

Quantum Communication Technology Spurs Quantum Device Commercialization in Korea

SDT, a Hardware-as-a-Service (HaaS) startup, signs an agreement with KIST to develop quantum cryptography devices in Korea for global commercialization.

SEOUL, SOUTH KOREA, June 9, 2022 /EINPresswire.com/ -- On May 31st, [SDT Inc.](#) and the Korea Institute of Science (KIST) met at KIST Seoul Headquarters to officially transfer quantum technology from the KIST research lab to SDT for global device commercialization.

SDT, a Hardware-as-a-Service (HaaS) startup, is collaborating with KIST to develop world-class quantum cryptography communication devices in Korea and establish itself as a quantum device powerhouse through this technology transfer agreement.

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We look forward to distributing quantum cryptography communication devices for any high-security environment by building on the world-class quantum technology transferred from KIST.”

SDT CEO Jiwon Yune

One of the technologies transferred is 'Quantum Key Distribution' (QKD), a system that prevents unauthorized man-in-the-middle attacks from gaining access to sensitive data, as any communication interception changes the nature of the data itself. A major difficulty of establishing QKD networks has been the 1x1 barrier, or a communication system that connects only one receiver to one transmitter, which has limited use cases in real networks. The QKD solution developed by Dr. Sangwook Han's team at KIST solves this problem with a 1xN (one-to-many) communication system. In the 1xN system, single-photon detectors and emitters, which generally have high system development costs, are built using a single server,

while multiple-user transmitter systems are built with simple components, both of which serve to lower total construction costs. SDT provides the physical implementation of the QKD and



SDT CEO Jiwon Yune and KIST President Seok Jin Yoon sign a quantum technology agreement

connectivity to an organization's current data storage network with plug-and-play architecture.

In addition, KIST also transferred quantum random number generation (QRNG) and Coincidence Counting Unit (CCU) technology. The QRNG technology allows SDT to generate pure random numbers using noise from simple camera CMOS image sensors as a source of entropy, and the CCU design allows SDT to build a device which precisely measures correlated quantum photon states.

Prior to founding SDT, CEO Jiwon Yune majored in physics and electronic engineering at the Massachusetts Institute of Technology (MIT) and worked as a researcher at MIT-Harvard University Research Center and KIST Quantum Information Research Center. During his tenure at KIST, CEO Yoon studied diamond quantum computing. SDT provides end-to-end technologies from industrial edge computing devices to cloud services for device orchestration, which brings real the hardware and software expertise needed to take quantum from research labs to the offices of organizations around the world.

Through this technology transfer agreement, SDT can protect data communication between edge devices and the cloud with nearly [unhackable quantum security](#). Starting with quantum cryptography communication, SDT plans to make quantum technologies immediately available in their industrial portfolio of edge communication, sensors, and edge computing devices.

The recent explosive development of quantum computing technology has emerged as a serious threat to modern secure communication due to a dramatic increase in computational speed. In order to respond to this, quantum cryptography based on the physical laws of quantum mechanics is being actively developed. SDT is currently using live testbed environments to test the security of quantum device prototypes in Korea and in their offices in Japan, with intentions to help develop quantum security standards for a global ecosystem.



SDT CEO Jiwon Yune discusses quantum technology



KIST agrees to collaborate with SDT on developing quantum devices

Quantum technology is a major goal of Korea's new government national tech strategy and is essential to secure future global tech leadership. This agreement is a key marker for this goal as it is a public-private sector partnership collaborating to build a competitive case for quantum technological supremacy.

KIST President Seok Jin Yoon said, "We expect that Korea will be able to further solidify its competitiveness as an IT powerhouse by early commercialization of quantum technology in the domestic market."

SDT CEO Jiwon Yune said, "We look forward to distributing quantum cryptography communication devices for any high-security environment by building on the world-class quantum technology transferred from KIST."

SDT supports [digital transformation](#) of organizations by providing solutions such as edge device ecosystems and cloud services for data, and expects interest to sharply increase for quantum devices over the next few years.

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