

News Release

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Verizon 5G Ultra Wideband network now live at University of Michigan's test bed for driverless cars

What you need to know:

- Verizon and Mcity are working at U-M's technology playground to develop 5G solutions for autonomous and connected vehicles
- Verizon's exploring how 5G-connected cars, traffic lights and cameras at intersections can boost pedestrian safety and avoid accidents
- 5G's massive bandwidth, super-fast speeds and ultra-low latency are designed to provide the backbone for autonomous vehicles

NEW YORK – Verizon is working with <u>Mcity</u> at the University of Michigan to

advance transportation safety and shape the future of autonomous vehicles and smart cities using 5G. The Verizon <u>5G Ultra Wideband</u> network is now live at the Mcity Test Facility where we are testing various 5G solutions designed to boost pedestrian safety and avoid car accidents. This includes installing 5G-connected cameras at every intersection inside the Mcity test track to help identify traffic and pedestrian patterns to prevent collisions. While connected cars have sensors that can "talk" to each other to help avoid accidents, cameras connecting to traffic light signals can help protect people

walking or biking.

Safer Intersections with 5G

"We've installed signal controllers at the intersections within Mcity that provide signal phase and timing data to the 5G network," said Eric Raamot, chief technology officer at Econolite. "With 5G, we can help drivers see things before the human eye can register, and prevent collisions by changing the traffic signals when a safety risk is imminent."

This is all made possible through several key components of 5G service – high bandwidth, low latency and the ability to connect hundreds of devices in a relatively small area. If each vehicle passing through an intersection is able to relay and receive information from other vehicles and streetlight cameras, that information can be used to notify cars when lights turn red or vehicles ahead come to a sudden stop. Verizon's 5G Ultra Wideband network is able to transmit all that data faster than the blink of an eye, enabling autonomous vehicles to react faster than humans when it comes to braking to avoid a collision.

When you consider that roughly <u>4.5 million people</u> were seriously injured in car accidents last year and <u>94 percent</u> of accidents are caused by human error, using 5G to help remove humans from the driving process with self-driving vehicles has the potential to reduce the number of fatalities a year. The massive bandwidth, super-fast speeds and ultra-low latency of Verizon's 5G Ultra Wideband network can provide the backbone for autonomous vehicles, helping them communicate better with other cars, traffic lights, pedestrians and emergency vehicles to avoid accidents.

"5G can change all of our lives by making our commutes a lot easier and safer," said Tami Erwin, executive vice president and CEO of Verizon Business Group. "Cars can communicate with each other in near real-time and with sensors installed in streets and traffic lights. They'll be able to almost instantly share information on roadway and weather conditions and alert you to dangerous situations ahead."

Verizon 5G Ultra Wideband service and Mcity

Verizon is part of Mcity's 'leadership circle' of 11 companies, including General Motors, State Farm and LG, which are all working to help fuel research, development and innovation in vehicle-to-vehicle and vehicle-to-infrastructure communications. We've been part of the Mcity public-private partnership since July 21, 2015 when U-M opened the Mcity Test Facility, the world's first controlled test center focusing specifically on intelligent transportation and autonomous vehicles.

"Testing new technologies in a safe, controlled environment is essential before deploying automated vehicles on public streets and highways," said Greg McGuire, associate director at Mcity. "Verizon 5G Ultra Wideband can have a profound impact on smart vehicle technology. By giving the companies who are testing here access to Verizon's 5G network, we're hoping they can improve on their existing technology and potentially create applications that don't even exist yet to make our roads and intersections safer."

The Mcity Test Facility sits on a 32-acre site on U-M's North Campus Research Complex, with more than 16 acres of roads and traffic infrastructure. The full-scale outdoor laboratory simulates the broad range of complexities vehicles encounter in urban and suburban environments.

Learn more about <u>Verizon 5G technology</u> and other initiatives like the Verizon Built on 5G Challenge.

Verizon Communications Inc. (NYSE, Nasdaq: VZ), headquartered in New York City, generated revenues of \$130.9 billion in 2018. The company operates America's most awarded network and the nation's premier all-fiber network,

and delivers integrated solutions to businesses worldwide. With brands like Yahoo, TechCrunch and HuffPost, the company's media group helps consumers stay informed and entertained, communicate and transact, while creating new ways for advertisers and partners to connect. Verizon's corporate responsibility prioritizes the environmental, social and governance issues most relevant to its business and impact to society.

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