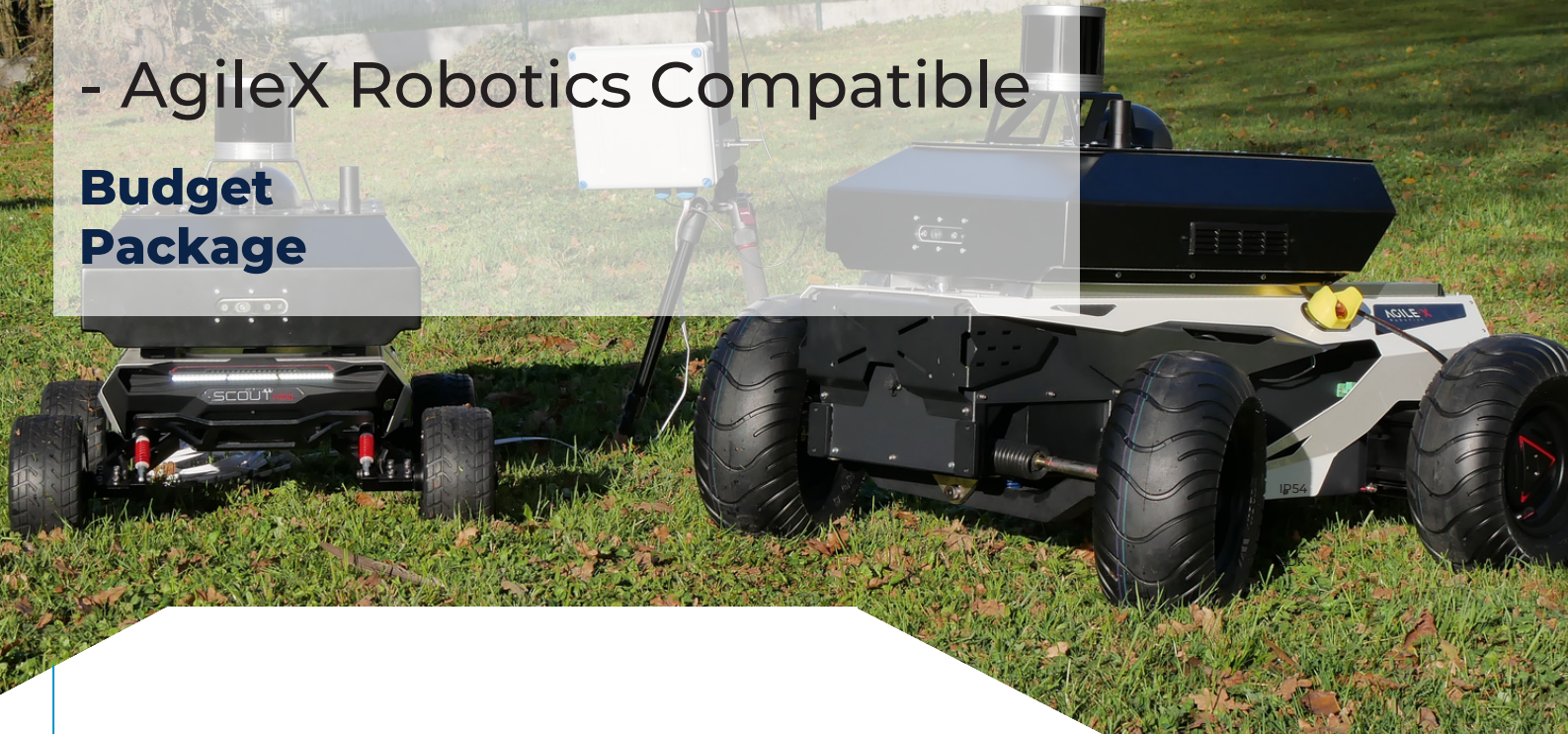# KIT R&D ROS

- AgileX Robotics Compatible

Budget Package

R&D kit created for mobile robots from AgileX Robotics

This kit offers a ready-to-develop robotic solution, created to save assembly time.

✓ Mechanics: integration of components into the mobile base

✓ Electrical: connecting all equipment together

✓ Software: installation of component ROS packages

Our goal

As soon as we receive the mobile robot equipped with its ROS R&D kit, our customers can immediately start developing their program and working on their application. The R&D kit eliminates the need to develop an information system first.

