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NDI Unveils New Electromagnetic Sensor-Fusion Tracking Technology for Extended-Reality Platforms

Atraxa[®] Overcomes One of the Biggest Limitations of AR/VR Tracking: Line-of-Sight Constraints

Waterloo, Canada – January 2, 2019 – NDI (Northern Digital Inc.), a global-leading innovator and manufacturer of 3D measurement and motion tracking solutions, is proud to announce its new electromagnetic sensor-fusion tracking technology for extended-reality (XR) platforms: Atraxa[®].

Atraxa is designed for XR equipment manufacturers that require accurate, low-latency 6DOF (six degrees of freedom) tracking of HMDs (head-mounted displays) and handheld peripherals (e.g. controllers) that's free of occlusions, wires, and jitter. It marks a breakthrough in positional tracking: a camera-less, non-optical approach to overcoming one of the biggest challenges in AR/VR today – line-of-sight constraints.

Many XR platforms require a clear line of sight to external optical cameras or infrared markers to track the position of the HMD (head-mounted display) or peripheral. Breaking the line of sight compromises motion tracking, which disrupts the user's immersive experience. Atraxa is different. Its small, low-power receiver and tracker modules embed directly and invisibly into OEM HMDs and peripherals to provide unobstructed, continuous motion tracking. No external cameras or markers are required.

Atraxa combines electromagnetic and inertial tracking technologies into one tracking solution. The IMU (inertial measurement unit) returns acceleration and angular velocity data; the electromagnetic (EM) tracker delivers true position and orientation data. The resulting low-latency tracking data is used to localize and visualize 6DOF motion within the virtual environment.

Individually, inertial and EM technologies have been available for over 20 years. However, fusing them together in a miniaturized, low-power design for integration into XR platforms is new, making Atraxa one of the first wireless 6DOF tracking solutions of its kind. What sets Atraxa further apart is its all-new EM system design, which includes metal compensation, automatic gain control, frequency agility, and high-volume factory calibration techniques to maximize tracking performance.



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For users of XR platforms, wireless 6DOF tracking can heighten the immersive experience by enabling unrestricted 360° movement, 1-to-1 movement, smooth motion trajectories, and precise motion control. All without blind spots, dropouts, or discontinuities that disrupt the user's interaction with virtual content.

"Atraxa marks another groundbreaking innovation in NDI's nearly 40-year history, combining electromagnetic and inertial technologies in a way that opens up incredible new 6DOF tracking capabilities for the AR/VR market," says Jarrad Morden, Director, Measurement Sciences Division. "Like all NDI solutions, Atraxa solves a unique measurement or tracking challenge. It enables XR equipment manufacturers to accurately reproduce real-world movements within a virtualized environment. Atraxa was specifically designed to remove many of the barriers to continuous room-scale tracking, all while providing OEMs with an accessible integration path."

Atraxa will make its debut at the Consumer Electronics Show (CES) in Las Vegas, January 8–11, 2019.

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[Learn more at www.atraxa.ca](http://www.atraxa.ca)

About NDI

When the world's top OEMs and academic institutes need to track something, they call NDI. Why? Because nobody can beat the accuracy and reliability of our 3D measurement and motion tracking solutions. Since 1981 we've helped our OEM and direct customers in medicine, manufacturing, and academia bring optical and electromagnetic tracking technologies to image-guided surgery, automotive assembly, biomechanics research, and now, AR/VR. Nearly 40 years later, we're still as passionate as ever to find inventive and unique ways to solve our customers' most complex tracking challenges. NDI is headquartered in Waterloo, Canada, with 225+ employees across offices in the U.S., Germany, and Hong Kong.

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