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Victor Kustra

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Victor Kustra*

I. INTRODUCTION

The Smith family has planned a cross-country summer vacation, traveling from Pennsylvania to California, and Mr. and Mrs. Smith decided that driving in their brand new minivan would be a productive way to bond with his family. After several hours in the minivan, the Smiths' three young children become restless and begin to argue. Mrs. Smith, who is sitting in the front passenger seat, tries to physically separate the children. Despite this commotion, Mr. Smith attempts to maintain his focus on the road as a heavy rain begins to fall. The windshield wipers are on full tilt, but Mr. Smith is unable to see anything outside the immediate glow of his headlights. Luckily, the new technology in the minivan is connected to other vehicles on the road, and Mr. Smith is alerted that a vehicle three thousand feet ahead has just slammed on its brakes. Without this warning, Mr. Smith likely would have collided with the vehicle ahead.

Despite the fortunate outcome in this hypothetical Smith scenario, automobile accidents and roadway infrastructure problems are increasing in the United States.[1] Specifically, 5.7 million automobile accidents were reported in 2013.[2] The number of automobile accidents caused by lane drifting has increased over the past fifteen years, given the increased number of drivers on the road.[3] Thirty-thousand deaths per year result from automobile accidents.[4] Moreover, Americans waste 4.8 billion

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* J.D. Candidate, 2017, University of Pittsburgh School of Law; Staff Editor, *University of Pittsburgh Journal of Technology Law and Policy*.

[1] Dorothy J. Glancy, *Sharing the Road: Smart Transportation Infrastructure*, 41 FORDHAM URB. L.J. 1617, 1618 (2014).

[2] *Id.*

[3] Kevin Funkhouser, *Paving the Road Ahead: Autonomous Vehicles, Products Liability, and the Need for a New Approach*, 2013 UTAH L. REV. 437, 442 (stating 62,000 traffic accidents occurred in 1999 due to drifting).

[4] Leland Key, *Beyond Safety: Why Congress Needs to Think of Connected Cars as a Trillion-Dollar Market*, VENTURE BEAT (Aug. 8, 2015, 2:00 PM), http://venturebeat.com/2015/08/08/beyond-safety-why-congress-needs-to-think-of-connected-cars-as-a-trillion-dollar-market/.

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hours sitting in traffic annually, and wasted 3.9 billion gallons of fuel in 2009 alone.[5] Based on these statistics, it is clear that changes must be made to reduce accidents and clear up our congested roadways in order to make the roads safer.

The National Highway Traffic Safety Administration (NHTSA) and the United States Department of Transportation (USDOT) have developed a cumulative solution to these problems. These agencies will attempt to make the fictional "Smith" scenario a reality, and require Connected Vehicle (CV) technology in all new automobiles.[6] CV technology is part of the USDOT's "Intelligent Transportation Systems" (ITS) initiative.[7] The ITS initiative targets automobile crash avoidance and better traffic flow through the use of automated technologies.[8] CV technology allows one vehicle to relay messages containing traffic and accident information to another vehicle in real time and in advance of roadway impediments.[9] In 2015, the NHTSA announced its plan to move forward with a proposal that would require CV technology in all new automobiles.[10]

Contrary to the USDOT's projections, the proposed CV requirement in all new automobiles may contribute to automobile accidents, and may decrease the likelihood of legal redress for injured plaintiffs to pursue recovery and receive compensation. Society's continued reliance on technology has reached a point where it has made our roads more dangerous, rather than safe. Despite technology's contribution to our dangerous roadways, the NHTSA attempts to make the roads safer through the requirement of technology in automobiles.[11] The NHTSA will place our lives in the hands of unreliable and underdeveloped CV technology.[12] Federal or state enforcement of more diligent driver's education programs is a more realistic way to reduce automobile accidents.

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[5] Glancy, *supra* note 1, at 1618.

[6] *ITS Strategic Plan 2015–2019*, U.S. DEP'T OF TRANSP., http://www.its.dot.gov/strategicplan.pdf (last visited Sept. 13, 2015).

[7] *Id.* at v.

[8] *Id.*

[9] *Id.* at 16.

