



Robotnik



RB-1 is a mobile manipulator with a 12 DOF configuration and focused on the research field of indoor applications.

Product

RB-1 is an autonomous manipulator for the development of indoor applications.

The arm

RB-1 can integrate the MICO² or the JACO² arm. Both are 6 DOF and can incorporate a 2 or 3 fingers gripper. These allow users to interact with their environment in total safety, freedom and efficiency. Soundless and smoothy movement with unlimited rotation on each axis.

Base

The manipulator base can be mounted with a wide range of lasers which have 5 to 30-60 meters operational range. Depending on the model, the field of views from 240° to 270°. In addition, it includes an RGBD sensor on the base.

The software of the robot includes a control system, a tracking system (laser-based) and a navigation system, as well as a HMI user interface for diagnostics and remote control.

Pan-tilt unit

The robot integrates a 2 DOF pan-tilt for the perception of the environment by an included RGBD sensor. Its has various applications on the robot. It can be used to recognize objects around them, but it is also for navigation and localization purpose by using landmarks or using new RGBD Slam algorithms.

RB-1 uses an open architecture and modular control based on ROS (<http://www.ros.org>).

ROS framework defines a well organized robot software architecture and includes hundreds of user contributed packages and sets of packages called metapackages, that implement functionalities as localization and mapping, planning, manipulation, perception, etc.

Applications

- R&D
- AAL (Ambient Assisted Living)
- Indoor mobile manipulation
- Remote handling

Options

- MICO / JACO arm
- 2 finger / 3 finger gripper
- Automatic charging station



ROS.org

Technical Specifications

Mechanical

Height (min/max)	1.000/1.340 mm
Base diameter	500 mm
Speed	1.5 m/s
Elevation axis range	340 mm
Weight	54 Kg
DOF	12-13 DOF (6 DOF Arm, 1-2 DOF Gripper, 2 DOF Pan tilt, 2 DOF Traction, 1 DOF Torso elevation)
Autonomy	7 h. continuous motion
Batteries	LiFePO4 30Ah@24VDC
Traction motors	2x250W servomotors
Temperature range	0° to +50°C

MICO² ARM

Arm payload	2,1 Kg half range / 1,5 Kg complete range
Arm reach	700 mm
DOF	6

JACO² ARM

Arm payload	2,6 Kg half range / 2,2 Kg complete range
Arm reach	900 mm
DOF	6

PC

Processor	4th Generation Intel i7
RAM	8 Gb
Hard Drive Capacity	120Gb

Control

Controller	Open architecture ROS Embedded PC with Linux
Communication	WiFi 802.11n
Connectivity	2x USB, 2x Ethernet and 1x HDMI



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