

# Team develops remote specimen collection robot

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The KIMM research team led by Dr. Joonho Seo is performing a demonstration of the non-face-to-face remote sampling robot. When the operator moves the master device, the slave robot at the remote site retrieves a sample according to the operator's movement. Credit: Korea Institute of Machinery & Materials (KIMM)

The Korea Institute of Machinery & Materials (KIMM) under the Ministry of Science and ICT developed a remote specimen collection robot that eliminates direct contact between medical personnel and patients.

The team led by Dr. Joonho Seo of the Department of Medical Assistant Robot, Daegu Research Center for Medical Devices and Green Energy at KIMM collaborated with a team under Professor Nam-Hee Kim of Dongguk University College of Medicine to develop a remote [robot](#)

[system](#) that collects samples from the upper airway of persons presenting symptoms.

The robot system is composed of a remote device controlled by medical personnel and a robot that interacts with patients. The robot is equipped with a disposable swab, which retrieves samples from the nose and mouth of a patient, and moves according to the operation of the master device.

The team applied remote control technology of parallel robots for remote sampling. The sampling swab of the robot moves or rotates according to the operation of the master device, and retrieves samples when inserted into the mouth or nose. The system also supports video and audio communication between patients and physicians.

Medical personnel can directly operate the robot while viewing the position of the swab in a patient's nose or mouth on the camera. The force of swab insertion can be remotely monitored, which further enhances sampling accuracy and safety.



Slave robot of the non-face-to-face sampling system developed by Dr. Joonho Seo of KIMM. Credit: Korea Institute of Machinery & Materials (KIMM)

The system is expected to significantly reduce the risk of infection of COVID-19 and other high-risk diseases among medical personnel. The robot is affordable and as small as a patient's face, making it a feasible solution for various medical settings.

Dr. Joonho Seo of KIMM said, "This technology allows samples to be retrieved from persons presenting symptoms of high-risk diseases even without direct contact. I expect it to be useful in the screening of high-risk diseases like COVID-19, and hope it will contribute to the safety and well-being of medical personnel during pandemics and epidemics."

Professor Nam-Hee Kim of Dongguk University also said that "The [robot](#) not only lowers the risk of infection among medical [personnel](#), but also removes the need to wear cumbersome protective gear. I believe it will have diverse clinical applications, especially in the diagnosis of infectious diseases."

Provided by National Research Council of Science & Technology

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