Intel® RealSense™ Technology Advances
"Human-Like Senses" to Devices

Intel® RealSense™ Technology continues to lead, innovate, and integrate human-like senses in devices across diverse marketplaces: from robotics and drones to virtual reality and client applications. At the 2016 Consumer Electronics Show (CES), Intel announced several new partnerships and products that integrate Intel RealSense Technology.

Momentum continues, as new OEM systems will feature the Intel RealSense Camera R200.
The HP* Spectre* X2 is a 2 in 1 detachable PC that has been available since November 2015. The Acer* Switch* S12, Lenovo* Idea Mixx* 700 and NEC* LaVie Hibrid* Zero11, each will feature the Intel RealSense Camera R200 and will be available in 1H 2016. The Intel RealSense Camera R200 is supported on Windows* 10 operating systems that run using the latest Intel® Core™ Processor.

Intel RealSense Technology a Game Changer in Sports and Entertainment
The sports and entertainment vertical is large and growing. Several new products, enabled by Intel RealSense Technology, are changing the landscape of gaming, literally and figuratively.

- **Intel RealSense Technology and Uraniom* Get Personal about Gaming**
  Using the Intel RealSense Camera and the Uraniom Personal 3D Avatar* software, gamers can now scan their own faces and import them onto in-game characters for their favorite titles. Games that support game character facial animations will translate over to the gamer facial scans as well, making the gaming experience more personal and immersive.
- **Razer* Stargazer*, powered by Intel RealSense Technology, Enhances Game Streaming**
  The Razer Stargazer – Razer's newest peripheral camera – is powered by the Intel RealSense Camera SR300. Originally disclosed at Intel Developer Forum 2015 (IDF15), the camera is officially launching and will be available in Q1 2016. The peripheral will support a range of applications enabled by the Intel RealSense Camera SR300. For gaming enthusiasts, the Razer Stargazer enables users to stream their live gameplay in their background without the need for a physical green screen. The seamless integration with popular broadcast platforms such as Xsplit and OBS makes Twitch* streaming extremely convenient.
- **Yuneec* Announces First Smart UAV: Typhoon H with Intel RealSense Technology**
  In his CES keynote, Intel CEO Brian Krzanich demonstrated the Yuneec Typhoon H with Intel RealSense Technology using Intel RealSense Technology and Intel Atom Processor for collision-avoidance and follow-me features. Easy to fly and equipped with a 4K camera and 360-degree gimbal, plus a remote with a built-in screen, the Typhoon H with Intel RealSense Technology enables sports enthusiasts and hobbyists alike to capture themselves in action. Yuneec plans to make this available to consumers in 1H 2016 and priced at less than $2,000.
- **IONVR and Intel Develop First Untethered Mobile Virtual Reality Experience with Six Degrees of Freedom.**
  IONVR* developed a virtual reality headset that is designed for smartphone device. When paired with the Intel RealSense Smartphone Developer Kit, a fully untethered virtual reality experience--featuring six degrees of freedom (6DOF), real-world object virtualization and interaction virtual hands—is brought to life on a mobile VR headset.
- **Creative* BlasterX Senz3D Peripheral**
  Creative's newest peripheral camera, Creative BlasterX Senz3d, supports a range of applications enabled by the Intel RealSense Camera SR300. For instance, in video conferencing, users may

leverage background segmentation to dynamically change their chat backgrounds for more immersive collaboration.

- **Design Mill Inc.* Introduces Augmented Reality Arcade***
The augmented reality sandbox arcade is a multigame system that leverages the Intel RealSense Camera R200 and a 6th Generation Intel Core i7 Processor to enable more immersive gameplay across several titles. The system, created by Design Mill Inc., features two types of tabletops. In the first version, the tabletop is a solid flat surface designed for a multiplayer virtual air hockey game, called Puck Club*, using gesture control for players to interact with the game elements. In the second version, the tabletop transforms into a sandbox, in which players can manipulate the layout to enhance gameplay for virtual terrain-based strategy games, such as SMASHED!* and Tanked!*.

Intel RealSense Technology Improves Health and Wellness and Safety

Companies throughout the world are finding new ways to help people stay healthy and well. And Intel RealSense Technology is driving new product solutions that have positive benefits in tracking workout regimes, enhancing retail experiences, workplace safety, and creating customized fitting needs for comfort and performance.

- **DAQRI* Integrates Intel Technology to Power the Future of Work Efficiency and Safety**
DAQRI is powering the future of work with the Smart Helmet*, a wearable device for industrial applications. Built on an Intel Core M Processor platform and Intel RealSense Technology, the Smart Helmet superimposes work instructions over a worker's field of view to improve recall, instruction repair and remote assistance in industries like manufacturing, aerospace, oil and gas, and more. DAQRI demonstrated a Smart Helmet with an employee performing field service and equipment inspections hands free. The DAQRI Smart Helmet launches at CES 2016 and will be initially available to key partners. Broader availability will be made later this year.

