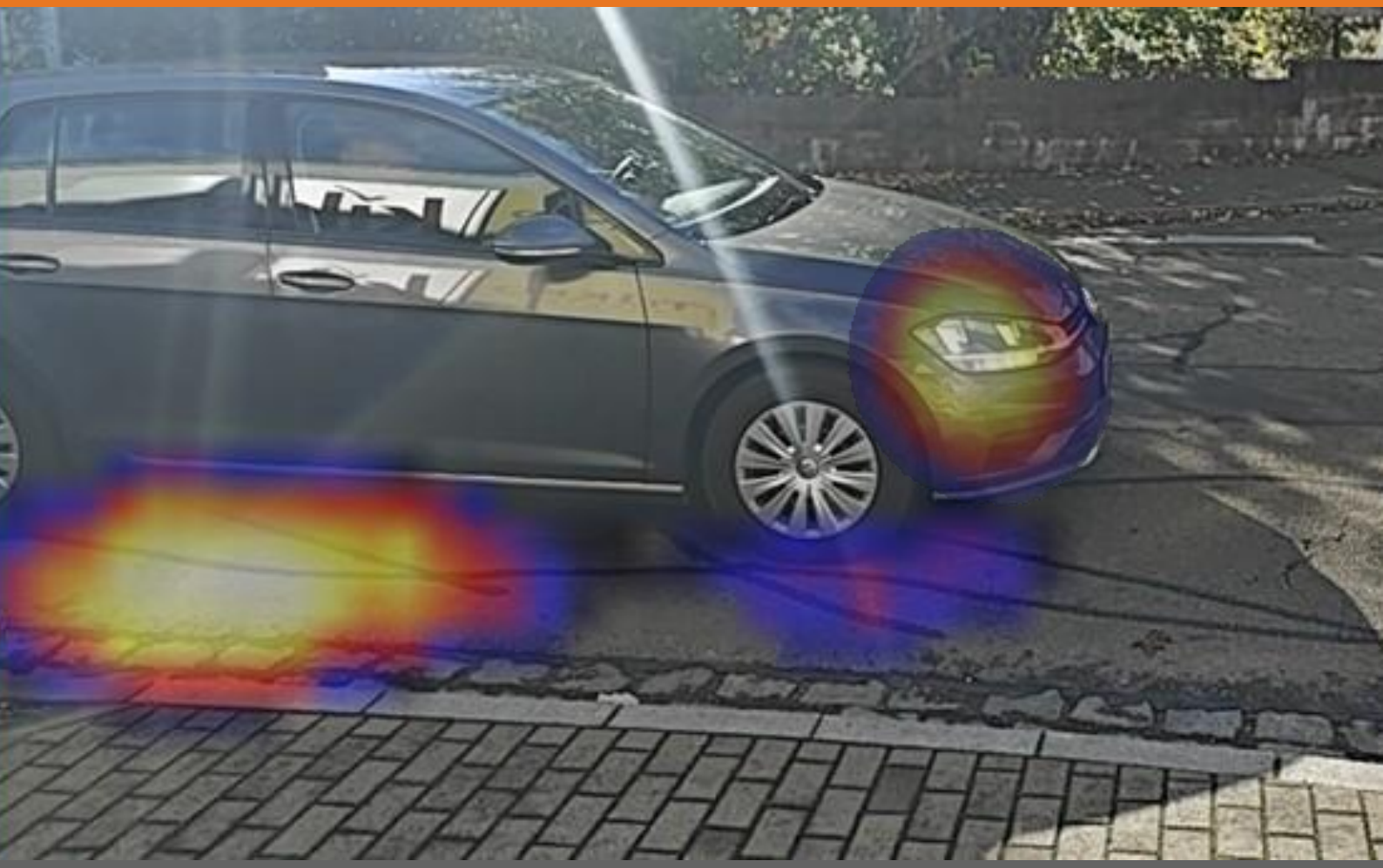
White Paper SoundCam Go

See sounds with your smartphone



Die Finding a leak, locating birds, making the ultrasound of a power supply visible: The SoundCam Go visualizes sound waves – a technical challenge.

