

embedUR systems Showcases Edge AI Innovations in Collaboration with STMicroelectronics

Category: Business

written by | January 3, 2025

embedUR systems, a leader in embedded solutions and Edge AI technologies, is proud to join STMicroelectronics' Authorized Partner program.

By leveraging STs hardware and software ecosystem, embedUR systems has developed three advanced Edge AI applications for the STM32N6 platform. These applications demonstrate the transformative potential of AI on efficient, compact hardware across diverse industries.

Through this collaboration, embedUR systems not only optimized AI models but also developed, trained, and integrated them to run on ST's latest [STM32N6](#) microcontrollers complete with the embedded software stack needed for productization. By leveraging deep expertise in STMicroelectronics' platforms, embedUR is enabling innovative Edge AI applications that pave the way for transformative industry solutions.

Edge AI Solutions

People Detection with Image Segmentation

embedUR delivers a state-of-the-art Image Segmentation solution for high-speed detection and classification of individuals. This functionality is well-suited for applications such as occupancy counting, presence detection, crowd management, person following and more.

This capability combines:

- Adaptation of YOLACT for Neural-ART Accelerator™, the STM32N6's Neural Processing Unit (NPU): supporting real-time instance segmentation, YOLACT has been optimized for the STM32N6 hardware, ensuring low latency and robust performance.
- Proprietary optimization techniques: embedUR's advanced quantization strategies shrink model size by nearly 75% while maximizing speed and accuracy, making it ideal for resource-constrained devices.
- Enhanced image quality through STM32N6's Image Signal Processor (ISP): this integration ensures reliable performance across varying lighting conditions and enables the solution to run at 71 FPS.

Facial Recognition with Enrollment

embedUR's on-device facial recognition solution combines security and high-speed processing, making it ideally suited to biometric boarding at airports or keyless entry systems, which require stringent standards of security, privacy and performance.

Features include:

- embedUR's UReyED framework: Enables precise facial detection, keypoint extraction, and embedding generation for fast, accurate recognition.
- Direct on-device enrollment: Eliminating the need for external infrastructure, this feature enhances privacy and simplifies deployment.
- Support for large-scale databases with rapid identification: Designed for environments with high user throughput, such as access control and public safety.

Audio Denoising

embedUR systems has also created an audio denoising solution that runs on STM32N6's Neural-ART Accelerator (NPU). It incorporates the excellent audio capabilities of the STM32N6 platform with a state-of-the-art audio denoising model to deliver clear speech, even in noisy environments. As systems add speech to text to feed LLMs, denoising will be increasingly used to ensure that LLMs are fed with the most accurate transcription.

Notable characteristics:

- embedUR chose an award-winning audio denoising model designed to run on GPUs and then adapted and optimized this for the NPU on the STM32N6.
- Running the model on the STM32N6 NPU reduces power consumption, increases accuracy, and removes latency needed to make the audio solution work in a variety of high demand and low power environments

Driving Innovation in Edge AI

*"This collaboration with STMicroelectronics is a testament to our engineering excellence and ability to bring up AI solutions rapidly and independently on literally any Edge platform (CPU/GPU/NPU)," said **Rajesh Subramaniam, CEO of embedUR systems**. "We're proud to demonstrate how efficient, high-performance AI solutions can be realized on the STM32N6 microcontroller, and the myriad applications they can enable."*

*"embedUR systems has demonstrated expertise in creating AI technology and optimizing it for our STM32N6 microcontroller, with minimal support required from our engineering teams. Their experience, creativity and efficiency are extraordinary. In a few short weeks, they have been able to demonstrate the incredible potential of edge AI on STMicroelectronics' components to drive transformative AI solutions across industries." said **Miguel Castro**, head of AI strategy &*

business dev for Americas at STMicroelectronics. “We are pleased to announce that embedUR is a new [ST Authorized Partner](#).”

embedUR systems invites businesses to explore how its expertise and solutions can enable the next generation of Edge AI applications. To learn more, visit www.embedur.ai.

About embedUR systems

[embedUR systems](#) is a Silicon Valley-based leader in embedded systems, AI, and Edge Computing. With over two decades of expertise and a proven track record of accelerating product time-to-market for telecom, network equipment, and silicon vendors, embedUR delivers cutting-edge embedded solutions powering millions of devices worldwide. Its ModelNova platform offers pre-trained AI models for seamless integration into intelligent edge systems, enabling AI enthusiasts and aficionados alike to experiment with AI and easily develop proof of concepts with little to no AI modeling expertise, in record time. Browse pre-trained Edge AI models today at modelnova.ai.

