

4 smartphone sensors you can test in the Physics Toolbox app.

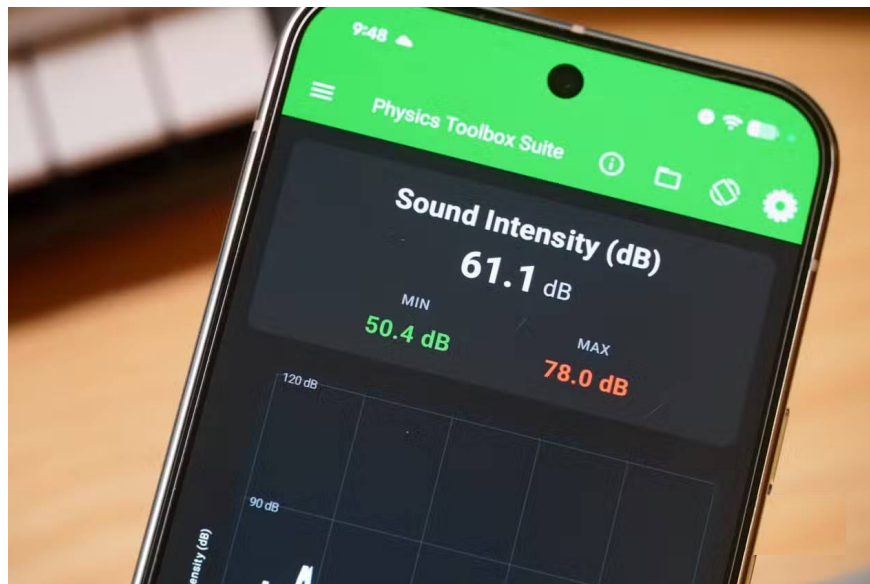
You can use the Physics Toolbox app to test the following four key smartphone sensors.

You can unlock every sensor inside your phone with the free Physics Toolbox app. It's a clever toolkit that leverages your phone's hidden hardware. Used by curious people, students, and professional researchers – Physics Toolbox is created by you. You can use the Physics Toolbox app to experiment with the following four key smartphone sensors.

1. [Download Physics Toolbox for Android](#) | [Download Physics Toolbox for iOS](#)

Micro

Measuring sound levels, identifying timbres, etc.

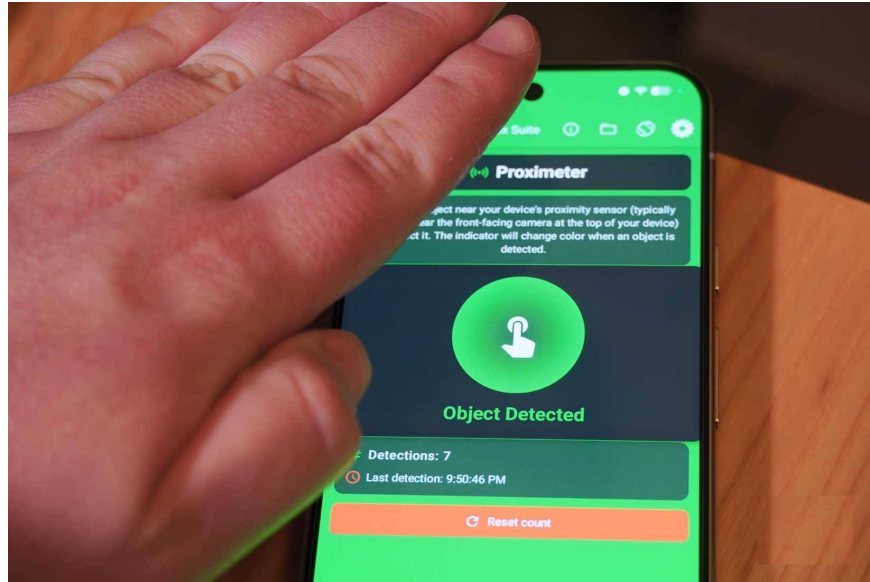


People use their smartphone microphones daily, but using them for calls and recordings is just the beginning of what they can do. With the Physics Toolbox app, you can measure sound levels in decibels in real time. The app records ambient sound measurements over time, displaying the results on a visual graph. It can also measure

sound as an oscilloscope, showing changes in volume as an electrical signal frequency.