- **Zappos* and Intel Enhance Immersive Shopping Experience**
Intel is announcing a partnership with Zappos to integrate Intel RealSense Technology to enable a new way for people to shop for apparel online. Using depth-sensing technology provided through an integrated Intel RealSense Camera R200, a tablet or convertible PC can scan shoppers' bodies to obtain accurate measurements. Using the scan, a 3D rendering of a shopper's body can then be used to shop and virtually try on jeans.

- **Memomi* and Intel Improve Virtual Shopping Experiences**
The Memomi mirror is a smart screen that allows shoppers to try on outfits virtually. Users can stand in front of the screen and see their own digital reflections. They can then select a variety of virtual outfits to try on. Memomi has already deployed in retail department stores like Neiman Marcus*. New models will feature a new fabric overlay capability that allows users to virtually try-on a variety of patterns, colors and styles to a sweater. The 360-degree delay feature allows users to spin so that by the time they face the screen again, they can see the backside of the virtual outfit they tried on. Existing capabilities include a split-screen feature that allows for side-by-side outfit comparisons. Additionally, users can save their favorite virtual outfits and share via social media. The Memomi mirror has an integrated Intel RealSense R200 Camera, which is the technology that captures the user's image and displays it on the screen. Using depth-sensing capability from the Intel RealSense Camera R200, software can determine the contours of the shopper's body and naturally overlay various virtual articles of clothing.

Intel RealSense Technology Unleashes Creativity

Intel RealSense Technology enables developers to unleash their creativity, introducing new possibilities for companies and consumers alike.

- **Ninebot, a Xiaomi⁺ Portfolio Company, Announces a Segway Robot that Transforms from a Personal Transporter**
Brian Krzanich's keynote demoed a Segway personal transporter from Ninebot that can transform into a robot. The open platform uses the new Intel RealSense Camera ZR300 to navigate complex environments, intelligently interact with users and sensors in the home, and is powered by an Intel Atom Processor. Ninebot plans to make the robot commercially available and will initially introduce a developer kit later this year.

- **Ascending Technologies'⁺ (AscTec NEO⁺) UAV with Collision Avoidance**
The AscTec NEO carries a payload of up to 2 kg, with a flight time of up to 26 minutes. It has folding propellers, detachable motor booms and a highly efficient propulsion system with built-in redundancy. It has the triple redundant AscTec Trnity Flight Controller⁺. Payload options include Intel NUC with Intel Core i7 Processor, 360-degree collision avoidance sensing powered by six Intel RealSense Camera R200 devices, or the AscTec Atomboard⁺ powered by an Intel Atom Processor and other additional sensors. The NEO is available for pre-order Q2 2016 and will be available in Q3 2016.

- **Savioke⁺ Integrates Intel RealSense Technology for Future Relay⁺ Robots**
Savioke announced that it is incorporating 6th Generation Intel Core i7 Processor and Intel RealSense Camera R200 devices in future versions of their acclaimed Relay robot. Relay is a state-of-the-art robot designed for autonomous delivery of items. Relay's first application was in the hospitality industry and has been delivering items and delighting guests at Starwood⁺ and InterContinental Group⁺ hotels. Since its introduction, the Relay robot fleet has made more than 10,000 autonomous room deliveries.

- **Re Mago⁺ Digiboard Responds to Gestures & Menu Navigation**
The Re Mago⁺ Digiboard is a beautifully crafted all-in-one computing device that can be placed on tables or hung on walls. It may be used to browse the web, check email, or tackle other typical computer and connected tasks. The existing versions of the Digiboard require touch surface interaction. Integrating the Intel RealSense Camera SR300 means that users can interface with the device using hand gestures and menu navigation, and item selection can be achieved without direct physical contact. In the demo, visible in the Intel booth, users can also employ natural and intuitive hand gestures to play a jigsaw puzzle game in which pieces can be picked up and put in place.

- **3D Systems⁺ Sense⁺ Scanner Captures Objects in 3D for Printing**
3D Systems is introducing a hand-held 3D scanner that is ultra-portable and can be used to create 3D models for printing. Leveraging the Intel RealSense Camera SR300's depth-sensing capability, users can point the Sense Scanner to capture objects and people in 3D.

Intel RealSense Technology Excites and Entertains During Consumer Electronics Show (CES) 2016
Intel RealSense Technology was featured at CES 2016 on Tuesday, Jan. 5 before and during Intel CEO Brian Krzanich's, keynote presentation. The following are overview highlights:

- **"Drone 100"** – Intel CEO Brian Krzanich's keynote opened with Drone 100, a video showing for the first time the coordinated flight of 100 UAVs. Intel was the driving force behind the idea of the world's largest number of coordinated UAV flight. Intel collaborated with Ars Electronica Futurelab* on the coordinated flight of 100 UAVs. Intel received the first Guinness World Record* for 100 UAVs simultaneously in the sky. The UAVs were designed and built by AscTec. The software to control the synchronization was developed on and powered by PCs that run on Intel processors.

- **Musical Orchestra Using Intel® Curie™ and Intel RealSense Technology with A.R. Rahman** – A.R. Rahman is an Indian composer, singer-songwriter, music producer, musician and philanthropist. Rahman's works are noted for integrating eastern classical music with electronic music, world music and traditional orchestral arrangements. He was at the center of the keynote show performance. Along with using Intel Curie bands, A.R. Rahman used two Intel RealSense Camera SR300 devices to modulate vocal effects. The Intel RealSense Camera SR300 has the capability of providing high-accuracy control for hand gestures, which in turn were turned into modulation effects using audio software.

