

BME688

ENVIRONMENTAL SENSING WITH AI

BOSCH SENSORTEC

BME688

Environmental sensing with AI



The BME688 is the world's smallest 4-in-1 air quality solution for monitoring gases, temperature, pressure & humidity in just 3 x 3 x 0.9 mm³



First digital gas sensor with AI

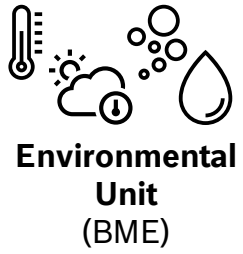
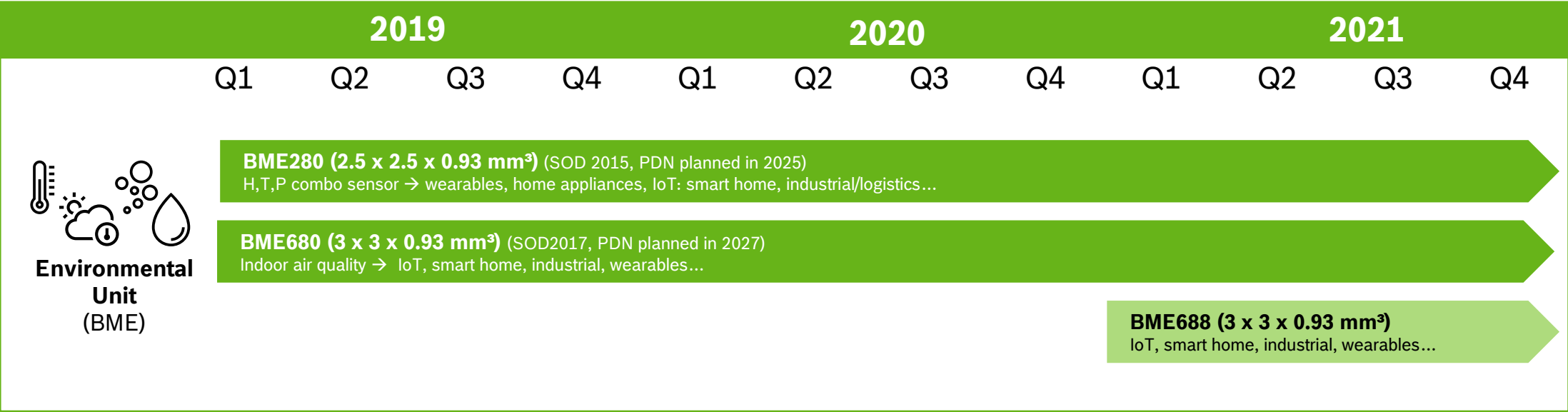


With the BME AI-Studio toolkit, many new applications can be addressed by the gas scanner



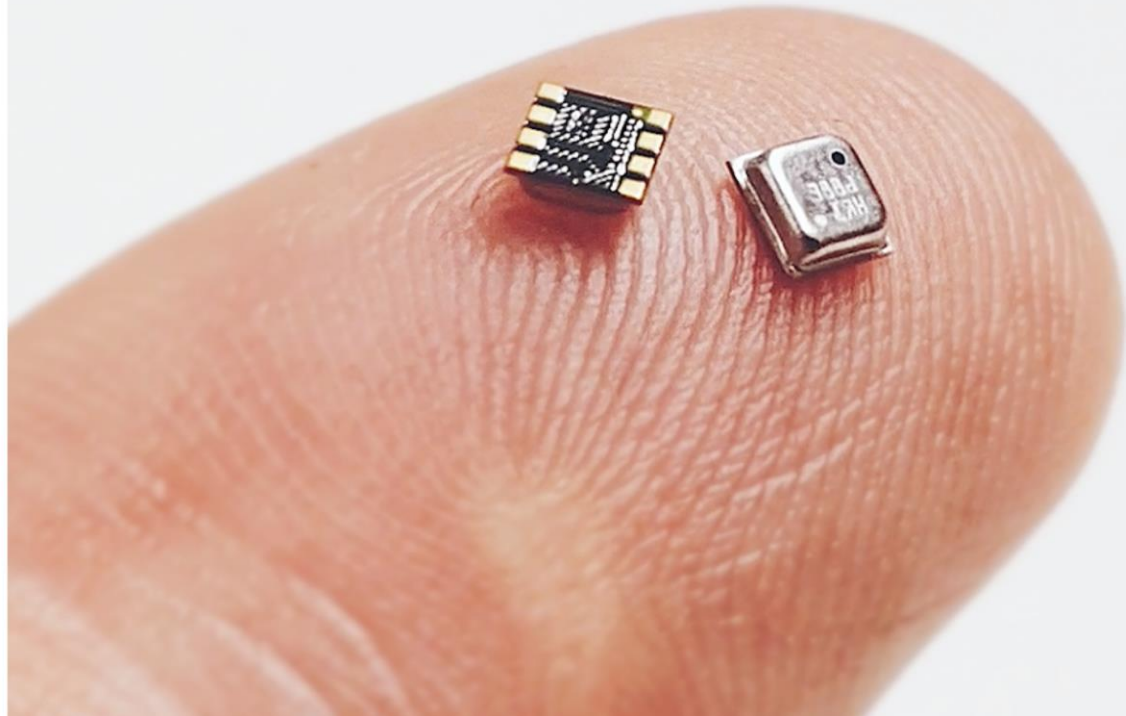
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Humidity and gas sensors classification





