Medtronic News

Medtronic Partners with Surgical Theater to Provide First Augmented Reality Platform for Use in Real-Time During Complex Cranial Procedures

SyncAR™ Technology Uniquely Integrates with StealthStation™ S8 Surgical Navigation System and Expands the Use of Augmented Reality Into Operating Rooms to Enhance Precision and Efficiency

DUBLIN and LOS ANGELES, April 26, 2021 /PRNewswire/ -- Medtronic plc (NYSE:MDT), the global leader in medical technology, and Surgical Theater today announced a partnership to interface Surgical Theater's Sync*AR*™ augmented reality (AR) technology with Medtronic's StealthStation™ S8 surgical navigation system. This collaboration will enable neurosurgeons to use AR technology in real-time to enhance visualization during complex cranial procedures. Using fighter-jet simulation technology, the Sync*AR* platform allows surgeons to visualize structures in the brain, test virtual surgical tools and plan surgeries before entering the operating room. By integrating this technology with the StealthStation S8 cranial solution, surgeons can expand the benefits of AR and, for the first time, see a 360° AR rendering overlaid onto the live surgical site during brain surgeries.

"Sync*AR* offers important benefits in planning and practicing how to approach complex cases, and now being able to actually use AR during procedures to see where instruments are in relation to critical structures while never losing focus on the patient is a significant advance," said Thomas Steineke, M.D., chairman, JFK Neurosciences Institute,Edison, N.J. "In neurosurgery, it's paramount to correctly identify and navigate critical brain structures. AR-enhanced visualization interfacing with the StealthStation will help me achieve the best possible outcomes for my patients."

Treatment of brain tumors, aneurysms and neurological conditions are among the riskiest and most complex surgical procedures. Real-time access to the most detailed patient-specific information, such as the space between vascular structures, arteries and white matter location, is critical.

Surgical Theater's Sync*AR* technology synchronizes with Medtronic's StealthStation S8 navigation system and microscope optics to provide unparalleled tools that may help surgeons accomplish complicated procedures with increased precision and efficiency. The combination of the StealthStation S8 and Sync*AR* technology is designed to give surgeons the ability to see otherwise hidden anatomical and vascular structures, pathologies, and Diffusion Tensor Imaging (DTI) white matter tracts synchronized and aligned to the surgeon's operative view. A 360° AR rendering, created from the patient's scans, is overlaid onto the live image viewed through the oculars of the microscope as they track the positioning of their surgical tools, allowing surgeons to keep their eyes focused on the patient.

"Medtronic's partnership with Surgical Theater expands the utility of cutting-edge AR planning technology, so that surgeons can use it in real-time to improve visualization during brain surgeries, which has the potential to make procedures more precise and efficient," said Linnea Burman, vice president and general manager, Enabling Technologies within the Cranial & Spinal Technologies business, which is part of the Neuroscience Portfolio at Medtronic. "We are thrilled to partner with Surgical Theater as we strive to transform cranial procedures and improve outcomes by providing surgeons with access to innovative technologies."

The StealthStation S8 navigation system combines hardware and clinical software with tracking and image dataset merging algorithms, to precisely track surgical instruments and help guide the user during surgical procedures. Surgical Theater's Sync*AR* 360° Visualization Hub offers surgeons live and synchronized augmentation including vascular structures, pathology, and white matter tracts aligned to their surgical field of view.

Surgical Theater, the market leader in virtual and augmented reality healthcare services, is the first to combine cutting-edge

fighter jet flight simulation technology with a patient's own anatomy scans. Rendered from comprehensive combined modalities of CT, MRI, as well as advanced post processing images, the 360° virtual reality fly-through is designed to allow surgeons to walk and fly-through a reconstruction of the patient's own anatomy and pathology.

"We believe by combining Medtronic's market-leading surgical navigation, and Surgical Theater's trailblazing visualization capabilities, Sync*AR* technology now offers the most comprehensive solution for neurosurgical planning, workflow and operative execution," said Moty Avisar, CEO and co-founder of Surgical Theater. "Sync*AR* technology does not stop at planning and navigation; we open the skull, provide surgeons with x-ray vision of the anatomy and play an integral role throughout the operative workflow."

About Surgical Theater

Surgical Theater, the leader in 360° XR visualization, powers patients and their surgeons with clinical insights by providing them an immersive, inside out view of their patient's anatomy, enabling them to see the unseen. This is the only end-to-end solution with peer reviewed data that is utilized throughout the patient's surgical care continuum –from patient engagement, surgical planning, physician interdisciplinary collaboration and into the OR. Supporting more than 15,000 surgeries and utilized in over 100,000 patient consultations, 360° XR vertically integrates the institution, medical provider and patient, under a shared goal of improved outcomes.

About Medtronic

Medtronic plc (www.medtronic.com), headquartered in Dublin, Ireland, is among the world's largest medical technology, services, and solutions companies – alleviating pain, restoring health, and extending life for millions of people around the world. Medtronic employs more than 90,000 people worldwide, serving physicians, hospitals, and patients in more than 150 countries. The company is focused on collaborating with stakeholders around the world to take healthcare Further, Together.

Any forward-looking statements are subject to risks and uncertainties such as those described in Medtronic's periodic reports on file with the Securities and Exchange Commission. Actual results may differ materially from anticipated results.

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