Software expertise: OS installation, ROS, and VNC

In addition to electronic and mechanical integration, our engineers handled the software side, installing the OS on the PCs via Linux Ubuntu.

This procedure includes the integration of ROS (Robot Operating System) and the various packages of essential components.

Alongside ROS, we also deploy an indispensable tool, VNC (Virtual Network Computing), which offers a dedicated page for connecting to the on-board computer's desktop.

This makes it possible to check the computer's status at any time, as well as to receive feedback from the sensors integrated into the kit.

Génération ROBOTS

GR Lab

Specifications

KIT

DIMENSIONS

Length: 580 mm
Width: 400 mm
Height (without LiDAR): 220 mm
Weight: ~ 10 kg

INCLUDED IN KIT

✓ RoboSense RS-Helios-16P LiDAR
✓ Intel® RealSense Depth Camera D435
✓ 4G

OTHERS

Materials: aluminum and plastic
Black powder-coated finish
Compatible with the majority of AgileX Robotics robots
Rain-resistant
Ventilated

SYSTEM INTEGRATION

Operating system (OS): Ubuntu 20.04 and ROS 1
Version: NOETIC

DEVELOPMENT TOOL

ARDUSIMPLE RTK2B

Chip: ZED-F9P

Precision:
    < 1 cm with a base station up to 35 km
    < 1 cm with NTRIP up to 35 km
    < 4 cm with SSR corrections
    < 1.5 m in standalone mode
    < 0.9 m in standalone mode with SBAS coverage

Startup Time: First Fix Position: 25 seconds (cold start), 2 seconds (hot start) First RTK Correction: 35 seconds (cold start)

INTEGRATION

MECHANICAL INTEGRATION

Design the housing, place all components inside the box and secure the box to the robot.

ELECTRICAL INTEGRATION

Connect all sensors and PCs. Connect network.

IT INTEGRATION

Installation of the PC and ROS, installation of the network, installation of all ROS drivers, creation of the URDF, creation of a launch file that starts all components when the PC is booted.

LIDAR

RS-Helios-16P Robosense

Number of lines: 16
Laser wavelength: 905 nm
Range: 150 m
Blind spot: ≤20 cm
Horizontal field of view: 360°
Vertical field of view: 30°
Rotation speed: 600 / 1200 rpm
Vitesse de rotation : 600 / 1200 RPM
Operating temperature: -30 °C ~+60 °C
Dimensions: 97.5 mm x 100 mm
Weight: ~900 g

CAMÉRA

Intel® RealSense D435

Depth frame rate: up to 90 fps
Minimum depth: 10.5 cm
Depth output resolution: up to 1280 x 720
Sensor resolution: up to 1920 x 1080
Connectors: USB-C 3.1 Gen 1
Dimensions: 90 x 25 x 25 mm

MAIN COMPUTER

ZOTAC CI669

Dimensions: 204 mm x 129 mm x 68 mm
Processor: Intel Core i7-1355U Random Access
Memory (RAM): 1 X Crucial RAM 16GB DDR5 5200MHz + 1 X SO-DIMM 262 pins (DDR5, max 32GB/slot)
Storage: 1 X Kingston 480GB SSD + 1 X M.2 - PCI-E 4.0 4x (M.2 2242 or M2.2230)

USB Ports:
✓ 1 x USB C 3.1 (Front)
✓ 3 x USB A 3.1 (Back)
✓ 1 x USB A 2.0 (Back)

Network: Dual LAN (2.5Gbps / Gigabit) 2 X Female RJ45
Wi-Fi: Wi-Fi 6
Bluetooth: Bluetooth 5.2
Power: USB-C PD

SPATIAL PHIDGET

GENERAL INFORMATION

Sampling interval: 1 s/sample to 4 ms/sample
Operating temperature : - 40°C to 85°C

ACCELEROMETER

Max. acceleration measurement : ± 2,5 g
Acceleration measurement resolution: 10 µg

GYROSCOPE

Max. gyro speed (X axis, Y axis): ± 125°/s
Gyroscope resolution (X axis, Y axis): 1E-05°/s

MAGNETOMETER

Max. magnetic field : ± 49,2G
Magnetometer resolution: 1.5 mg

Generation ROBOTS

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