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Our world is becoming much smarter. Across our cities, homes and many aspects of our everyday lives, the increased intelligence going into everyday devices – ranging from thermostats and security systems to cars and even macro systems like our cities’ water or traffic management – is helping create a smarter, more connected world that delivers goods and services in ways that are more efficient than ever.

Millimeter wave (mmWave) technology is a key force in these more intelligent systems, providing crucial sensory information. TI recently introduced a family of mmWave radar sensors that offer highly accurate sensing in a smaller package than existing solutions. TI’s mmWave solutions have won Consumer Electronics Show (CES) Innovation Honoree awards for smart cities, tech for a better world and vehicle intelligence and self-driving technology; *Electronic Products*’ Product of the Year for sensors and *EE Times*’ ACE Award for sensors. Because of their small size combined with high accuracy, they are a good fit for a variety of applications, including automotive, robotics, intelligent automation and security, where size, reliability and cost concerns previously forced designers to rely on other solutions. From our cities to our homes to our everyday lives, mmWave technology is enabling a smarter world.

## Smart Cities

Today’s cities have already made huge leaps in intelligence, but they still have a long way to go to maximize efficiency and productivity. Integrating mmWave technology enables more intelligent resource management and can help ensure that city residents receive goods and services precisely when they need them. As our cars become smarter and move closer to becoming autonomous, a city’s infrastructure must become both smarter and more autonomous as well. This will not only help reduce traffic and congestion but can even help residents find the best parking spots. (Watch the [video](#))

TI mmWave radar sensors will be a key enabler of this transformation for both cars and the cities they drive in. For example, mmWave radar sensors can help cities reduce water waste by more efficiently managing their water system. These sensors can identify with submillimeter accuracy how much liquid is in a particular tank, thus detecting leaks more quickly and generating precise information about usage. Big data solutions can leverage that information to address leaks, achieve maximum efficiency and reduce waste. (Watch the [video](#))

## Smart Homes

Cities are not the only destination for increased intelligence; our homes will also greatly benefit from this increased intelligence and technology. Many of us are outfitting our homes with sensors and smart things, including switches, light bulbs, thermostats and other devices designed to make our homes more automated. It won’t stop with switches and thermostats. Even the way our cars will interact with our homes will become more intelligent, through automated parking and other applications, as mmWave radar sensors help enable the next generation of smart home technology.

For example, mmWave technology in a smart home could increase independence for critical populations like the elderly or disabled. By using radar rather than visual methods to detect and count the number of occupants in a room, mmWave sensors can unobtrusively identify if someone is at home and moving about – or if they’ve possibly fallen and can’t get up, regardless of which room, eliminating privacy concerns. (Watch the [video](#))

Extrapolated to an office setting, this same technology could help determine how many people are in the office on any given day and adjust the thermostat accordingly. In the event of a disaster, mmWave technology could inform first responders how many people were in the building when the event occurred and may be in need of rescue.

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## Smart Life

Even our everyday lives are becoming smarter. As automation continues to proliferate through factories, offices and many other places, mmWave technology is enabling new ways to interact with the world around us. For example, by being able to detect gestures, we no longer need to take our eyes off the road and reach for the radio dial to change stations or turn up a favorite song. It might even help eliminate the “who has the remote” argument as our TVs begin to recognize our gestures. (Watch the [video](#).)

Our world is getting smarter every day. As technologies like mmWave enable the automation of more and more functions, quality of life will improve as we take advantage of the increased efficiency to spend more time with our families, think more creatively or develop new products.

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