[10] *Transportation Sec. Foxx Announces Steps to Accelerate Road Safety Innovation*, NAT'L HIGHWAY TRAFFIC SAFETY ADMIN. (May 13, 2015), http://www.nhtsa.gov/About+NHTSA/Press+Releases/2015/nhtsa-will-accelerate-v2v-efforts.

[11] *ITS Strategic Plan 2015–2019*, *supra* note 6.

[12] *Connected Vehicle Research: Connected Vehicle Frequently Asked Questions*, U.S. DEP'T OF TRANSP., http://www.its.dot.gov/connected_vehicle/connected_vehicles_FAQs.htm (last updated Sept. 15, 2015, 2:13 PM) [hereinafter *Frequently Asked Questions*].

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This article will demonstrate why CV technology will not reduce automobile accidents, but instead have the converse effect. Part II of this article will discuss the background and development of CV technology within the NHTSA. Part III of the article will illuminate the problems with this technology, and how CV will contribute to automobile accidents. Part IV will explain how CV technology will limit legal redress for those individuals harmed in automobile accidents, and how the judicial system will not save accident victims from technology's shortcomings. Finally, Part V will detail why it is important to remember that driving an automobile is a privilege, and that drivers must take personal responsibility behind the wheel in order to ensure safe and efficient roadways.

II. What Is Connected Vehicle (CV) Technology?

CV technology combines communications, internal vehicle sensors, roadway sensors, and analytic technologies to electronically connect vehicles and warn drivers of roadway impediments.[13] CV technology "connects the dots" of information that drivers may need behind the wheel, including everything from roadway emergencies to severe weather.[14] Wireless connectivity among vehicles is designed to get drivers from one destination to another as safely and efficiently as possible.[15] A hypothetical example of when this technology executes perfectly is the CV technology installed in the Smiths' vehicle. When the driver 3,000 feet ahead of the Smiths' vehicle slammed on the brakes, the Smiths' minivan was alerted to the sudden speed reduction and safely avoided a collision.

CV technology is just one part of the larger ITS initiative, which includes many technological advancements, such as automation and enterprise data, to create entire smart cities.[16] In 1991, Congress passed the Intermodel Surface Transportation Efficiency Act.[17] This Act established federal programs for the research and development of technology that would ultimately enhance road safety, and is known today as ITS.[18] Some of the earliest types of this technology (i.e., anti-lock brakes and cruise control) have already been installed in most operating vehicles.[19] Under

[13] Glancy, *supra* note 1, at 1626.

[14] *ITS Strategic Plan 2015–2019*, *supra* note 6, at iv–v.

[15] Glancy, *supra* note 1, at 1618.

[16] *Id.* at 1623.

[17] *Id.* at 1624.

[18] *Id.*

[19] *Id.*

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USDOT control, the NHTSA continues to develop these technologies through ITS, which includes CV technology, automation, emerging capabilities, enterprise data, and interoperability.[20] CV technology is the centerpiece of ITS, and is intended to carry the load of technological advances that contribute to safer roadways.[21]

The USDOT separates CV technology into two distinct categories. The first category involves CV systems that use Dedicated Short Range Communications ("DSRC") to send and receive vehicle communications.[22] The second category involves connective vehicle mobility applications, which uses cellular wireless signals to send and receive data from other vehicles and structures.[23] Examples of connected mobility applications that are seen in automobiles today include hands-free wireless phone applications and navigation systems. However, the NHTSA's proposal will only require CV technology that operates under DSRC.[24]

The DSRC operates in the 5.9 GHz band and was allocated by the Federal Communications Commission (FCC).[25] This 5.9 GHz band provides the speed, security and reliability necessary for adequate CV functionality.[26] The DSRC category of CV technology involves the placement of transmitters in vehicles that send the messages and warnings to drivers.[27] Thus, the success of CV technology is dependent upon the proper functionality of transmitters in vehicles. While it is important to recognize the potential benefits of this technology, it is equally necessary to analyze the potential flaws of CV technology.

