More flexible healthcare thanks to Internet of Things

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Televic Healthcare, international company specialized in innovative communication technology, developed a ground breaking Azure-based IoT healthcare communication system. A system that gives patients the freedom and flexibility to move across healthcare facilities.

One of the assets of this state-of-the-art technology is that it sends emergency calls, with patient location information, to caregivers on their mobile devices. This innovative technology uses the power of IoT combined with the cloud to ensure that alerts reach the right person, at the right time, with the right information.
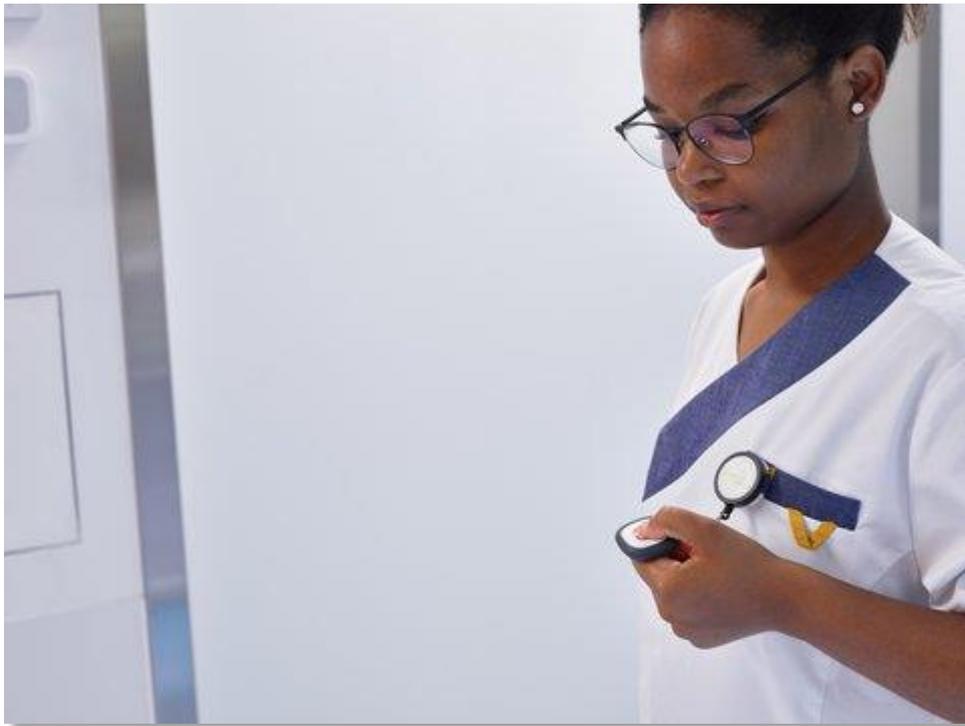
A more flexible care approach

Healthcare is undergoing a rapid paradigm shift from traditional room-based care to a more flexible care approach. Patients are increasingly moving between care facilities, such as nursing homes, service flats, hospitals, and private homes. To give an answer to the communication need that goes with this shift, Televic Healthcare was looking for ways to provide a continuum of care between these settings. To speed up the development of the cloud-based IoT solution, Televic Healthcare looked for a partner with expert knowledge in cloud solutions for healthcare. Upon Microsoft's recommendation, the company approached Codit – experts in cloud-based solutions and IoT. For the development of a wearable for patients, residents and nurses, an ultra-low power ASIC containing Televic Healthcare's patented hybrid localization technology was developed. For the ASIC development Televic Healthcare partnered with Ansem.

Televic Healthcare provides a continuum of care while patients are moving between care facilities.

Localize and send alert

To send alerts and the patient's location to caregivers via an Azure cloud-based data platform, Televic Healthcare and Codit developed IoT devices – using Codit's Nebulus™ IoT Gateway. The signal localizes the closest nurse or caregiver and sends an alert to their smartphone or monitoring system. The alert can then be turned off with a cloud-connected tag when the caregiver is in close proximity of the patient.

Televic Healthcare set to work developing wireless devices — such as wearables — through which patients can call medical staff or caregivers. The technology is designed not only for patients to make calls, but also to detect patients when they go wandering – in cases like dementia where the safety of the patient is paramount. Televic Healthcare and Codit also designed a mobility platform that allows nurses and caregivers to remotely receive calls, alarms, video images, from one user-friendly interface.

Codit is on the case delivering an Azure-based infrastructure to support Televic Healthcare's IoT devices. When a patient makes a call, this information is sent to the Azure IoT platform and from there, an alert is sent to the smart device of the closest medical staff or caregiver. By having this care communication in the cloud, Televic Healthcare can discover new business models for home care and help care settings — avoiding expensive on-premises infrastructure. The solution is built to adhere to the strictest privacy policies in health care including HIPAA and GDPR.

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Ultra-low power ASIC

Televic Healthcare developed a patented hybrid localization technology based on three technologies: magnetic induction, RF and ultrasound. This hybrid technology ensures room-level accurate localization of patients, residents and nurses in the healthcare facilities. To develop an ultra-low power ASIC, Televic Healthcare partnered with Ansem, specialized in designing and delivering state-of-the-art analog, RF and mixed-signal integrated circuits. This ASIC contains Televic Healthcare's hybrid localization technology that is integrated into a wearable.

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From on-premises to into the cloud

For the moment, the Televic Healthcare and Codit teams lay the groundwork in Belgium by shifting the wireless alarming and localization system from on-premises into the cloud. Televic Healthcare currently serves 80% of the hospitals and 60% of nursing homes in Belgium. The Belgium-based company is growing its client base as well elsewhere in Europe and in China. Televic Healthcare is also exploring future AI use cases for preventative care, by monitoring a patient's behaviour and analysing deviations from their normal routines. Based on IoT data and intelligent algorithms the alerts can be enriched with information to support the nurse.