Robotnik

RB-1 MODULAR MOBILE MANIPULATOR

Quickstart Manual
Version 2.0

RBTNK-DOC-161020A

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Contents

1. Introduction

This manual describes the basic steps to operate the RB-1 Modular Mobile Manipulator (RB-1). The RB-1 can be operated in three ways:
- using the pad provided with the manipulator.
- connecting with an SSH client to the manipulator.
- using a remote PC connected to network created by the manipulator.

2. Start-up Sequence

Take a look to the back panel of the robot:
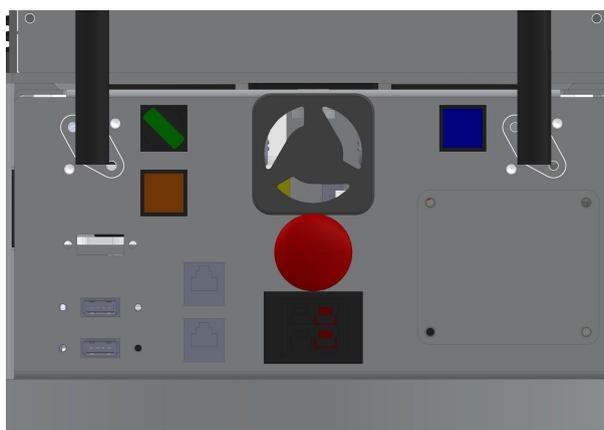
Figure 1. RB-1 back panel.

The following elements are the main components of the back panel necessary to start-up the robot:

	ON/OFF switch
	CPU power button
	Motors reset button
	Emergency button

The general ON/OFF SWITCH (green) must be activated for giving energy to all the elements of the system. Press the CPU POWER BUTTON (blue) button to turn ON the computer, the blue button will light up. At this moment the PC (Linux) starts-up and loads all the necessary files for booting.

To move the robot, the EMERGENCY BUTTON (red) must be pulled out and the RESET BUTTON (orange) must be pressed once.

NOTE: Remember that the robot is able to reach high speeds, use the higher speeds only in open areas.

3. Pad Teleoperation.

If the startup sequence has been executed in the correct order, the pad will shake after it is enabled. PS3 pad is enabled by pressing the PS Button. PS4 pad is enabled by pressing the Share and the PS Button for five seconds, and waiting for its pairing. Then, the robot will be ready to be teleoperated. The RB-1 Pad Teleoperation is divided in three modes: Base, Torso and Arm. Each mode is selected by pressing the correspondent Deadman button.

NOTE: If no Deadman button is pressed, the robot will not move.

Figure 2 – Base Operation Mode for PS3 and PS4 pads

Figure 3 – Torso Operation Mode

Figure 4 – Arm Operation Mode

A more detailed description of the Pad Teleoperation is provided in the software manual.

4. SSH Connection.

First, connect to the Wifi Network provided by the RB-1:
      Wifi SSID: RB1-161020A (A..Z)
      Wifi Password: R0b0tn1K (R and K capital letters)

Then, connect to the CPU using your favourite SSH Client:
      RB-1 IP Address: 192.168.0.200
      User/Password: rb1 / R0b0tn1K (R and K capital letters)

5. Remote PC

The RB-1 software architecture is based on the open source robots framework ROS Indigo release, which is targeted at the Ubuntu 14.04 LTS Release. It is recommended to install both versions.

Ubutnu 14.04 installation guide: http://releases.ubuntu.com/14.04/
ROS Indigo installation guide: http://wiki.ros.org/indigo/Installation/Ubuntu
ROS Tutorials: http://wiki.ros.org/ROS/Tutorials

After both are installed, create a Catkin Workspace and install the RB-1 Software from source, located at:
https://github.com/RobotnikAutomation/rb1_common

Then, add the following line to the `/etc/hosts` file in your computer to be able to connect to the RB-1 CPU:

```
user@remote:~$ sudo vim.tiny /etc/hosts

# add the following line
192.168.0.200   rb1-161020A
```

Finally, you will be able to use the different ROS tools, such as RViz, to operate the robot from your remote PC.