III. CV Technology's Potential Contribution to Automobile Accidents

Imagine that Mr. Smith has taken a second summer road trip with his family in their minivan. Mr. Smith decided to drive through the night, so that his family could sleep in the van and pose fewer distractions to him. Mr. Smith has the van and the road to himself; no other vehicles appear to be in sight, and weather conditions appear to be perfect. In an attempt to allow his family to sleep peacefully, he turns the radio off. Suddenly, the CV technology in his van activates. Mr. Smith attentively

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20 *ITS Strategic Plan 2015–2019*, *supra* note 6, at 12–13.

21 Glancy, *supra* note 1, at 1626.

22 *Id.* at 1627–28.

23 *Id.*

24 Glancy, *supra* note 1, at 1629; *ITS Strategic Plan 2015–2019*, *supra* note 6, at 16.

25 Glancy, *supra* note 1, at 1631.

26 *Id.*

27 *Id.* at 1632.

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listens to the message, given that it has saved the lives of his family in the past. The CV technology informs Mr. Smith of a traffic jam one mile ahead caused by construction. As Mr. Smith is focused on listening to the message, he fails to see a deer that has just ran out in front of his van. Unfortunately, the CV technology required Mr. Smith to divide his attention between the road and the incoming message. Unable to give his full attention to the road, his ability to react is diminished and the van smashes into the deer. This time around, Mr. Smith and his family are not so fortunate.

An unavoidable consequence of automobile technology is that it distracts drivers from the roadway. While the NHTSA hopes that CV technology will operate successfully and create safer roads, as in the Smiths' first family road trip, the shocking reality is that CV technology will likely contribute to the rising number of automobile accidents. This portion of the article demonstrates why CV technology will fail to make the roads safer, and will explain the correlation between cognitive distractions, CV technology, and automobile accidents. The NHTSA is improperly forcing technology to solve the problems of driver safety and roadway infrastructure, and the NHTSA's lack of research with respect to CV technology will contribute to automobile accidents.

A. Cognitive Distractions

There are many negative consequences associated with conversations in automobiles, including deadly accidents. For instance, several jurisdictions, such as California, New York, and New Jersey, have taken steps to limit the use of cell phones while operating an automobile in order to decrease accidents.[28] A common misconception is that cell phone use requires drivers to take one hand off of the steering wheel, and that this lack of free hand causes automobile accidents.[29] However, accidents attributed to cell phone use are rooted in the cognitive distractions that are produced from drivers listening to what is said on the other end of the phone.[30] Thus, states seek to limit cell-phone use while driving because the hands-free cell phone technology fails to address the root of the problem, cognitive distractions.[31]

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[28] Jessica Croze, *How Hands-On Will Regulation of Hands-Free Be? An Analysis of SB 1613 and the Effectiveness of Its Proposed Regulation*, 31 HASTINGS COMM. & ENT. L.J. 463, 477–78 (2009).

[29] *Id.* at 478.

[30] Croze, *supra* note 28, at 478.

[31] *See* Dusty Horwitt, *Driving While Distracted: How Should Legislators Regulate Cell Phone Use Behind the Wheel?*, 28 J. LEGIS. 185, 202 (2002) (stating that the cognitive component of cell phone use makes drivers more likely to be involved in an accident).

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Much like a cell phone conversation, drivers will divert their attention to the messages conveyed through CV technology, resulting in cognitive distractions.[32] Drivers behind the wheel of a car with required CV technology knows that the information or alert signaled from another vehicle is most likely important, and their cognitive capacity will shift from the road to the technology.[33] As we have seen with the use of cell phones behind the wheel, cognitive distractions that cause drivers to shift his or her attention from the road to outside distractions can cause accidents.[34] Specifically, cognitive distractions contribute to the nine automobile-related deaths that occur every day in the United States.[35] The cognitive distraction produced by CV technology will reduce the driver's reaction time, negating any benefit from a warning that the technology may provide to drivers.[36] Through the CV technology proposal, the NHTSA will require technology that produces the same distractions that a majority of states have banned, or have attempted to eliminate.[37] CV technology is likely to contribute to automobile accidents, and is counterintuitive to legislation that has already attempted to decrease automobile accidents.

