PRODUCT BRIEF

DEEPCRAFT™ Ready Model for Gesture Classification

A production-ready Edge AI model that detects five different gestures for contactless control

The DEEPCRAFT™ Ready Model for Gesture Detection detects five different gestures in the vicinity of a radar sensor. The gesture detected can then trigger special functionalities for various use cases, providing contactless control for smart devices.

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 Gesture Classification 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 XENSIV™ radar sensors. During testing, the model was exposed to users with different heights and arm lengths, as well as various body movements, distances, angles and velocities, to ensure that it stays reliable and effective in most scenarios.

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



Key features

- Production ready: complete model, fully tested, and designed for edge devices
- ~92% accuracy at 10-70 cm from the radar sensor
- Detects five distinct gestures: push, swipe up, swipe down, swipe left, swipe right
- The model can be further developed to add more gestures

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

- Add gesture detection to monitors, speakers or to smart home devices for contactless control
- Add contactless control to wearable devices for easy usage
- Swipe or push to turn devices on or off, raise or lower volume, and more
- Replace physical buttons on appliances for seamless UI and clean product design

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Specification and compatibility

Sensor settings – radar

– Sample rate: 33 Hz
– Features: range, velocity, azimuth, elevation, magnitude

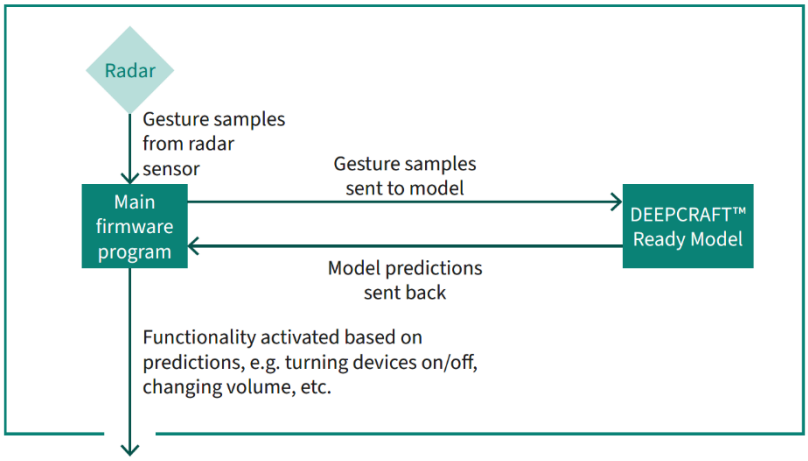
Hardware requirements

– RAM: 104 kB
– FLASH: 26 kB
– Inference time: <8 ms performed every 20 ms

Supported devices

– Infineon microcontrollers
– Infineon XENSIV™ BGT60TR13C

Block diagram



Target applications

Collaborative Robot (Cobot)
Commercial Building Automation
Commercial, Residential and Industrial Lighting
Domestic Robot (vacuum, lawn, pool)
Drone & Multicopter
Humanoid Robots

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