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Invented for life



BME AI-Studio coffeeExample.bmeproject

Specimen Collection My Algorithms

Search specimens ... Configure BME Board

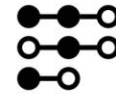
Specimen	Session	Start Time	Cycles	
Session: Coffee Session Settings				
Normal Air	Coffee Session	7 Aug 2020, 15:01:41	480	
Espresso Coffee	Coffee Session	7 Aug 2020, 15:33:51	449	☑
Normal Air	Coffee Session	7 Aug 2020, 16:03:35	481	
Filter Coffee	Coffee Session	7 Aug 2020, 16:35:36	458	

Espresso Coffee

Label Espresso Coffee

Comment

Details



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BME AI-Studio

Version 1.5.1
Loading application ...

By using this software you agree to the end-user-license-agreement by Bosch Sensortec GmbH

Details

Classes 2 Classes (max. 4)

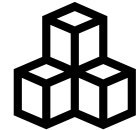
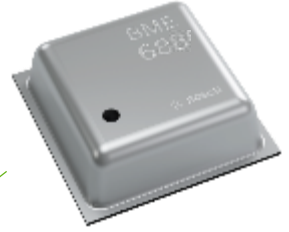
Class A Coffee 2 Specimens	Class B Normal Air 2 Specimens	+ Add class
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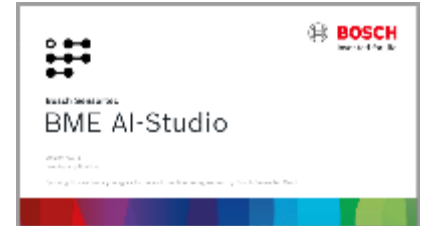
Product overview

The **BME688** has all functionality of the BME680, but additionally a “gas scanner”. The “product consists of 3 parts:

1. **BME688 Hardware:** fully backward compatible to BME680, but with a higher gas resistance range enabled in the ASIC.
2. **BSEC Software 2.0:** enables
 - a) existing BME680 modes (DC/LP/ULP) for Air Quality (VOCs)
 - b) new BME688 gas scanning mode for VSCs (specified by H₂S lab tests)
3. **BME AI-Studio:** Enables customer to train the BME688 on his special application (e.g. for several home appliances, IoT products, smart home,...)



BSEC software v. 2.0



BME AI-Studio

BME688

Applications and use cases

Target applications



Breath checker



Connected devices



Smart home

Use case examples



Detection of bad breath



Wild fire



Diaper state



Fresh food in fridges



Bad breath

BME688

The new BME688 detects whether breath smells fresh or not.



Wild fire

BME688

The BME688 sensor helps to detect wild fires as early as possible.



Diaper state

BME688

With the BME688 it is possible to detect the diaper state. This keeps babies and parents happy.