B. "Technology-Forcing:" Agency Development of New Technology to "Fix" America's Roadways

The NHTSA is confident that CV technology will reduce accidents and roadway infrastructure problems, such as traffic congestion.[38] "Technology forcing" is a method that has been used by the NHTSA with regard to the automobile industry issues for years. "Technology forcing" allows the NHTSA to efficiently solve a problem related to the automobile industry, such as accident and infrastructure problems, solely through the implementation of new technology.[39] However,

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[32] *See id.* (noting that cognitive distractions result from information conveyed through a wireless cell phone); *see also* Key, *supra* note 4 (asserting that CV will wirelessly broadcast information to vehicles).

[33] *See* Croze, *supra* note 28, at 478 (stating that cognitive distractions produce automobile accidents).

[34] *See id.*

[35] *Injury Prevention and Control: Motor Vehicle Safety*, CENTERS FOR DISEASE CONTROL AND PREVENTION, http://www.cdc.gov/motorvehiclesafety/distracted_driving/ (last updated Aug. 13, 2015).

[36] *See* Paul K. Hentzen, *The Trouble with Telematics: The Uneasy Marriage of Wireless Technology and Automobiles*, 69 UMKC L. REV. 845, 847 (2001) (stating that cognitive distractions reduce reaction time).

[37] *Cellular Phone Use and Texting While Driving Laws*, NAT'L CONF. OF STATE LEGISLATURES (July 1, 2015), http://www.ncsl.org/research/transportation/spotlight-distracted-driving.aspx.

[38] *ITS Strategic Plan 2015–2019, supra* note 6, at iv.

[39] *Id.* at 335.

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adequate research is necessary for "technology forcing" to be successful.[40] The development of technology such as CV is unpredictable.[41]

In order for "technology forcing" to be successful, the government or agency must be aware of the problems it wants to solve.[42] The NHTSA has identified several roadway problems, such as deadly automobile accidents;[43] however, "technology forcing" has only proven an efficient regulatory program when costs of new technology implementation are low.[44] The implementation of CV technology will not be efficient, given the difficulty in projecting the costs of CV on a market-wide scale.[45] Further, implementation of CV technology in new vehicles may prove to be inefficient given the potential lower costs of other regulation options.[46]

In addition to low costs, "technology forcing" is appropriate only if the agency is capable of gathering the proper information on the technology.[47] Here, the NHTSA has admitted to several research challenges regarding CV technology, including technical challenges, testing, the inexistence of benefits that warrant implementation, and whether the technology is safe for use.[48] Thus, the NHTSA is pushing for technology to solve roadway infrastructure and accident problems without the proper research or consideration of other regulatory options. Premature implementation of this technology into new vehicles in order to solve the identified problems will prevent CV technology from success.[49]

C. Lack of Research

The implementation of any new technology as a solution comes with risks. As the old adage goes, "with great risk, comes great reward." However, there is a difference between a calculated risk and a mere shot in the dark. The NHTSA has admitted that there are several questions pertaining to CV technology research that

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[40] *Id.* at 333.

[41] *Id.*

[42] *Id.* at 337.

[43] *See ITS Strategic Plan 2015–2019*, *supra* note 6, at iv–v.

[44] Jay P. Kesan & Rajih C. Shah, *Shaping Code*, 18 HARV. J.L. & TECH. 319 (2005).

[45] *Id.*

[46] *See id.* (stating that technology forcing has only proven to be efficient where the costs of a new technology are less than that of other regulatory options).

[47] *Id.* at 336.

[48] *See Frequently Asked Questions*, *supra* note 12.

[49] *See* Kesan & Shah, *supra* note 44, at 336 (arguing that technology forcing has only been successful where proper research is conducted).

