Good morning, every one, today I will talk about ROS, the Robot operating System.
First I will have a brief introduction about ROS, then we will talk about the software development for ROS.Finally I will do some domos and talk about the future plan.

ROS was first created in 2007 by Stanford AI lab, what also happened in this year is that first iphone was published in this year

Ros is opensource and developed by many groups all over the world. If you go to its official site and web community, you will see many tutorials for different robots many interesting code for different compoments.

Ros has been applied to many commercial products and industry
for example the here map car, it uses ROS to process data and handle the communications between components. The Hekateraos arm is an industry product that provide with ROS interface. Similarly, PAL robot also has ROS interface for its developers.
Of course, the kobuki robot and Xtion camera, they also suport ROS and provide many APIs

Actually, ROS is not a real operating system, it's a flexible framework for writing robot software more accurately. Because ROS need to run on another operating system like Ubuntu. But it provides a collection of tools and libraries. Especially when using these libraries, it's much like programming for a real operating system

The most basci compoment of ROS is called node, for each node it should have at least one of the following four functions, the …..

This is a general framwork of ROS, first we need a ROS master, it handles all the communication from other nodes. All the communictaions, no mater message or service requests, are all transferred by the ROS master. What should be mentioned istthat the commucations is based on TCP/IP, so actually, the nodes can be in different machines, different networks. Just like many distributed systems, it's very easy to scale

This a an example of ROS framework, here we can see...

Then ROS tools, it has two types of two tools, one is command line and GUI …

Ros surpports may different plateforms, processor architecture, and programming language...

… …   In each package there are serveral folders for different usages …

The most import two parts of ROS is publisher/subscirber, and service/client
First is publisher/subsciber, which is used to tranfer msg...before using p/s, we need to define the format of msg

Then demo time...