Proximity sensor

Detect the presence of nearby objects without touching them.

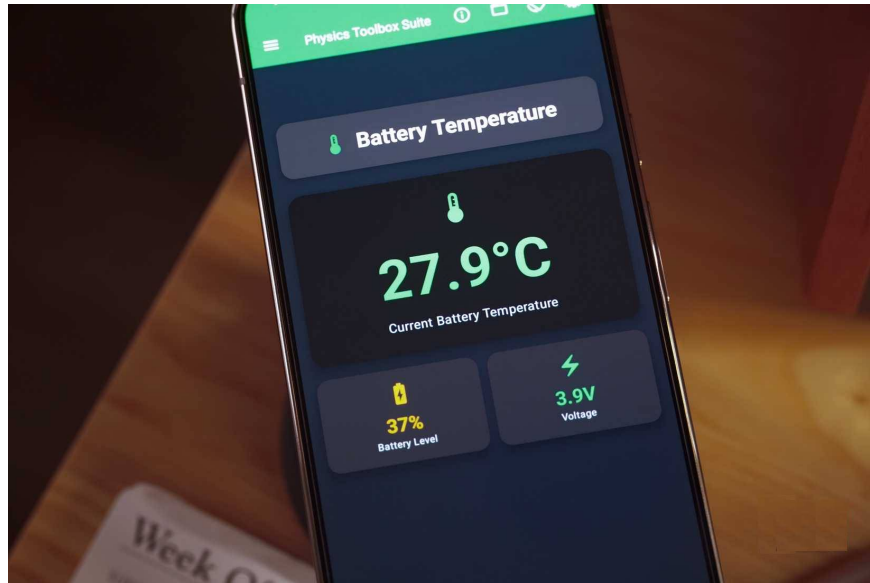


A lesser-known sensor hidden beneath a smartphone screen is the proximity sensor. It uses infrared light to detect the presence of nearby objects, typically those within one or two inches of the sensor. You may not realize it, but the proximity sensor powers important smartphone features – this is how the device knows to turn off the screen when you bring the phone to your ear during a call. In some cases, the phone's proximity sensor is also used for facial recognition or to measure the angle at which you hold the device.

You can test the proximity sensor yourself with the proximity measurement tool in the Physics Toolbox app. It allows you to interact with the sensor; the screen will light up green when it detects an object nearby.

Temperature sensor

Check how hot your battery (and phone) is getting.



Smartphones all have temperature sensors – and not the kind of "thermometer" you'll find on the Google Pixel Pro. In this case, we're talking about the internal temperature sensors that all smartphones use to regulate temperature, reduce performance, and manage battery health. Using the Physics Toolbox app, anyone can see the precise temperature of their phone's internal components in real time.

From plan

Detecting metallic objects by observing changes in the Earth's magnetic field.



Perhaps the most interesting sensor hidden inside your smartphone is the magnetometer. It has a practical application: it powers your phone's compass feature. It measures the Earth's magnetic field to determine your relative position. It finds magnetic north, which helps determine the device's orientation and points you in the right direction. The real fun begins when you try out the magnetometer and Magna-AR features in the Physics

Toolbox app.

The magnetometer tool records changes in the Earth's magnetic field, displaying the results on a real-time graph. This feature can detect large metals, and especially ferrous metals – acting as a makeshift metal detector. To take it a step further, the Magna-AR feature uses the magnetometer and your phone's camera to display the magnetic field changes overlaid onto your real-world surroundings. It's amazing!

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