

# PHONEMIC

## Voice Activity Detection IP-Core

### PROBLEM

Voice is the **most natural** and spontaneous method of communication.

Voice interface is a perfect alternative to touch screens and keyboards, which is especially vital in the case of handsfree equipment or devices, designed for users with mobility issues or the elderly.

Voice recognition is a **power-hungry** feature due to its complex algorithms. In case of portable devices working in the "always listening" mode, the main processor is constantly performing calculations which in turn consumes lots of energy.



### SOLUTION



**Phonemic** proposes a unique Voice Activity Detection (VAD) IP-Core based on innovative algorithms that are able to distinguish between speech and ambient sounds with high accuracy.

The **VAD IP-Core** can be integrated in a SoC (System-on-Chip) and used as a wake-up mechanism for functional blocks of voice interface with more advanced inference capabilities, such as voice command recognition, to significantly save energy during non-speech periods.

It is expected to reduce the total power consumption of a voice interface up to **100 times**, which means lower battery requirements and, in turn – significantly extending the battery life of an IoT device.

### APPLICATIONS

VAD IP-Core by Phonemic provides a **significant power consumption reduction and high accuracy**, even in a noisy environment.

Voice interfaces improve user experience for devices in many market segments. Healthcare (remote health monitors for seniors), automotive (safety features), consumer electronics, wearables, retail, smart home or even toys - all of these segments will benefit from our solution.

Phonemic's VAD is provided as a technology-independent soft-IP that can be integrated in any SoC design.



### TECHNOLOGY



**Phonemic's VAD IP-Core** makes use of innovative algorithms based on our own research that provides reduced computational complexity and small memory requirements, while maintaining high accuracy, **even in the presence of high level of noise**. We deliver a turnkey solution, trained with our own carefully selected dataset, which covers a wide range of different operational conditions.

Compact architecture with use of dedicated optimization techniques of our design guarantees a **small silicon footprint and a low power consumption**.

### OUR TEAM

Members of our technical team have almost 100 years of combined industry experience in IP-Core design, including solutions for low-power IoT devices, **with many silicon-proven designs**.

We combine this experience with academic research on digital signal processing (DSP). Therefore, we offer **a unique blend of industry proficiency and scientific knowledge**, which leads us to create excellent solutions.

