

Sensors Are All Around Us

UNDERSTANDING SENSOR BASICS AND COMMON APPLICATIONS

Sensors are the hidden heroes behind the operation of vital instruments and everyday equipment. Tools used in agriculture, construction, university research and countless other industries benefit from the precision of sensors to carry out both simple and advanced functions. But what exactly is a sensor and where can you find them?

Any device that responds to an input stimulus to provide a relative output is considered a sensor. Most sensors produce an analog output which can then be converted into a digital value through electronics that interpret the output and manipulate it with a processor or microcontroller. The two types of sensors – active and passive – either provide or respond to stimuli and reflect a key measurement.



SATELLITE ANTENNAE

Not surprisingly, tilt sensors and inclinometers are behind the alignment of satellites small and large. Positioned inside antenna controllers, these and other sensors help in adjusting the azimuth and elevation of antennae based on existing positional information.



PEDOMETERS

Although most have an array of functions, smart watches and other activity trackers like Fitbits serve as upgrades of the standard pedometer – a portable device that counts steps. Modern pedometers utilize MEMS sensors paired with software to more accurately monitor your steps by perceiving acceleration on multiple axes.

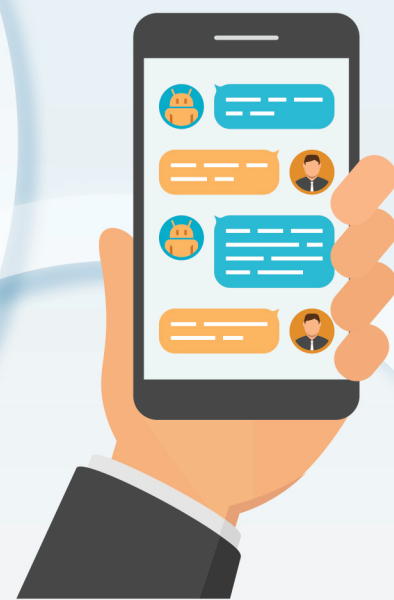
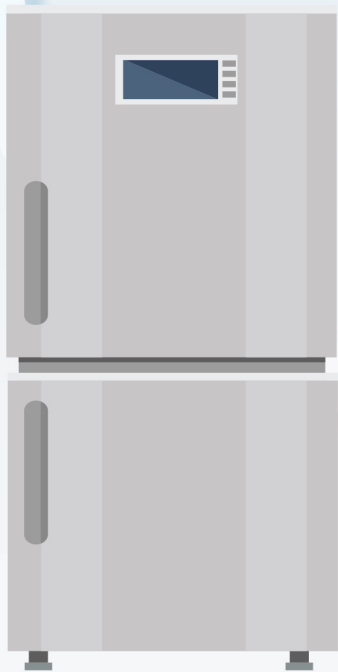
With improvements in microcontrollers and other platforms, sensor technology has evolved to aid in quantifying the world around us with increasing accuracy.

This advancement is evident in the development of microsensors that utilize MEMS (microelectromechanical systems) technology and can be found in everyday objects from inkjet printers to mobile phones.

HOME APPLIANCES

Sensors like thermocouples and resistance temperature detectors aid in temperature measurement, which is used in regulating heating and cooling systems, ovens, refrigerators and other home appliances. Thermocouples

can withstand extreme temperatures, which is why they're also ideal for use outside of the home in heat treating and other industrial ventures.



MOBILE PHONES & GAME CONTROLLERS

Frequent gamers might already be aware, but sensors are also featured in video game controllers and smart phones. By measuring tilt over two or more axes, tilt sensors and accelerometers pick up the various angles at which a device is held so you can navigate with Google Maps or play your favorite game.

WITH SO MANY UNIQUE FEATURES AND APPLICATIONS, SENSORS ARE EVERYWHERE YOU LOOK.

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