimics and uses voice control
3) mimic_voice_demoA.py—Baxter says hello, demos grippers, blinks LEDs on arms and changes halo lights, then he mimics. Voice control is also available.
4) mimic_voice_demoB.py—Baxter says hello, asks to see his mail, reaches out to get a letter with his left Arm, looks at it, gives it back, then mimics. Can also use voice control.

Please note that if you chose mimic_voice_basic.py, the user needs to stand in front of the camera and put their arms in a psi position from the start. This is where both arms are extended up to make a Y. The skeleton tracker requires this initial position to pick up the user…otherwise it will not “see” the user.

If you use one of the other three programs, you can have the user wait until Baxter finishes talking before they put their arms in the psi position. This prevents their arms from getting too tired.

cd ros_ws

./baxter.sh

Choose only one:

Note: We are using a launch file instead of the individual python file so that both the program that runs baxter and voice.py (voice recognition program) will be launched at the same time.

roslaunch mimic_voice voice_basic.launch

roslaunch mimic_voice voice_hello.launch

roslaunch mimic_voice voice_demoA.launch

roslaunch mimic_voice voice_demoB.launch

Since you have voice control, you can also just say STOP and then START when you want Baxter to start moving again.

Alternatively, you can use the commands below to pause/restart. However, make sure that you are in the correct terminal i.e. the terminal that is running the launch file above.

To pause: ctrl-z

To restart: fg then push enter

To stop: ctrl-c Baxter will move to neutral and reset his face screen, then disable his motors