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ASIA EDITION

SGInnovate invests in medtech startup NDR Medical Technology

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NDR Medical Technology has developed a system that uses AI and image processing to help surgeons visualise the 3D location of the target lesion in the patient's body

Singapore's SG Innovate announced that it has completed an investment in Singapore-based NDR Medical Technology (NDR), a startup that is amongst the few pioneers in the world that combines Artificial Intelligence (AI), robotics and computer vision for surgical procedures. Preparatory work is underway for the system to go into pilot clinical trial and commercial application is expected to launch in the first quarter of 2020.

As the first early-stage MedTech startup to receive SGInnovate's direct investment, NDR has developed a proprietary smart robotic guiding system known as Automated Needle Targeting (ANT). The system uses AI and image processing to help surgeons visualise the 3D location of the target lesion in the patient's body. By combining the precision adjustment and guiding technology of ANT with the surgeon's skill and dexterity, surgeons are now able to achieve bull's eye for needle alignment and positioning to target lesions.

"A system that brings AI and a high-precision surgical tool together is a powerful combination. Doctors have told us this system can raise the efficacy of surgical procedures to improve the clinical outcomes and lives of patients," said Steve Leonard, Founding CEO, SGInnovate. "In addition, the underlying technology NDR has built can be applied in other industries. As SGInnovate, our mission is to enable deep tech startups to build from Singapore for the world."

Conventional surgical control systems rely on electronic and mechanical sensors as well as pre-programmed coordinates to perform lesion targeting and this often requires manual intervention by surgeons AI based algorithms also allows the system to use training data to continually improve the accuracy of how lesions are targeted.

Over time, the system has the potential to drastically reduce the risks of surgery and shortens the learning curves for surgeons to perform advanced minimally invasive surgeries as compared to invasive surgeries using conventional procedural methods. Patients can also look forward to faster recovery times and lower risks of unwanted side effects.

ANT will complement existing imaging modalities like C-Arm fluoroscopy, CT-scan and ultrasound. It can process 2D images

to create 3D targets with precision in minimally invasive applications such as lesion biopsy and ablation treatment. NDR is currently working on the deployment of ANT for CT scans and ultrasound imaging. The company plans to expand the use of ANT into other medical applications such as orthopaedics and anaesthesia in the near future.