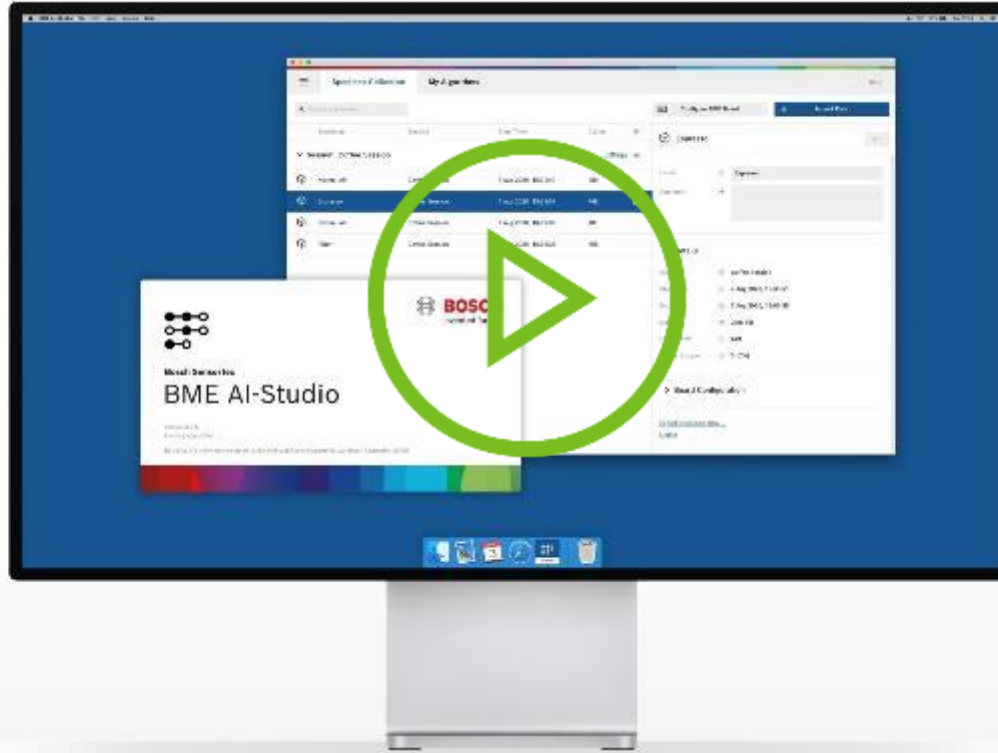
Fresh food

BME688

The BME688 sensor can detect when food starts to spoil. This avoids wasting food.

BME688

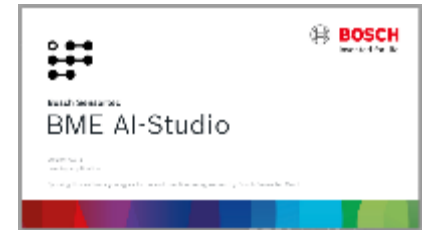
BME AI-Studio software



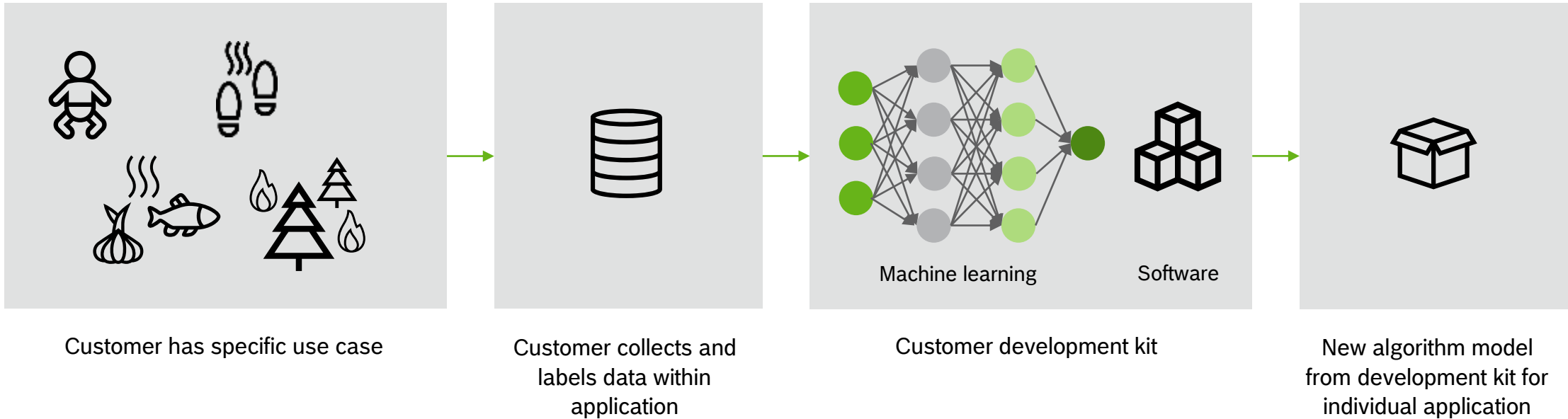
Watch the video to understand how the BME AI-Studio software works

