Presentation Outline

Motivation

My Background
My Background
How Robotics Research Keeps...

Re-Inventing the Wheel

First, someone publishes...

...and they write code that barely works but lets them publish...

...a paper with a proof-of-concept robot.

This prompts another lab to try to build on this result...

But inevitably, time runs out...

...but they can't get any details on the software used to make it work...

...and countless sleepless nights are spent writing code from scratch.

So, a grandiose plan is formed to write a new software API...

...and all the code used by previous lab members is a mess.
Reduce
Reuse
Recycle

Willow Garage

ROS
Tools for Developers

Tools for Developers
Tools for Developers

Tools for the Community
Tools for the Community

2D object recognition

3D object recognition

OpenCV

Tools for the Community
Jenkins

Tools for the Community

[ROS.org](https://www.ros.org)

[answers.ros.org](https://answers.ros.org)

Worldwide community
Worldwide community

Worldwide community

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How do you prove your software works?

**PR2**
What's a good challenge for the PR2?

How about a marathon?

Can we make it play pool?
In one week?

How about fetch beer?

What can others do with the PR2?
Future Plans

Try it out!

Tutorials

ROS/ Tutorials

1. Beginner Level
   1. Installing and Configuring Your ROS Environment
      This tutorial walks you through installing ROS and setting up your ROS environment on your computer.
   2. Navigating the ROS Filesystem
      This tutorial introduces ROS filesystem concepts, and covers using the rosnode, rosls, and rospack command-line tools.
   3. Creating a ROS Package
      This tutorial covers using roscat to create a new package, and rospack to list package dependencies.
   4. Building a ROS Package
      This tutorial covers using rosmake to build a package, and rosdep to install system dependencies.
   5. Understanding ROS Nodes
      This tutorial introduces ROS graph concepts and discusses the use of roscore, rosnode, and rosrun command-line tools.
   6. Understanding ROS Topics
      This tutorial introduces ROS topics as well as using the rostopic and rostop command-line tools.

http://ros.org/wiki/ROS/Tutorials
The TurtleBot

Simulator
Thank You

Questions?

Check it out: www.ros.org

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Image Sources

- Roomba Public Domain on Wikipedia
- Urban Challenge kwc.org
- Success Chart [https://cs.byu.edu/image/302-success_clipart](https://cs.byu.edu/image/302-success_clipart)
- Jenkins Logo [https://wiki.jenkins-ci.org/display/JENKINS/Logo](https://wiki.jenkins-ci.org/display/JENKINS/Logo)
- Droid Photo [http://www.motorola.com/staticfiles/Consumers/Products/Mobile%20Phones/DROID-3-By-Motorola/Images/Droid-X3_Production_Specs.jpg](http://www.motorola.com/staticfiles/Consumers/Products/Mobile%20Phones/DROID-3-By-Motorola/Images/Droid-X3_Production_Specs.jpg)
- Android Logo [http://farm4.staticflickr.com/3034/3754407004_33e592d075.jpg](http://farm4.staticflickr.com/3034/3754407004_33e592d075.jpg)