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still needed to be answered with regard to CV technology research.[50] The NHTSA may argue that it is simply impossible to resolve all research-related doubt prior to the implementation of new technology. However, this article suggests that significant gaps in research related to CV technology are sufficient to establish that the NHTSA has not conducted proper research on the technology they are proposing.[51]

The NHTSA mandates that technology developed by ITS complete four stages: research, development, adoption, and deployment.[52] While other ITS technologies must endure all phases, the NHTSA has confessed that they are skipping the research, development and adoption phases, and plan to immediately thrust CV technology into the deployment phase.[53] Thus, the NHTSA has admitted to shortcomings with regard to research of CV technology (the first step in any ITS technology). Despite a lack of research with respect to this technology, the NHTSA calls for hasty deployment of vehicles with CV technology into the market and onto the roads.[54]

The NHTSA plans to retroactively develop this technology after it is already implemented on the roads.[55] This plan of action will likely result in the failure of CV technology, and a decrease in automobile accidents will be unlikely.[56] The cognitive distraction produced by CV technology, in conjunction with the hasty federal deployment mandate of this technology in all new vehicles in the absence of research, indicates that CV technology will likely contribute to automobile accidents. Further, there is a congressional push to open the 5.9GHz band to wireless communications unrelated to CV technology.[57] This means that other electronic devices outside of CV technology may compromise an essential component of CV functionality, that is safety from outside wireless interference.[58] Through this requirement, the NHTSA and USDOT plan to place American lives in the hands of technology that is distracting and underdeveloped, and the results could be disastrous.

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[50] *Id.*; *ITS Strategic Plan 2015–2019*, *supra* note 6, at 15.

[51] *See Frequently Asked Questions*, *supra* note 12.

[52] *ITS Strategic Plan 2015–2019*, *supra* note 6, at 11.

[53] *Id.* at 15.

[54] *Id.*

[55] *Id.*

[56] *See generally* Kesan & Shah, *supra* note 44, at 336.

[57] *See* Glancy, *supra* note 1, at 1630–31 (discussing how the 5.9GHz band is essential to CV functionality, and that this band may be opened up to other wireless devices).

[58] *See id.* at 1631.

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IV. IMPLICATIONS ON THE LAW AND RECOVERY

After Mr. Smith called a tow truck to move his vehicle from the road, the Smiths' decide to cancel the trip and head home. The trauma experienced as a result of their collision has taken most of the excitement away from the trip. After the family returns, Mr. Smith begins to experience sharp pains in his neck and back. Mrs. Smith suggests that he go to the doctor for an accurate diagnosis. Medical tests and examinations reveal that Mr. Smith has suffered from a serious back injury, and will need multiple surgeries that cost thousands of dollars. Mr. Smith's health insurance will not likely cover the costs of surgery, nor the emotional stress caused by this accident. Also, Mr. Smith will likely have to miss work after the surgeries, and will not have a vested income.

Who is responsible for Mr. Smith's injuries? Given the seriousness and costs of automobile accidents, it is common for accident victims, as well as those not injured in accidents, to seek legal redress.[59] This section of the article will analyze the legal difficulties that will likely arise from the presence of CV technology in automobiles. Specifically, it will explain why CV technology curbs a plaintiff's ability to file a claim against automobile manufacturers, and how the technology's unique characteristics will make it hard for plaintiffs to succeed in those few claims successfully filed. This section of the article will consider these difficulties in light of products liability lawsuits and breach of implied warranty of merchantability claims against automobile manufacturers. Those potentially injured by CV technology face many questions. Unfortunately, they will likely not receive answers or assistance from the courts.

A. Current Trends in Personal Injury Litigation

Common methods of legal recovery for those injured in automobile accidents without an at-fault driver include products liability lawsuits and lawsuits that assert breach of implied warranty of merchantability.[60] Motor vehicle accident claims against automobile manufacturers are frequent, and this inclination towards suing manufacturers will likely continue given current jurisdictional trends.[61] However, jurisdictions such as Pennsylvania have declined to adopt the *Restatement (Third) of Torts Products Liability* § 1, which involves liability for those who *sell* or

[59] Sheila B. Scheuerman, *Against Private Liability for Private Risk-Exposure*, 35 HARV. J.L. & PUB. POL'Y 681, 686 (2012).

[60] *See id.* at 686–91 (stating that the automobile industry has seen an increase in implied warranty of merchantability claims); *see also* Funkhouser, *supra* note 3, at 440–41 (arguing that automobile accidents that arise from the use of autonomous technology will result in products liability claims).