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Make your product with BME AI-Studio



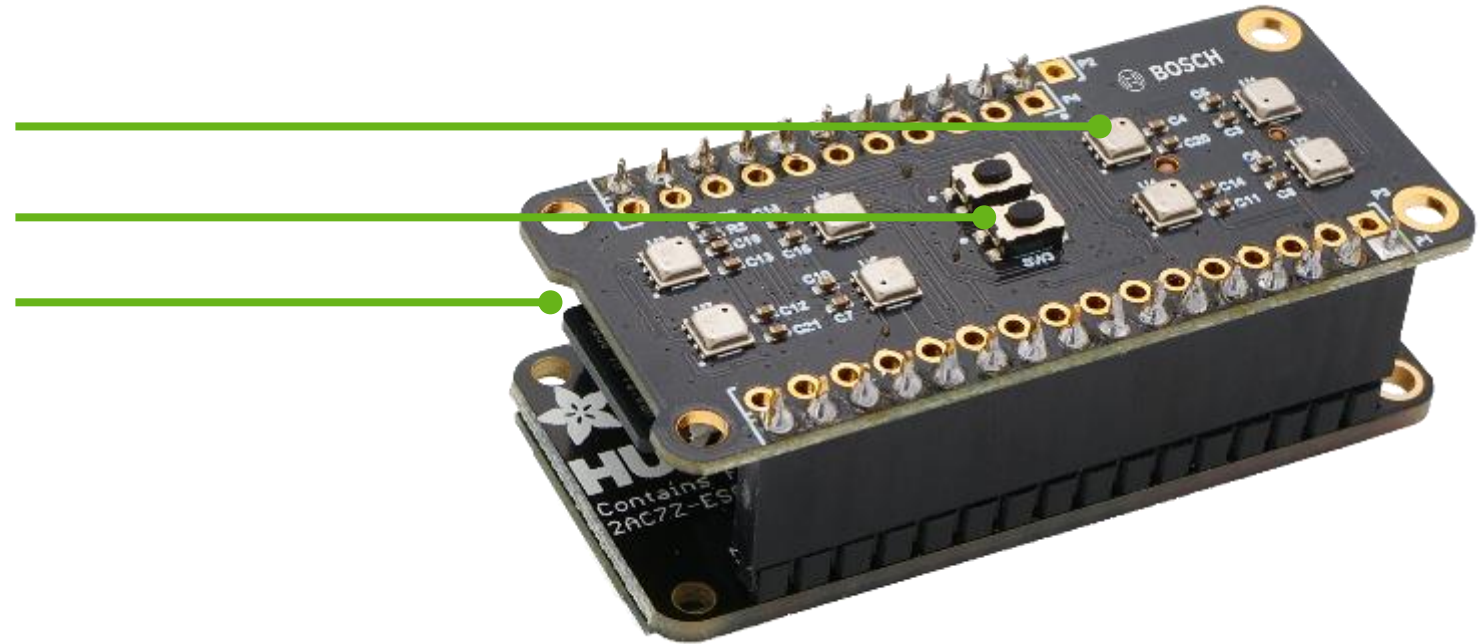
Enables customers to develop specific use cases:



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Development kit hardware

- 8x BME688 gas sensor
- buttons for data labeling
- SD card for data storage



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Technical Features

Parameter	Technical data
Package dimensions	8-pin LGA with metal 3.0 x 3.0 x 0.93 mm ³
Operation range (full accuracy)	Pressure: 300...1100 hPa Humidity: 0...100 % Temperature: -40...85 °C
Supply voltage VDDIO Supply voltage VDD	1.2...3.6 V 1.71...3.6 V
Interface	I ² C and SPI
Average current consumption	2.1 µA at 1 Hz humidity and temperature 3.1 µA at 1 Hz humidity and temperature 3.7 µA at 1 Hz humidity, pressure and temperature 90 µA at ULP mode for p/h/T & air quality 0.9 mA at LP mode for p/h/T & air quality 3.9 mA in standard gas scan mode (gas scan mode & scan rate can be optimized on application with BME AI-studio)

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