PRODUCT BRIEF

DEEPCRAFT™ Ready Model for Baby Cry Detection

A production-ready Edge AI model that detects babies and young children crying

The DEEPCRAFT™ Ready Model for Baby Cry Detection detects babies and young children crying in the vicinity of a microphone in a wide range of indoor circumstances. The sound detection can then trigger special functionalities for various use cases.

This model is targeted towards consumer electronics manufacturers that want to distinguish their products by adding intelligent functionalities. Using machine learning (ML) models for these features future-proofs them, which is vital in a fiercely competitive consumer market. The model is designed to operate at optimal efficiency in common environments, guaranteeing a smooth and effective user experience across a range of standard scenarios.

The DEEPCRAFT™ Ready Model for Baby Cry Detection lets companies take AI to production quickly. It is a fully trained, comprehensively tested Edge AI model that is ready for production. This leaves Infineon's customers free to focus on how to best put to the model to use, and to commercialize the added value it brings to their product. If further customizations are needed, the model can be adapted using DEEPCRAFT™ Studio.

Extensive testing has been done on Infineon's PSOC™ 6 Arm Cortex-M4 processor leveraging Infineon's state-of-the-art digital MEMS microphones. During testing, the model is exposed to common indoor noises, as well as more unusual background noises and environments to ensure that it stays reliable and effective in nearly any scenario.

For more information visit: DEEPCRAFT™ and DEEPCRAFT™ Ready Models



Key features

- Production ready: complete model, fully tested, and designed for edge devices
- ~95% accuracy from <5 meters away (higher accuracy when model is used to look at long-term crying patterns)
- Detects crying from 0–4-year-olds
- Optimal model performance in common scenarios
- Optimized for minimal false triggers, even in uncommon scenarios

Key benefits

- Easy to integrate and deploy onto consumer products
- Fast time to market at minimal development cost
- Low memory footprints and inference time – hardware resources freed up for other purposes
- Customizable using DEEPCRAFT™ Studio

Key use cases

- Send alerts to parents or caretakers in another room
- Notify parents or caretakers who are deaf or hard of hearing
- Activate white noise or music to encourage baby to sleep
- Adjust environmental conditions to soothe baby when they begin to cry
- Activate noise cancellation if the user needs to filter sounds



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Specification and compatibility

Sensor settings – microphone

– Sample rate: 16000 Hz
– Channels: 1 (Mono)
– Bit depth: 16 bit

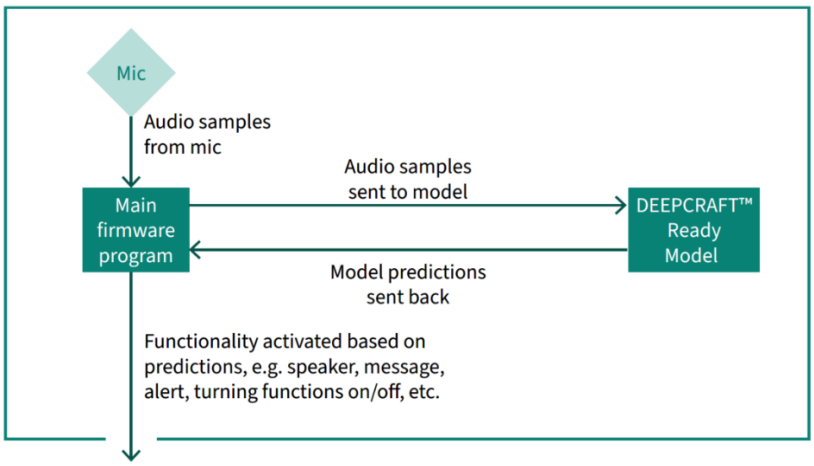
Hardware requirements

– RAM: 73 kB
– FLASH: 32 kB
– Inference time: 127 ms performed every 516 ms

Supported devices

– Infineon microcontrollers
– Infineon XENSIV™ MEMS microphones

Block diagram



Target applications

Clinical & Hospital Equipment
Home Health Monitoring
Audio and Speaker - Home or Professional

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