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영문 강연제목: Tele-Monitoring/Operation System for Ventilators in ICU

#### Abstract

Since 2021, a joint research team at KIST and Asan Medical Center has been developing the integrated tele-control system for ventilator with an aim of realizing a novel medical device that can be applied to the isolation intensive care unit (ICU). The integrated system consisting of a kiosk-typed central controller and tele-controlled device installed on the ventilator enables the medical staff to tele-monitor the state of ventilator and to tele-operate its various user interfaces. In determining the functional specifications of this novel medical device, we attempted to reflect technical requirements of the medical staff into the proposed system considering the field therapeutic protocol of the ICU. In addition, for the practical use as a medical device, we designed the mechanical and electrical parts according to the field manual for the medical device utilization. The proposed system had been implemented as a functional prototype, and the functional efficacy and practical usability of the system were assessed based on the field demonstration test with a medical staff focus group. Recently, we are trying to propose this technology as an international standard so that the developed system will be applied to tele-ICU/e-ICU of future smart hospitals. In this talk, the background, progress, and future plan of this work will be presented.

#### Brief Biosketch

Dr. Donghyun Hwang is a Principal Research Scientist in the Center for Robotics Research at AI and Robotics Institute, Korea Institute of Science and Technology. He received the B.Eng. and M.Sc. degrees from Ajou University in 2008 and 2010, respectively, both in mechanical engineering and the Ph.D. degree in precision engineering from The University of Tokyo in 2014. He was a Visiting Researcher with the Department of Mechanical Engineering, University of Michigan in 2010. From 2014 to 2015, he was a Postdoctoral Research Fellow with the Center for Robotics Research at KIST where he was a Senior Research Scientist until 2020. His research interests include actuators and sensors, variable-stiffness mechanisms, and high-precision positioning systems for robotic applications including microsurgical robotic systems, wearable haptic interfaces, and robotic manipulators.