[61] Scheuerman, *supra* note 59, at 682.

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manufacture goods.[62] This means that Pennsylvania drivers injured in vehicles with CV technology may be unable to seek redress from manufacturers; who is left to be held responsible?

It is inevitable that automobile accidents will increase as technology's presence expands in vehicles.[63] Based on historical practices and common trends, those injured in new automobiles equipped with CV technology may be limited to lawsuits against automobile manufacturers.[64] The presence of CV technology in automobiles further limits the chances of recovery for those injured in automobile accidents, given that CV technology is partially autonomous, and has been characterized as a "partial control system."[65] Thus, the presence of CV technology in automobiles will limit both an injured plaintiff's ability to bring a claim and his or her likelihood of success in that claim.

B. Products Liability: Lawsuits Against Manufacturers

Consumers will face significant obstacles when seeking legal redress from manufacturers in automobile accidents as more advanced technology finds its way into automobiles.[66] In order to recover in a products liability claim, a plaintiff must prove that the product malfunctioned, or that the product suffered from a clear defect.[67] According to the malfunction doctrine, a plaintiff must show that the product malfunctioned, that the malfunction occurred during regular or proper use, and that the product was not altered or misused to lead to a malfunction.[68] In the alternative, a plaintiff must show that the product suffered from some clear defect.[69] While these tests do not seem burdensome on their face, the characterization of CV technology as a "partial control system" will make it difficult for a plaintiff to prove that the technology malfunctioned or was defective.[70] Even where accidents occur,

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[62] Tincher v. Omega Flex, 104 A.3d 328, 335 (Pa. 2014); RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 1 (1998).

[63] Funkhouser, *supra* note 3, at 453.

[64] *See* Scheuerman, *supra* note 59, at 682; *see also* RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 1 (1998).

[65] Funkhouser, *supra* note 3, at 442.

[66] *Id.* at 453.

[67] *Id.*

[68] *Id.* at 455.

[69] *Id.*

[70] Funkhouser, *supra* note 3, at 442.

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drivers are ultimately left in control of the vehicle despite the sophistication of CV technology.

An appropriate way to examine the legal impact of CV technology as a partial control system is to analyze fully-autonomous vehicles, or cars with technology that has complete control over the vehicle. Autonomous vehicles will shift liability from consumers to manufacturers.[71] Still, plaintiffs injured in an autonomous vehicle accident may experience difficulty in proving that the autonomous technology suffered a defect.[72] This difficulty is attributed to the fact that technology in automobiles is susceptible to the incorrect analysis of data.[73] The fact that autonomous technology may analyze data incorrectly does not necessarily mean that the product malfunctioned.[74] However, manufacturers will have an equally difficult time defending their autonomous vehicle in the event of an accident because technology, as opposed to the driver, maintains control of the vehicle.[75] Thus, the propensity of the operator to analyze surroundings and make appropriate decisions is a non-factor when considering the cause of the autonomous automobile accident.

Similar to autonomous vehicles, CV technology will incorrectly analyze data at some point.[76] Unlike autonomous vehicles, cars equipped with CV technology will ultimately leave drivers in control of the vehicles, given that the technology only wirelessly connects to other vehicles and infrastructure to send messages and does not drive the cars like automated vehicles.[77] Thus, drivers in vehicles equipped with CV technology will be able to analyze their surroundings behind their steering wheels and have the abilities to take appropriate actions as necessary.[78] It follows that the partial control system characteristic of CV technology will shift liability from manufacturers to consumers.[79] Even if an accident occurs due to a defect or malfunction with the CV technology, courts will be able to focus on mistakes made by drivers that contributed to the accident as opposed to the technological

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[71] *Id.* at 452.

[72] *Id.* at 455.

[73] *Id.*

[74] *Id.*

[75] *Id.* at 453.

[76] *See id.*

[77] *See Frequently Asked Questions*, *supra* note 12.

[78] *See* Funkhouser, *supra* note 3, at 454 (stating that human operators analyze surroundings and take appropriate action while driving).

[79] *See id.* at 452 (arguing that autonomous vehicles will shift liability from consumer to manufacturer given the driver's inability to make decisions for the vehicle).