November 14, 2025 at 10:20 am / A hands-on by Mario Petzold

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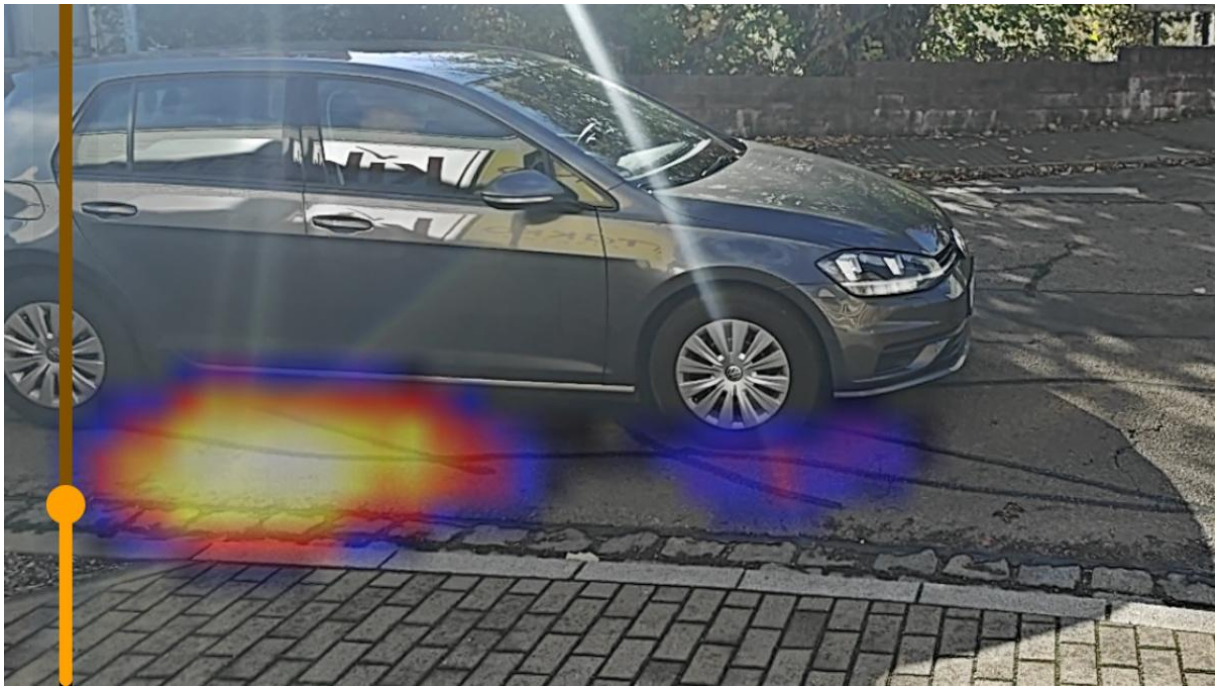
Humans are bad at locating sound



The sound of the tires on the asphalt is made visible by colored fields. Image: Soundcam Go/Screenshot: Golem Content

Humans are bad at locating sound. Animals also usually only succeed in doing this with tricks, either through targeted ear movements or the use of significantly higher frequencies beyond human hearing.

A technical solution for this was already developed in 2018 by the company CAE Software & Systems, which Golem visited at the time. In the effort to visualize sound, the result was a not quite inexpensive device equipped with 176 digital microphones, which supports professional users especially in the search for gas leaks, but can also find just about any other sound source.

