

What is R.O.S.

ROS stands for Robot Operating System which is an open-source meta-operating system and programming framework for Robots .It was designed and developed in late 2000s in Stanford University. It brings hardware abstraction, low-level device control, implementation of commonly-used functionality, message-passing between processes, and package management.

Before and After R.O.S.

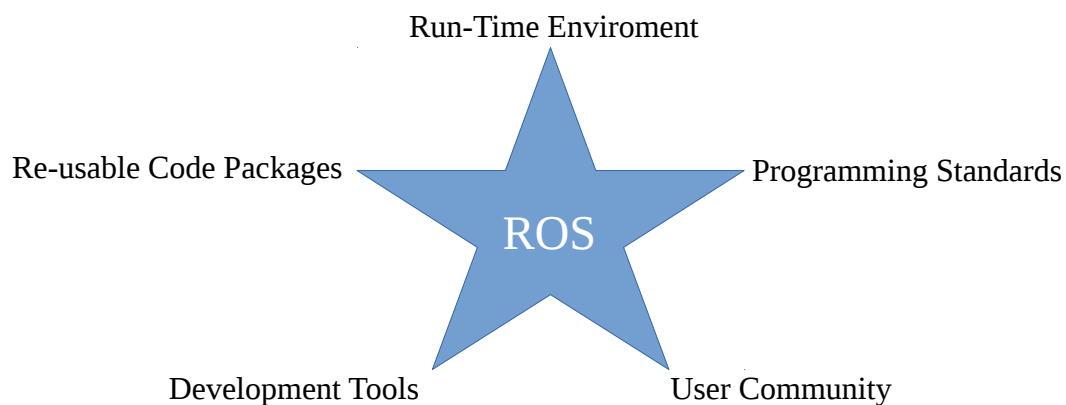
Robotics is mostly used in industries such as automobile factories. Before ROS, software control systems for each robots were specialized for desired tasks, lacking standardization and re-usability. In each new project, robot developers must re-discover America again. ROS started a new era for Robotics by creating a developing robotics software that facilitates and encourages the sharing and re-use of components for creative and efficient solutions. ROS has maximized the utility of having open-source robotic software by addressing the main concepts robotics developers encounter.

Fundamental concepts of Robotics

- Coordinate System Transformations
- Robot Kinematics
- Communications
- Motion Planning
- Sensor Integration



ROS handles concept problems with its...



More Open-Source Technologies Which Can Be Integrated In A Comprehensive Robotics Project



MoveIt! is also an open-source software incorporating the latest advances in motion planning, manipulation, 3D perception, kinematics, control and navigation. It provides an easy-to-use platform for developing advanced robotics applications, evaluating new robot designs and building integrated robotics products for industrial, commercial, R&D and other domains.



Robot simulation is an essential tool in every roboticist's toolbox. Gazebo is a well-designed simulator rapidly tests algorithms, designs robots, performs regression testing, and trains AI system using realistic scenarios. Gazebo offers the ability to accurately and efficiently simulate populations of robots in complex indoor and outdoor environments. At your fingertips is a robust physics engine, high-quality graphics, and convenient programmatic and graphical interfaces.



OpenCV (Open Source Computer Vision) is an open-source library of programming functions supporting computer-vision useful for collecting and analyzing real-time video.



Microsoft .NET Micro Framework is an open-source .NET Framework desktop platform for creating applications for chip level devices and resource-constrained devices with at least 256kb of flash and 64kb of RAM.