NeuronBot Series

Rapid robotic development and demo kit based on ROS/ROS 2

Features

- Integrated vision, control, AI and motion modules
- Designed for rapid robotic development
- Supported by powerful open source ROS libraries and packages



Introduction

The NeuronBot Series is an affordable, miniature, autonomous robot development platform with integrated computational unit, LIDAR sensor, high payload capacity and dynamic motion capability, and is perfect for enabling a wide range of exciting research, training and educational activities.

Software Support

- **Ubuntu 18.04 LTS**
- **Neuron SDK**
- **ROS/ROS 2**
- **Intel® OpenVINO™**

Ordering Information

- **NB-SK**
  Advanced NeuronBot Robotic Development Kit with Intel® Celeron® processor, 4G DRAM, 64G SSD

Optional Accessories

- **Flat panel**
- **Front bracket for Intel® RealSense™ depth camera D435**
- **Side Stand bracket for Intel® RealSense™ depth camera D435**

Recommended Accessories

- **22.2V/3300mAh LiPo Battery with XT60 Plug**
- **LiPo Battery balance charger**
- **Intel® RealSense™ depth camera D435**

Specifications

Model Name	NB-SK
Processor	Intel® Celeron® G3900TE processor
Memory	4G DDR
IMU	GY85 9-axis IMU 3-axis Gyroscope, 3-axis Accelerometer, 3-axis Magnetometer
MCU	Arduino Mega 2560
Encoder	7N14P 2-channel for Motor control
Main Board I/O Interface	
Display	1x HDMI
Ethernet	2x GbE
Series Port	1x RS-232/422/485, 3x RS-232 via onboard headers
USB 3.0	4x USB 3.0 on rear I/O 2x USB 3.0 onboard header 1x USB 3.0 on vertical connector
USB 2.0	4x USB 2.0 on rear I/O
GPIO	10x GPIO via onboard feature connector, I^2C
Storage Devices	
SATA	64GB
Laser distance sensor	
LDS	2D 360° RPlidar A1, 12 meter
Sample Frequency	8000Hz
Scan Rate Range	1-10Hz, Typical:5.5Hz
Communication Interface	USB/UART
Front Side	
Status LEDs (Front)	Red: Stop Blue: Tracking Purple: Charging OFF: Shut down
Camera Area	For Intel® RealSense™ depth camera D435 (Need optional accessory - Side Stand bracket for install)
Rear Side	
Battery Panel	battery status display
Power Button	Power ON/OFF button
GPIO	1x GPIO connector (See the detail information on the user's manual)
USB Connector	For External Wi-Fi dongle or HD
HDMI Connector	For External display panel
Power Requirements	
Power Switch	1x power button
Main Board DC Input	12V DC ±5% with ATX power connector
Battery	Recommended Accessories
Mechanical	
Payload	3kg
Wheel diameter	83 ±2 mm
Wheel center distance	218 ±3 mm
Translational Velocity Max.	0.6m/s
Rotational Velocity Max.	0.6m/s
Threshold of Climbing	0 +/- 1° deg
Actuator	DC Carbon-brush motor 1/139
Dimensions	260 x 270 x 260 mm (10.24 x 10.63 x10.24 inches)
Weight	8.3kg
Environmental	
Operating Temperature	0°C to 50°C (32°F to 122°F)
Operating Humidity	10%~95%, non-condensing
Storage Temperature	-20°C to 80°C (-4°F to 176°F)
EMC	Compliant with CE, FCC Class B
Vibration	Package random vibration: IEC 60068-2-64, 5-500Hx, 5Grms, 60 min/axis
Drop	ISTA-1A
Software	
SDK	Neuron SDK
Environment	Ubuntu 18.04 LTS
Middleware	ROS/ROS 2 Intel® OpenVINO™

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