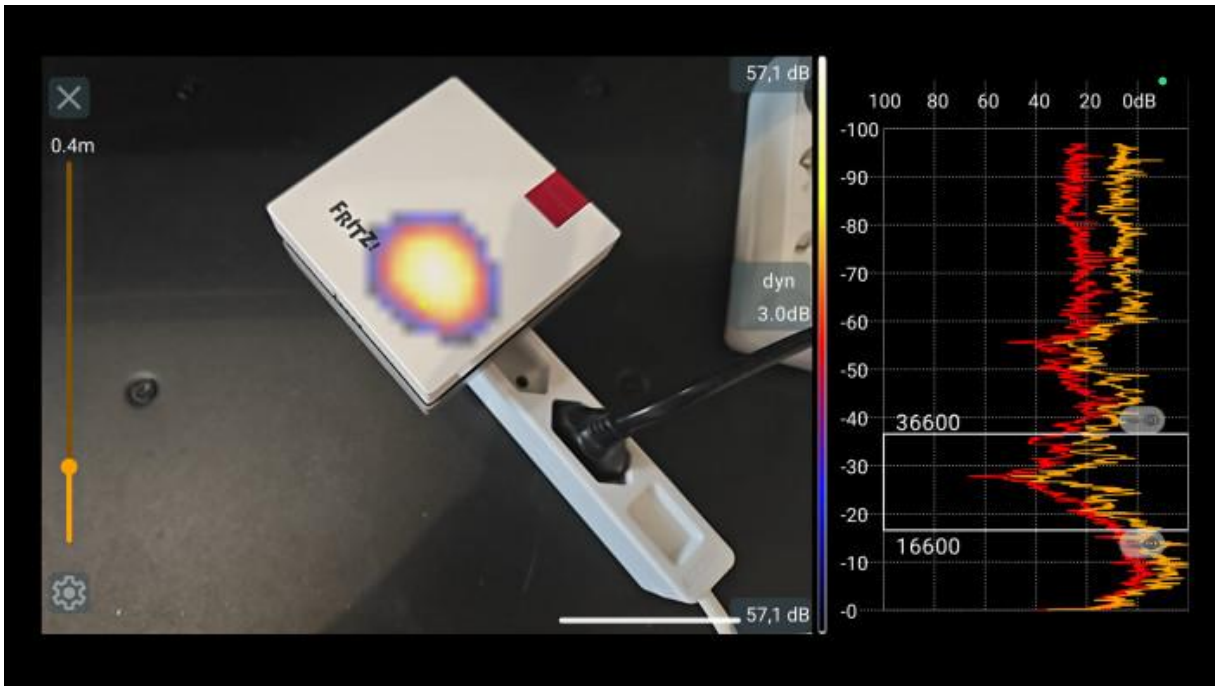
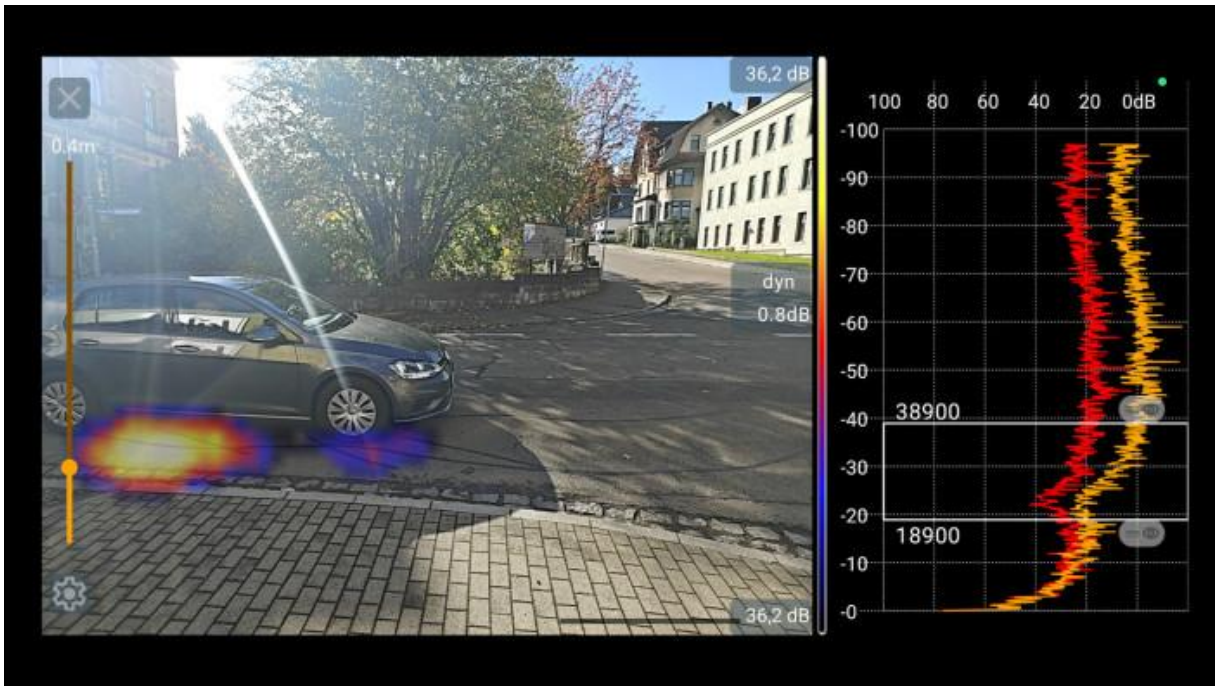
