wyca
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Keylo for research

Modular design and scalable platform

Most of Keylo core components are off-the-shelf, plug-and-play, and use open source drivers.

The goal of the research version of Keylo is to allow researchers to have full control of the platform. Components can be easily customized, replaced and added independently from Wyca.

Easy maneuverability on uneven grounds

- ✓ The platform's suspensions have been designed to cross door tresholds.
- ✓ The platform can easily enter an elevator without human assistance.
- ✓ The centre of gravity is located just above the wheels for more stability

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Detailed specifications

Low circular footprint
52cm of diameter

Total height : 164cm
Low centre of gravity

Run time : 2 to 6 hours
with basic battery pack

Docking station included

Easy hull opening and
access to components
(3 screws)

Ubuntu 16.04 LTS, ROS
Kinetic Kame and standard
ROS API

Computer (by default, can be upgraded)

- ✓ Intel NUC6I5SYH
- ✓ CPU: Intel® Core™ i5-6260U, up to 2.9 GHz - 4 threads - cache 4 Mo
- ✓ GPU: Intel Iris Graphics 540
- ✓ Memory: 16 Go DDR4
- ✓ Storage: 120 Go SSD
- ✓ Connectivity: 4 x USB 3.0, Wifi 2x2 Band 2.4 GHz / 5 GHz, Bluetooth 4.2, 1 x Gigabit ethernet
- ✓ TDP: 15W

USB extension

- ✓ Powered Hub 10 x USB 3.0

Screen

- ✓ 24" multi-points high FOV touchscreen, USB and HDMI plug-and-play interface on Linux and Windows platforms

Audio

- ✓ Speakerphone Jabraspeak 510, USB plug-and-play interface on Linux and Windows platforms

Batteries

- ✓ Standard AGM battery pack 2 x 12 V-33Ah, easy to replace and upgrade

Auxiliary power

- ✓ Stabilised output 5 and 12 VDC
- ✓ Direct battery output 22-25 VDC

LED strip

- ✓ Fully reprogrammable RGB LED strip. USB interface

Drive system

- ✓ Suspended, turn in place, differential drive design
- ✓ Can cross gaps 4cm long and 1.5cm high thresholds with no inertia
- ✓ Motors controller: Ion Motion Roboclaw 2x30A, USB interface, serial protocol, multi-platform drivers available. Wyca provide a ROS node with a standard odometry and velocity command API
- ✓ Wheel encoders: 3893 ticks/m
- ✓ Max speed: 2 m/s
- ✓ Operation environment: indoor

Sensors

- ✓ 2 x front and rear 3D RGB-D camera Intel Realsense R200: Pointcloud, IR and RGB streams. USB 3.0 interface. ROS API
- ✓ 1 x HD wide angle RGB camera. USB 2.0 interface. ROS API
- ✓ 2 x 4 front and rear ultrasonic range sensors: 5 meters range. ROS API
- ✓ 2 x 2 IR edge detectors. Hard-wired to the motors controller. ROS API
- ✓ 1 x emergency stop push button. Hard-wired to the motors controller. ROS API
- ✓ Lidar:
  1. Standard: Hokuyo URG-04LX-UG01, 5.6 meters range, FOV 240°. ROS API
  2. Upgraded option: Pepperl+Fuchs OMD30M-R2000-B23-V1V1D-HD-1L, 30 meters range, FOV 360° limited to 240° by the robot hull. ROS API

Additional features

- ✓ Item dispenser
- ✓ Lockable box
- ✓ More on special request: printer, bank terminal, etc…

Software

Keylo comes ready to run with its computer preconfigured, Ubuntu 16.04 LTS, ROS Kinetic Kame and a standard ROS API (service/topic) to all its sensors and features. The users are free to format and configure the computer as they wish. A restore factory settings USB key is provided.

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