



One-third of US vehicle crashes with injuries or fatalities could be avoided or mitigated with AEB

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New accident research from Bosch shows potential benefits if all vehicles were equipped with Automatic Emergency Braking

- ▶ Presence of AEB could mitigate or avoid altogether up to 649,000 crashes with injuries or fatalities in U.S.
- ▶ AEB technology continues to evolve to protect more groups on roadways – like pedestrians and cyclists
- ▶ Electronic stability control – on every new vehicle¹ in U.S. since the 2012 model year – estimated to have saved 9,000 lives from 2015-2018

Plymouth, Mich. – New data from the National Highway Traffic Safety Administration (NHTSA) shows an increase in motor vehicle traffic crash fatalities of 10.5 percent for the first quarter of 2021 when compared to Q1 2020². This is despite a 2.1 percent decrease in vehicle miles travelled (VMT) over that time as reported by the Federal Highway Administration (FHWA). For all of 2020, traffic fatalities in the United States were up 7.2 percent over 2019, despite a 13 percent decrease in VMT. Both the Q1 2021 and total year 2020 figures are the largest number of fatalities since 2007.

Technology plays a key role in helping to reduce vehicle accidents and the associated fatalities and injuries. New accident research from Bosch shows the potential of Automatic Emergency Braking (AEB) to notably improve roadway safety. According to Bosch's research, when AEB is present in all vehicles, it could help mitigate or avoid altogether up to 649,000 vehicle crashes with injuries or fatalities each year – a 35 percent reduction.

“AEB technology for vehicles is available today to support safer traveling for all road users,” said Dr. Kay Stepper, senior vice president automated driving, driver assistance for Bosch in North America. “It only takes over in specific instances to help avoid or mitigate an incident.”

¹ Every new vehicle up to 10,000 pounds gross vehicle weight

² [Traffic Safety Facts](#), August 2021

Bosch's research was conducted using data from Crash Report Sampling System (CRSS) provided by the U.S. Department of Transportation, which was analyzed to address relevant collision scenarios which could potentially be addressed by AEB technology. The process provided a model to estimate the potential impact of AEB technology assuming 100 percent vehicle penetration of the technology.

Protecting vulnerable road users with applications of AEB

AEB uses a forward-facing radar, camera sensors or a combination of both to monitor a vehicle's path of travel for imminent collision threats. The technology was first launched by Bosch in 2010 to support avoidance of rear-end vehicle collisions. AEB's capabilities have evolved to include detection of pedestrians (AEB for Pedestrians) and cyclists (AEB for Cyclists) – further elevating levels of safety for all roadway users.

The Bosch accident research showed that of the more than 1.8 million vehicle crashes with injuries or fatalities in 2018 in U.S., nearly 594,000 could have been mitigated or avoided with AEB; 36,000 with AEB for Pedestrians; and 19,000 with AEB for Cyclists. The total of all three technologies together means AEB technologies could mitigate or avoid altogether up to 649,000 vehicle crashes with injuries or fatalities per year in the U.S. In other words, about one-third of U.S. vehicle crashes with injuries or fatalities could be avoided or mitigated with AEB technology annually.

"We are continuing to advance vehicle safety in a way that protects vulnerable road users of many types – from drivers and passengers to pedestrians and cyclists," Stepper said. "AEB is not a static technology, it's one where we've leveraged Bosch's 'Invented for Life' ethos to continue to push the boundaries of what's possible to keep people safe."

Bosch camera technology continues to advance object recognition to support applications of AEB using a combination of a unique multi-path approach and artificial intelligence (AI). The camera can recognize and classify pedestrians, even when they are 50% concealed. In congested urban traffic, the camera can also recognize and classify partially obscured or crossing vehicles, pedestrians, and cyclists. Recognition and classification allows the vehicle to trigger a warning or emergency braking.

The latest generation of Bosch radar sensors capture the vehicle's surroundings – and demonstrate improved performance in bad weather or poor light conditions due to their detection range, wide aperture, and high angular resolution.

It starts with consumer education

Encouraging higher adoption rates of AEB starts with consumer education, but requires joint efforts between academia, government and industry.

NHTSA's New Car Assessment Program (NCAP) provides comparative new vehicle safety information to assist consumers with purchasing decisions and encourages manufacturers to improve vehicle safety. The formal addition of AEB to the program, coupled with the creation of a new crash avoidance rating, could help improve consumer awareness and adoption of a technology that notably reduces crashes.

Technology drives safety advancements

Dating back to the early 1970s when Bosch started researching new safety technologies for vehicles, the goal has been to make roadways a safer place. From adapting radar systems for automotive use to the introduction of anti-lock braking systems (ABS), these foundational technologies have continued to advance to help make roads safer for everyone.

In fact, NHTSA estimates that electronic stability control systems, which Bosch first unveiled in 1995 and which have been mandated since model year 2012 for all new cars in the U.S. weighing 10,000 pounds or less, saved approximately 9,000 lives in the U.S. between 2015 and 2018.³

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Having established a regional presence in 1906 in North America, the Bosch Group employs 34,700 associates in more than 100 locations, as of December 31, 2020. According to preliminary figures, Bosch generated consolidated sales of \$13.1 billion in the U.S., Canada and Mexico. For more information, visit www.bosch.us, www.bosch.ca and www.bosch.mx.

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³ NHTSA estimates the technology saved more than 2,000 lives from 2008-2010 and more than 7,000 lives for the 5-year period from 2011 – 2015. [Traffic Safety Facts](#), November 2012 and [Traffic Safety Facts](#), March 2017

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