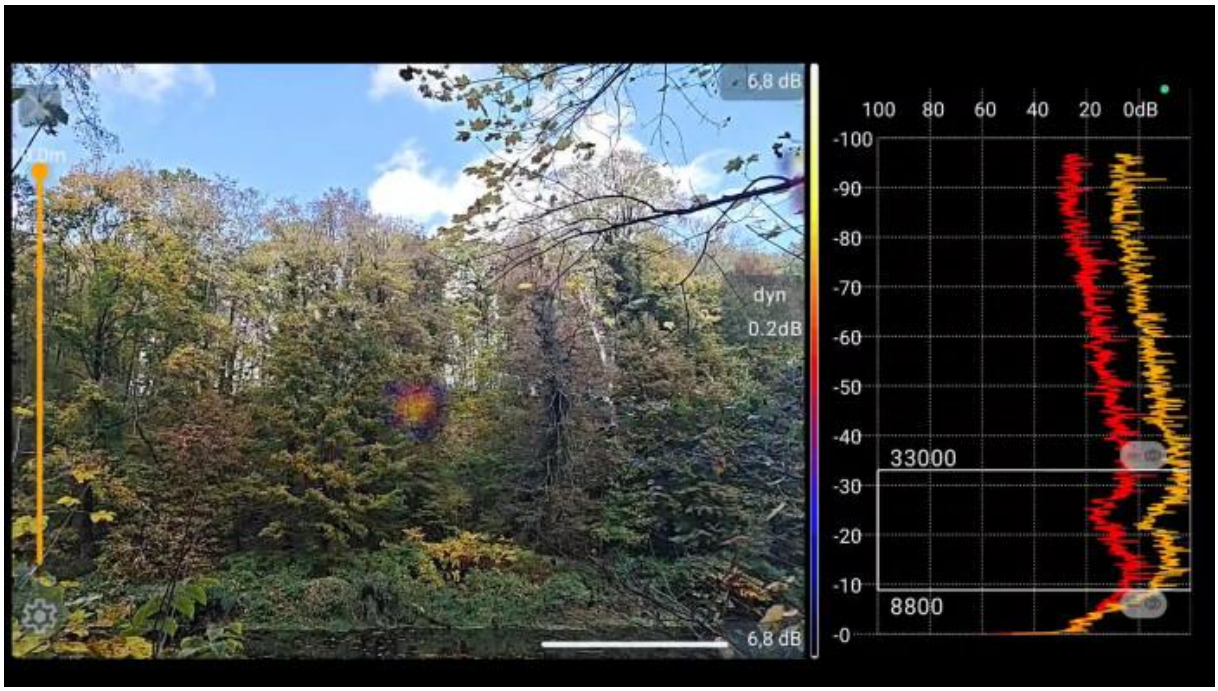