- **Yago de Quay** – Yago de Quay is an artist and multimedia researcher. His performances are focused primarily with connecting gesture, music and visuals. Yago's performance in Krzanich's keynote included the implementation of a virtual music box that responds to a series of high-precision hand and finger gestures. These gestures are transformed into digital sounds and music, and are also used to control a variety of projected lighting effects on stage. The application is powered by multiple Intel RealSense Camera SR300 devices that feature accurate hand and finger gesture tracking.

- **Intel RealSense Technology Dancer Paige Fraser** – The Spotlight Stage at the Intel Booth showcases a dance by Paige Fraser. A vision system powered by multiple Intel RealSense Camera R200 devices tracks Paige's dance movements. A corresponding digital dance partner is projected to mimic and amplify her motions in a theme to "fight back the darkness" that threatened to envelop them. Paige's choreography is a modern dance interpretation of her struggle to overcome scoliosis to eventually become the world-class dancer she is today. The vision system consists of an array of eight Intel RealSense Camera R200 devices to track and analyze Paige's movements across the stage in real time. The RealSense Camera R200 devices are powered by multiple Intel Next Unit Compute (NUC) systems. The vision system captures shape and depth information, which is used to generate geometry that is used to drive all of the effects in the final experience.

About Intel RealSense Technology
Intel RealSense Technology adds "human-like senses" to computing devices, bringing natural interactions to these devices. Multiple leading OEMs now ship worldwide with Intel RealSense Technology integrated inside.

- **Intel RealSense Camera R200** – The Intel RealSense Camera R200 is capable of capturing VGA resolution depth information from the surroundings at 60 frames per second (>10 million depth point calculations per second) and can be used both indoors and outdoors. The camera uses active stereoscopic infrared imagers to calculate scene depth, similar to human eyes. By leveraging active infrared technology, the Intel RealSense Camera R200 provides reliable depth information even in darker areas and shadows when capturing flat, texture-less surfaces. A

number of OEM systems will feature the Intel RealSense Camera R200. The HP Spectre X2 is a 2 in 1 detachable PC that has been available since November 2015. The Acer Switch S12, Lenovo Idea Mixx 700 and NEC LaVie Hibrid Zero11, each will feature the Intel RealSense Camera R200 and will be available in 1H 2016. The Intel RealSense Camera R200 is supported on Windows 10 operating systems that run on the latest Intel Core Processor.

- **Intel RealSense Camera SR300** – The Intel RealSense Camera SR300 can be used for a wide variety of applications. It is capable of capturing VGA resolution depth information from the surroundings at 60 frames per second (>10 million depth point calculations per second). Users may leverage 3D scanning applications to scan people and objects, and then share those 3D scans via social media or by 3D printing them. In gaming, entertainment and education, the Intel RealSense Camera SR300 enables gesture interaction with user interfaces, giving users a new way to interact with computer devices and virtual reality through the use of hands, fingers, head, and facial expressions and movements. The Intel RealSense Camera SR300 can also enable more immersive collaboration by reinventing video chat through background segmentation. That means that based on the depth capturing capabilities of the camera, users may selectively remove and replace their video chat backgrounds.

- **Intel RealSense Camera ZR300** – The Intel RealSense Camera ZR300 integrates a depth camera for computing high-density depth (>10 million points per second) and a wide-field-of-view camera (VGA with >160-degree FOV) with a high-precision accelerometer-gyroscope combination for motion and feature tracking. Rounding out the six camera sensors on the device are an 8MP rear RGB camera and a 2MP front-facing RGB camera. The Intel RealSense Camera ZR300 provides high-quality and high-density depth data at VGA-resolution of 60 frames per second, making it versatile for applications in augmented and virtual reality, robotics, drones and other usages. Its low power consumption also makes it an ideal depth camera for various mobile form factors where battery life is always a consideration.

- **Intel RealSense Smartphone Developer Kit (SDK)** – The Intel RealSense Smartphone Developer Kit is powered by the Intel Atom x7-Z8700 Processor and Intel RealSense Camera ZR300. The Intel RealSense Camera ZR300 integrates a depth camera for computing high-density depth (>10 million points per second) and a wide field-of-view camera (VGA with >160-degree FOV) with a high-precision accelerometer-gyroscope combination for motion and feature tracking. It represents the very best in depth and motion sensing technologies integrated into a thin and sleek Android* smartphone. It sports a 6-inch QHD (2560x1440) display and is powered by Intel Gen 8 Processor graphics. The device comes with 2GB of memory and 64GB of internal storage. It includes an 8MP rear camera and a 2MP front-facing camera. The device runs Android, and supports the Google* Project Tango* SDK, as well as the Intel RealSense SDK add-on for Android. Android developers can now create a new class of end-user software applications all on a single mobile platform. Additional technologies include Bluetooth* 4.0, GPS, 802.11 Wi-Fi, and 3G-connectivity.

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