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malfunction.[80] Those injured at the hands of defective CV data will experience difficulty recovering on the basis of product liability.[81]

C. Lawsuits Against Manufacturers: Breach of Implied Warranty of Merchantability

The automotive industry has seen an increase in breach of implied warranty of merchantability claims over the years.[82] The essential elements to implied warranty claims are actual harm to the plaintiff and an actual product malfunction during normal use.[83] This article has already attempted to establish that CV technology will likely contribute to automobile accidents, and that recovery based on proof of a malfunction will be difficult.[84] Accident victims, such as Mr. Smith, will likely satisfy the first prong of an implied warranty of merchantability claim, given that they have an actual injury. What about individuals who have purchased vehicles with the required CV technology already installed, and have not been involved in accidents? Given the likelihood of an automobile accident in general, and the legal difficulties imposed on those injured in a vehicle with CV technology, plaintiffs may wish to bring claims against the manufacturer for breach of implied warranty of merchantability in anticipation of injuries.

These anticipatory claims are referred to as "no-injury" lawsuits, which automobile manufacturers have endured in the past.[85] The implied warranty of merchantability does not require that a product be free of all speculative risks.[86] Historically, plaintiffs have not been successful in asserting these anticipatory claims, given the judicial reliance on the essential implied warranty of merchantability elements of actual damage and malfunction.[87] The NHTSA and USDOT wish to require CV technology with the anticipation of success; however,

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[80] *See id.* at 454 (stating that drivers have the ability to make decisions and take appropriate action).

[81] Scheuerman, *supra* note 59, at 698.

[82] *See id.* at 686–91, for a discussion of the Toyota scare.

[83] *Id.* at 699–702.

[84] *See* Funkhouser, *supra* note 3, at 452 (arguing that autonomous vehicles will shift liability from consumer to manufacturer given the driver's inability to make decisions behind the wheel).

[85] *See* Scheuerman, *supra* note 59, at 686–91, for a discussion of no-injury lawsuits where consumers brought claims in fear that their Toyota's gas pedal would stick.

[86] *Id.* at 704–05.

[87] *Id.* at 697 (stating that actual injury and malfunction are necessary to a breach of implied warranty of merchantability claim).

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consumers are prohibited from bringing a lawsuit against manufacturers in anticipation of likely malfunction and injury.[88]

Even more troubling than the unlikelihood of a plaintiff recovering from the manufacturer is the fact that courts will defer to the appropriate agency to make proper changes in the technology to prevent further accidents.[89] Rather than stepping in to make a swift change for automobile consumers, the courts will choose to give deference to the NHTSA to go through a lengthy legislative process.[90] Through this action, the judicial system takes dangerous technology and places it in the hands of those who are responsible for its flaws that likely contributed to the plaintiff's injury in the first place.

V. SOLUTION: DRIVER'S EDUCATION REFORM

A practical, long-term approach that can reduce automobile accidents and make roadways more efficient is to focus on driver statistics and push for driver's education reforms. Currently, discretion with regard to driver's education programs is left with the states.[91] Congress should enact federal legislation that requires driver's education among teenagers, given that teenagers are the most likely group of drivers to be involved in a car accident.[92] This legislation should include requirements that make driver's education more rigorous to ensure that those who receive their license are actually prepared to drive. It is important to remember that driving a vehicle is a privilege, not a right.[93] Rather than feed into the youth's desire for technology and require it in automobiles to solve these problems, the legislature should require education that sets a standard of maturity on the roads. A reduction in accidents among teens necessitates an overall reduction in all automobile accidents.[94]

The NHTSA believes that it is capable of instantly reducing automobile accidents with one technology requirement. A more realistic way to decrease automobile accidents is to target teenagers and young people, the class of drivers

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[88] *See ITS Strategic Plan 2015–2019*, *supra* note 6, at 15.

[89] *See* Scheuerman, *supra* note 59, at 704–05 (noting that change must come from administrative agencies).

[90] *Id.* at 703.