Figure 1/7: Power supplies and inverters in numerous devices emit ultrasound: not audible, but easy to see with the appropriate technology. (Source: SoundCam Go/Screenshot Golem)



Picture 2/7: A passing car is also clearly visible on a sound cam. (Source: SoundCam Go/Screenshot Golem)



Picture 3/7: In the forest, birds, falling leaves and airplanes could be tracked in the sky. (Source: SoundCam Go/Screenshot Golem)

Image 4/7: SoundCam Go, connected via USB-C (Source: Golem/Mario Petzold)

Image 5/7: The small device is barely the size of the palm of your hand (Source: Golem/Mario Petzold)

Picture 6/7: With a case with a magnetic ring, the SoundCam Go can be used on the go. (Source: Golem/Mario Petzold)

Image 7/7: The app shows the received spectrum as well as the sound source, superimposed on the camera image. (Source: Golem/Mario Petzold)

Mobile sonic viewfinder for the smartphone camera

With the SoundCam Go, the manufacturer wants to offer its technology in a shrunken form in the future, as an easy-to-use accessory to the smartphone. Golem was allowed to take a closer look at the pre-production model and go in search of sound himself.

The silver device, which fits comfortably in the palm of any hand and thus also on most medium to large smartphones, uses 72 microphones. They record a frequency spectrum between approximately 0 and 100,000 hertz (Hz).

The range beyond 20,000 Hz is no longer audible and is in the ultrasonic range. But according to the manufacturer, in addition to power supplies that emit in this area, there are also other sources, especially leaks, that are worth locating.

Compromises due to compact format

The fact that the small device can actually display the direction from which the respective sound source is transmitting is due to the synchronization of the microphones and the determination of tiny propagation time differences. Only the large number of receivers makes reliable tracking possible at all.

This works much better with high frequencies than with low frequencies. Beyond the audible, the display becomes almost precise; it is good up to 10,000 Hz and just possible up to about 4,000 Hz.

Size limits the possibilities

A look at the wavelength shows why this is the case. Sound travels at a speed of 340 meters per second. At 4,000 Hz, the wavelength is just under 8 cm, which is pretty much the diameter of the SoundCam. Below that, the differences in runtime can basically no longer be recorded.

The sound waves that can actually be located are superimposed on the displayed camera image of the smartphone, with the color and size of each making the direction and volume of the noise source visible.

By adjusting the measured spectrum, sensitivity and focus, individual frequency ranges can be shown and others can be hidden. Above all, this requires a little patience, practice and a few easy goals.

Search for drones, birds and hidden electronics

The question remains what the small SoundCam Go can do and what exactly its capabilities should be used for. Of course, the only thing that helps is to try them out directly on the road in the city and in the forest.

This went surprisingly smoothly despite the fact that the pre-production device was not yet fully developed. Although a few details about the position of the camera on the smartphone and its opening angle still have to be answered first, this should be made easier in the future by a growing database with this information.

In addition, you have to dare to play around with the frequency range in order to search more specifically for a desired sound source. The interaction between smartphone, SoundCam and app is not yet completely smooth.

Glowing walls, rustling leaves

One or two reboots were unavoidable. But once the system was up and running, it could actually get started. But what should you look for when the annoying mosquito is not at home and you rarely have to look for leaks in the non-existent compressed air system?

Not necessary at all, because from the LED ceiling light to the Wi-Fi repeater to a sound source that is displayed as curiously colorful spots in the middle of the wall, the SoundCam quickly uncovers a few exciting finds. The technology for the current conversion hums merrily in the ultrasonic range, we now know that.

It is also interesting to observe how the recorded spectrum clearly gains life as soon as you walk along a busy road. The SoundCam Go captures the sound emitted by the tires or reflected from the road. The differences between different types of vehicles are also interesting, which are clearly visible on the display in the form of larger or small spots.

The excursion into the forest is even more exciting. Here, it is more difficult to target individual sounds without technical support. The SoundCam does this much easier. Even the leaves falling between branches create colorful glowing dots.

The technology can really score points when a clearly audible bird appears, whose location we would only have guessed, and certainly not very well. The roar of a passenger plane is also reliably drawn in the sky.

Professional users in view

The technology could be used to locate insects in a meadow, make a drone visible in the sky, assign a direction to the singing of birds or search for the source of annoying disturbing noises in the home. For the planned price of 1,500 euros, however, such applications are unlikely to be an option.

If, on the other hand, you have to detect leaks in compressed air or gas pipes or are looking for disturbing ultrasonic signals for professional reasons, the SoundCam Go is supposed to be a mobile helper for a task that at least human ears cannot master. The results are not quite as precise and the recorded spectrum is not quite as wide as with the large models, but the price is not in the five-digit range either.

Series production is targeted for April 2026. On October 27, 2025, a campaign was launched on Kickstarter to finance the production

In the course of this, the first 50 models of the small SoundCam will be offered for just under 700 instead of 1,500 euros.

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