PRODUCT BRIEF

DEEPCRAFT™ Ready Model for Siren Detection

A production-ready Edge AI model that detects emergency vehicle sirens

The DEEPCRAFT™ Ready Model for Siren Detection detects emergency vehicle sirens in the vicinity of a microphone in a wide range of indoor and outdoor circumstances. The sound detection can then trigger special functionalities, such as emergency alerts, for various use cases.

This model is targeted towards customers in the automotive, industrial, and consumer electronics industries, 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 Siren 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 was exposed to common indoor and outdoor 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
- ~92% accuracy from <20 meters away (higher accuracy when model is used to look at long-term siren patterns)
- 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

- Alert user to emergency vehicles
- Alert deaf, hard of hearing, or people using headphones to emergency vehicles
- Adjust headphone, speaker or noise-cancelling
- Log emergency vehicle activity, activate security cameras or other security functionality
- Engage awareness or surveillance functionality

Specification and compatibility

Sensor settings – microphone

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

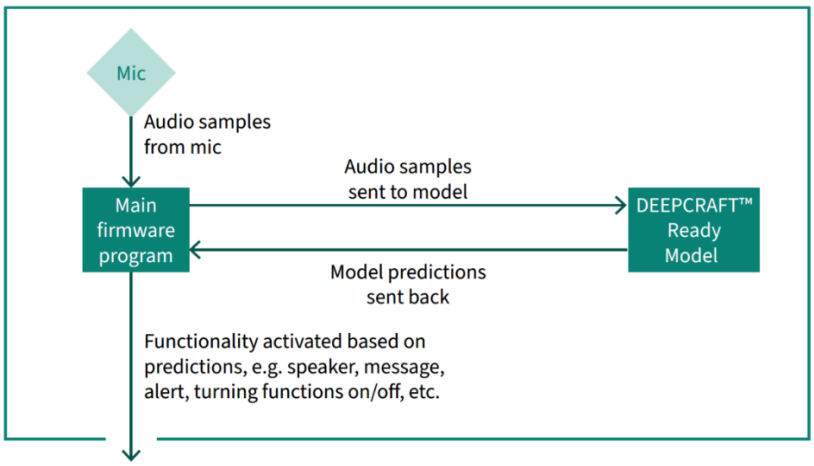
Hardware requirements

– RAM: 162 kB
– FLASH: 55 kB
– Inference time: 23 ms performed every 62 ms

Supported devices

– Infineon microcontrollers
– Infineon XENSIV™ MEMS microphones

Block diagram



Target applications

Alarm & Security
AR devices / Smart Glasses
Humanoid Robots
Security Camera & Video doorbell

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