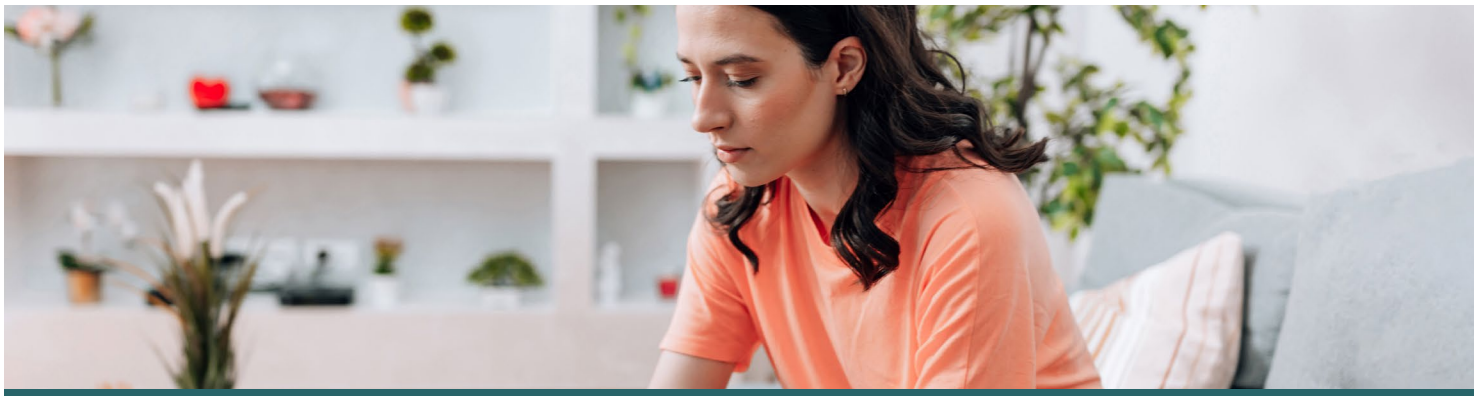


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TECHNOLOGY BRIEF

Telehealth Innovations Transform Remote Care

In the realm of cutting-edge technology, breakthroughs are often fueled by a powerful vision. For one company, it's building the components of a smart city, one that promotes the well-being of individuals, a more livable community, and a sustainable environment.

Though their "Unified Communication of Things" platform, beamLive pursues these goals by harnessing the latest in edge computing and AI technology to create telehealth innovations that deliver personalized, remote care. Spearheading this transformative effort is beamLive CEO Mehrdad Negahban, who envisions a future where healthcare is enhanced by digital solutions.

At the heart of beamLive's mobile IoT communications approach is the beamRx – Shahin 101 solution, which aims to enhance the out-of-hospital telemedicine experience for patients and healthcare providers alike. By integrating edge-computing, AI, and machine learning, the system provides doctors with real-time biometric data during virtual consultations. This enables healthcare practitioners to respond rapidly and accurately to changes in a patient's health.

The solution's brand itself carries a moving story, named after a colleague. "One of our partners, Shahin Arefzadeh, who was of great help and inspiration, had passed away," says Negahban. "So, we are dedicating this product line in his honor."

> **"We seamlessly connect all of these sensors, allowing medical practitioners to view real-time data while communicating with patients through video."**
>
> **Mehrdad Negahban, beamLive**

Digital Healthcare Solutions Transform Nursing Home and Community Care

One notable customer with an upcoming use case that exemplifies the importance and potential of edge computing in healthcare involves a nursing home in New York City. With more than 200 residents, ensuring high-quality, timely care for every individual represents a complex task. Beam's innovative telemedicine platform can make a measurable difference in the future of the facility's healthcare delivery.

By deploying the Shahin 101 solution, the nursing home's care providers will gain crucial access to real-time biometric data and patient profiles. The AI-driven solution combines vital data such as heartbeat, temperature, respiratory rate, blood pressure, from medical IoT sensors, along with comprehensive health histories. This wealth of information, analyzed in real time, will give doctors and nurses a complete view of each resident's health status. The solution efficiently processes a vast amount of data at the edge, reducing latency and ensuring smooth communication between devices and healthcare providers. The result is timely interventions, earlier detection, and more personalized care.

Negahban explains, "We seamlessly connect all of these sensors, allowing medical practitioners to view real-time data while communicating with patients through video. Our platform bridges the gap between virtual and in-person visits, providing an experience akin to an in-person consultation."

Beam will use and correlate an individual patient's information with a broad set of public medical data, such as that from the National Institutes of Health (NIH), to construct comprehensive profiles. By correlating historical and publicly available data with an individual's unique biometrics, health history, and activities, healthcare professionals gain a holistic view that allows them to make more-informed decisions during virtual patient visits.

With this comprehensive view, providers gain a thorough historical understanding of this individual's activities over the past 24 hours, week, or month.

"You combine them with the massive amount of NIH data and match that with bios of a person—their age, gender, height, and weight, for example," says Negahban. "We use real-time or archive data along with the person's bio and their physical activities."

Telehealth Innovations from the IoT Edge to the Cloud

The beamRX architecture combines a set of hardware, software, and cloud services. Medical IoT sensors measure patient stats: heartbeat, temperature, respiratory rate, oxygen level, blood pressure, blood sugar level, and EKG. The collected data is processed on Intel small form-factor PCs and edge computing, where pertinent messages and alerts are extracted before being transmitted to the cloud via broadband, Wi-Fi, or LTE. These real-time alerts are a key factor in a patient's care, color-coded with green for wellness, amber for concern, and red for critical—which can launch alerts directly to designated doctors or a 911 center.

In fact, Intel technology is essential to the beamRX solution. The Intel® OpenVINO™ toolkit and Intel® Movidius™ VPU accelerator are the backbone of its AI platform development and performance. Once the data is processed, it's mimicked on the cloud, under control of a HIPAA-compliant client. Generally, these clients are either hospitals or doctors.

Shaping the Future with Edge Computing and AI

Beyond telemedicine, beamLive's technology extends its impact to the needs of smart cities. Edge computing and AI technologies make innovation in urban infrastructure, transportation, and citizen services possible. "The overall umbrella for what we're doing covers a range of sectors, spanning from public safety to logistics, smart transportation, and healthcare," says Negahban. "These segments are also dependent on real-time information from multiple sources—anywhere people may be, on all of their devices, dynamically updated—to enable a better community experience."

Learn more about the Unified Communication of Things platform and other beamLive IoT solutions.

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