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Barcelona Hospital Testing RFID-based Access Control

Catalan RFID technology company Keonn Technologies has released an RFID-based hand sanitizer solution called AdvanWash, which tracks when healthcare providers or other workers wash their hands, then automatically authorizes or prevents an individual's entrance into a secure area. The

solution not only provides access control for those with clean hands and the credentials required to enter, but also stores data for hospitals or other facilities that they can then leverage for historical or analytics purposes. One hospital in Barcelona, Spain (which has asked to remain unnamed), has been testing the system for the past year.

AdvanWash, developed in 2019, provides two levels of protection: it forces employees to wash their hands before they can access specific areas, and it serves as an access-control system to prevent unauthorized parties from entering. The solution is also intended for use in other industries, such as restaurants, schools and office canteens. Following a year of testing at the Spanish hospital, the technology has been released commercially this year. While RFID and other wireless technologies are used for hand-hygiene compliance, this may be the only such system that ensure hands are washed and automates access control based on that compliance, according to Ramir De Porrata-Doria, Keonn's co-founder and CEO.



The tag only responds to interrogations from the AdvanWash RFID reader, which needs to be triggered to interrogate the card or badge.

The AdvanWash device is typically mounted at the entrance to a room or secure area. It consists of an electronic soap or alcohol disinfectant dispenser, a motion sensor, a UHF RFID

reader, and Wi-Fi or Ethernet functionality to transmit data back to the software. The system can be plugged directly into a facility's power supply. Keonn provides the software, which is designed to be used on premise, though it could be cloud-based in the future.

The solution is aimed at reducing the rate of infections caused by a failure to comply with hand-hygiene requirements. Without such a system in place, De Porrata-Doria says, medical personnel could occasionally enter an intensive care unit (ICU) or other critical area without washing their hands. According to the Centers for Disease Control and Prevention (CDC), healthcare providers clean their hands, on average, less than half the number of times they should. The result is the potential for the spread of infections. On a typical day, in fact, approximately one in 31 patients contracts at least one healthcare-associated infection, the CDC reports.

AdvanWash, therefore, is designed to track whether individuals meet hand hygiene requirements, and to prevent them from entering secured areas housing vulnerable patients. Since the system was tested at the Spanish hospital, that facility has reported to Keonn that all of its medical staff members are washing their hands every time they enter any ICU. The testing, according to De Porrata-Doria, has found that the technology not only ensures hands are being washed in real time, but also changes behavior. "It has been so successful that the medical staff has internalized that they must wash hands with AdvanWash in order to open the doors of the ICUs," he states.

The system requires that every user must wear a passive UHF RFID badge or carry an RFID-enabled ID card. Keonn provides users with Avery Dennison AD-550m5 UHF RFID tags built into them. Typically, the unique ID number encoded on a badge is linked to a particular individual's identity, as well as, or alternatively, his or her responsibility and authorizations. The tag only responds to interrogations from the AdvanWash

RFID reader, which needs to be triggered to interrogate the card or badge.

When a user approaches the entrance to a patient room or other secured area, he or she must first stop in front of the AdvanWash dispenser. When the individual holds his or her hands underneath the dispenser, the motion sensor built into the device will prompt it to dispense sanitizer or soap. AdvanWash detects that the engine inside the dispenser has started running to supply soap or disinfectant.

This wakes up Keonn's built-in AdvanReader-60, which sends an interrogation signal to capture the badge ID of the person standing in front of it. Typically, the system's read range is about 50 centimeters (20 inches) from the antenna. In that way, the solution can be sure it only captures the ID of the individual directly in front of the device.

The reader forwards the badge ID to a local server via a wired or Wi-Fi connection in order to verify that user's authorization to enter a specific room or area. If he or she has permission to enter, a visual indicator on the dispenser will light up, allowing entrance. The reader then releases the lock on the door and he or she can enter. In the meantime, the software stores data indicating who entered the room and when this occurred, along with confirmation that all entrants sanitized or washed their hands.

Keonn also provides an application programming interface that can integrate AdvanWash software with the company's own enterprise resource planning and access-control systems. The software can additionally provide direct SQL database access or custom integrations, and the system could enable alerts or historical data to be sent to specific parties, such as department managers. Such alerts and analytics would be set up in a user's own management software. The solution can work with an unlimited number of dispensers, and each device can

accommodate disposable or refillable bottles of either soap or sanitizer.

Since testing began, De Porrata-Doria reports, the system has provided multiple benefits. First and foremost, he says, "It ensures that only staff who have washed their hands can enter a restricted area." However, the technology can also screen out unauthorized personnel who may have washed their hands but lack authorization to enter a specific area. Traditionally, a hospital might have required two separate systems to accomplish this goal: one for hand sanitizing and the other for access control.

With Keonn's new solution, the company explains, healthcare providers or other users can improve their hygiene compliance levels and thereby improve the health and safety of those at hospitals, clinics, care homes or elsewhere. "The combination of who the user is, their permissions, and if he or she has washed hands is what provides full assurance that only authorized users enter restricted areas," De Porrata-Doria states. The system is now available for use in Europe and in North America.



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