Introducing Intel™ RealSense® Robotics Perception Devices

Amit Moran, Robotics Innovation Team Leader
Matt Curfman, Senior Robotics Architect
Last year...

Amit showed you our exciting new Intel® RealSense™ 3D Camera R200
Announced new Intel® RealSense™ Technology

Intel® RealSense™ 3D Camera R200 / LR200
- Depth camera enabling optimized for Robotics computer vision capabilities

Intel® RealSense™ 3D Camera SR300
- Close range depth camera optimized for Background Segmentation and Facial Tracking

Intel® RealSense™ 3D Camera ZR300
- Adds 6DOF / SLAM capabilities to LR200 camera
Released new Robot Development Platforms

Intel® NUC

Intel® Robotic Developer Kit

Intel® Joule
Kit contains:

- Intel® RealSense™ 3D camera R200
- Intel® Atom™ x5-Z8350 processor single board computer
  - 40-pin general purpose I/O interface
  - USB 3.0 OTG and USB 2.0
  - Full-speed gigabit Ethernet
  - HDMI*
- Open source with support for Ubuntu*
- Power supply and cables

*Everything you need to equip your robot with advanced depth vision
Intel® Joule™ Developer Kit

- Development platform for rapid prototyping and easy transition to volume production (SOM)
- Higher performance, lower power consumption, in a smaller form factor
- Wi-Fi* and Bluetooth*, 4K video, MIPI CSI & DSI, up to 48 GPIO
- Multiple OSs supported, including reference Linux* IoT OS, Ubuntu*, Snappy, and Windows* IoT Core
- Enhanced support for Intel® RealSense™ technology
- Developer kit includes module, expansion board, Wi-Fi antennas, USB cable, and SD card with software

Rapid prototype-to-production for robotics development
Released as Open Source

• Released an open source interface for Linux*, MacOS*, and Windows*
• Released an open source ROS* camera node

http://wiki.ros.org/RealSense
Added Intel® RealSense™ Support for Turtlebot*

Support for Turtlebot, for ROS* Indigo and ROS Kinetic, packaged in ROS build farm
And Worked With Great Partners...
Intel® Euclid™
Compute-Communicate-Sense

*The product, product specifications and data may be subject to change without notice
Roboticist/Makers vision solution

Complete
Standard/Community
Easy to use/ “zero-installation”

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Intel® Euclid™ - Highlights

**Robotdicst/Makers vision solution**

- **Complete**
- **Standard/Community**
- **Easy to use/ “zero-installation”**

- **Coms**: WiFi, BT, USB3, UART, HDMI
- **Audio**: Mics, Speaker
- **Environmental Sensors**
- **Detachable Battery**
- **ZR300 (Depth & Motion)**
- **Intel® Atom™ Quad-Core SOC**
- **Internal Storage Memory**

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Intel® Euclid™ – High Level Software components

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Intel® Euclid™ – High Level Software components

- Automation Layer
- C&C Web interface
- ROS Kinetic Kame
- Euclid Automation nodes
- Sample Code Apps
- RealSense-ROS wrappers
- Camera API - librealsense
- RealSense Linux SDK
- Ubuntu 16.04

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Intel® Euclid™ - C&C Web interface

ROS –

javascript interface

video web server

log system

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Intel® Euclid™ - C&C Web interface

Services

Euclid automation nodes

Topics

Javascript client

rosserial client

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Intel® Euclid™ - C&C Web interface

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Intel® Euclid™ - Arduino* compatibility

Based on *rosserial* and *rosserial_arduino* libraries which allow any communication of ROS messages from a host computer to an Arduino device.

- **Web interface integration**
  - Regenerate the Arduino libraries remotely from web interface
  - Run rosserial from the web interface

- **Start, edit and stop scenarios from Arduino**

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Intel® Euclid™ - Extensible

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Thank You!
Learn more at our booth!