Robotics: Principles and Practice

Module 2: The Robot Operating System (ROS)

Lecture 1: Installation of the software development environment for assignments

David Vernon
Carnegie Mellon University Africa

www.vernon.eu

Software Development Environment

There are two options

     Option A: Install a VirtualBox Ubuntu 16.04 virtual machine with everything pre-installed

     Option B: Install all the required tools and utilities directly on a computer running Ubuntu 16.04

Installation procedures for both options are set out on this Wiki page:

     Robotics: Principles and Practice – Software Installation Guide

     http://www.vernon.eu/wiki/Robotics:_Principles_and_Practice_-_Software_Installation_Guide

Exercise

Open a terminal (ctrl + alt + t) and enter

    $ roscore

Open a second terminal (ctrl + shift + t) and enter

    $ rosrun turtlesim turtlesim_node

Open a third terminal (ctrl + shift + t) and enter

    $ rosrun turtlesim turtle_teleop_key

The separate terminals are intended to allow all three commands to execute simultaneously.

Exercise

If everything works correctly, you should see a window similar to the one below
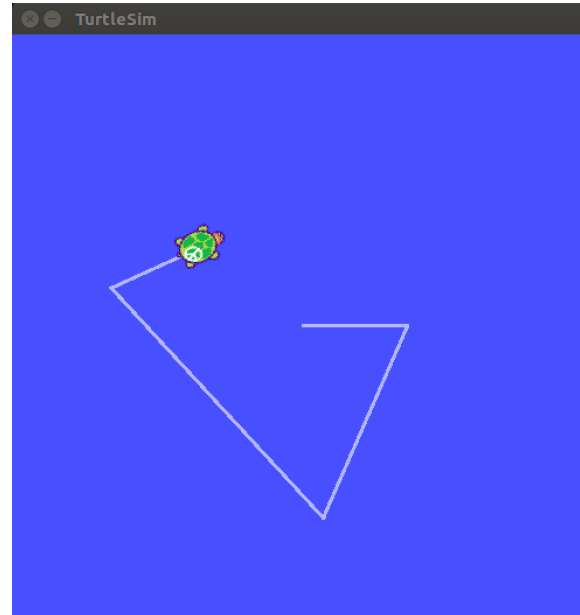
The appearance of your turtle may differ:
The simulator selects from a collection of mascot turtles for each of the historical distributions of ROS
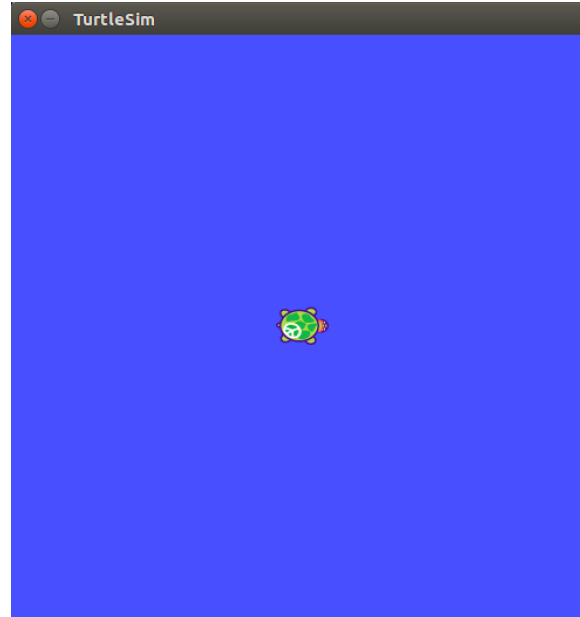
Exercise

Make sure your third terminal (the one executing the turtle_teleop_key command) is in focus (i.e. is selected)

Press the Up, Down, Left, or Right arrow key to move the turtle and leave a trail behind it

Exercise

In the three lectures that follow, we will learn how to write C++ programs in ROS to control the turtle & the trace it leaves as it moves

The same control programs can be easily adapted to control the iRobot Create 2 mobile robot