**ROS Guide**

1. Catkin (package)
   * catkin\_make in the catkin directory to build package
     + install (optional)
   * source devel/setup.bash
2. ROSPACK
   * find <package>
   * list
3. ROSCD: change between ROS directories quickly
4. ROSLS: list information and directory for ROS package
5. ROSCORE: activates the ROS environment (nodes, paramaters, messages, etc…)
6. ROSRUN: run a ROS package
   * turtlesim turtlesim\_node
   * rqt\_graph rqt\_graph
   * rqt\_plot rqt\_plot
   * rqt\_console rqt\_console
   * rqt\_logger\_level rqt\_logger\_level
7. ROSDEP: repository (package) management
   * install <package>
8. ROSMAKE
9. ROSTOPIC
   * pub /turtle1/cmd\_vel geometryMsgs/Twist -r 1 …
10. ROSSERVICE
    * call
11. ROSPARAM: define ROS parameters
    * can be within their own name spaces
    * dump and load paramaters
12. ROSLAUNCH:
13. ROSED:

**Speech Playback**

Sound Play Package

1. roscore
2. catkin\_make
3. source devel/setup.bash
4. rosrun sound\_play soundplay\_node.py
5. rosrun sound\_play say.py ‘example speech’

Links

- <http://wiki.ros.org/sound_play>

- <http://wiki.ros.org/sound_play/Tutorials/ConfiguringAndUsingSpeakers>

**Speech Recognition**

Pocketsphinx Implemention based on CMUSphinx

Links

- <https://wiki.umbc.edu/display/IRAL/PocketSphinx+Install+on+ROS>

- [http://jokla.me/robotics/speech-recognition-ros](http://jokla.me/robotics/speech-recognition-ros/)/

- <http://wiki.ros.org/pocketsphinx>

- <http://www.pirobot.org/blog/0022/>

- <http://rospeex.org/turtlebot_gazebo/>

- <https://code.google.com/archive/p/ros-pocketsphinx-speech-recognition-tutorial/wikis/Tutorial.wiki>

**Environment Simulation**

Gazebo Open Source Software

1) export TURTLEBOT\_GAZEBO\_WORLD\_FILE = “/opt/ros...”

2) roslaunch pocketsphinx turtlebot\_gazebo turtlebot\_world.launch

Links

- [http://wiki.ros.org/turtlebot\_gazebo/Tutorials/indigo/Gazebo%20Bringup%20Guide](http://wiki.ros.org/turtlebot_gazebo/Tutorials/indigo/Gazebo Bringup Guide)

- <https://www.youtube.com/watch?v=DLVyc9hOvk8>