[91] *Driver Education Practices in Selected States*, U.S. DEP'T OF TRANSP. (July 2011), http://www.nhtsa.gov/staticfiles/nti/pdf/811420.pdf [hereinafter *Driver Education Practices*].

[92] *See Driver Education Practices*, *supra* note 91, at 3.

[93] *See* Bell v. Burson, 402 U.S. 535 (1971); *see also* Jones v. Penny, 387 F. Supp. 383, 392 (M.D.N.C. 1974) (stating that there is no substantive constitutional right to drive an automobile).

[94] *See id.* at 1 (stating that teens are most likely to be involved in an automobile accident).

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who account for more than fifty-eight percent of costs associated with automobile accidents.[95] Automobile accidents are the leading cause of death for teenagers in the United States.[96] The risk of an automobile accident is highest among teens between sixteen and nineteen years old, and this risk is highest within the first month of having a driver's license.[97] The NHTSA attributes these high accident rates to immaturity and inexperience.[98] Despite their acknowledgement of the immaturity of teen drivers, the NHTSA poses a quick and convenient solution with CV technology that is simply too good to be true. Given these statistics, a solution that targets teen driving should be implemented in order to reduce automobile accidents.

Currently, driver's education standards are static, ineffective, and vary significantly among jurisdictions.[99] The spectrum of driver's education practices from state to state ranges from increased age restrictions on when a student may apply for a permit, to a requirement that students drive a mere 25 hours in poor weather conditions.[100] The American Driver and Traffic Safety Education Association (ADTSEA) represents traffic safety educators abroad, and suggests only forty-five hours of in-class driver's education, and eight hours of behind the wheel education.[101] In 2011, no state met these minimum educational requirements.[102] According to students, the most bothersome aspect of the driver's education process is waiting to receive a license.[103] Driver's education is not required in order to receive a license in Pennsylvania.[104] In fact, the only individuals required to undergo any sort of driver's education in Pennsylvania are the instructors.[105] Thus, Pennsylvania has spent time and money on the preparation of driver's education instructors, but does not require that these instructors apply their knowledge to the instruction of teen drivers.

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[95] *Injury Prevention and Control: Motor Vehicle Safety*, CENTERS FOR DISEASE CONTROL AND PREVENTION, http://www.cdc.gov/motorvehiclesafety/teen_drivers/teendrivers_factsheet.html (last updated Oct. 7, 2014) [hereinafter *Motor Vehicle Safety—Teen Drivers*].

[96] *Id.*

[97] *Motor Vehicle Safety—Teen Drivers*, *supra* note 95.

[98] *Driver Education Practices*, *supra* note 91, at 1.

[99] *See Driver Education Practices*, *supra* note 91, at 3.

[100] *Id.* at 6–7.

[101] *Id.* at 8.

[102] *Id.*

[103] *Id.* at 15.

[104] *Driver Education Practices*, *supra* note 91, at 7.

[105] *See id.*

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In response to the inconsistencies in driver's education across the United States, this article has already suggested that Pennsylvania law require driver's education one year prior to, and for six months after receiving a driver's license. This education should be progressive and require in-class examinations that students must pass in order to receive a driver's license. Also, student education behind the wheel should progress in accordance with experience. This means the incorporation of more complex driving maneuvers closer to completion of driver's education, so that students are better prepared for realistic encounters on the road. This style of Graduated Licensing System has been associated with a 40% reduction in fatal crashes among sixteen-year-old drivers.[106] Given this statistic, the reduction of automobile accidents is inevitable upon incorporation of strict driver's education standards. It is time to rely less on technology, and place fate into our own hands through driver's education.

VI. Conclusion

Automobile accidents and roadway infrastructure problems in the United States must be addressed. The proposed CV requirement in all new automobiles will only contribute to automobile accidents, and will decrease the likelihood of legal recovery for injured plaintiffs. A more realistic and effective way to address these problems is to enact federal legislation that requires progressive driver's education in all fifty states. These driver's education regulations will promote the amount of skill and responsibility necessary to operate an automobile safely, and reduce accidents and infrastructure problems. Technology's presence in automobiles is inevitable. However, proper research and tests should be conducted in order to ensure safety prior to any technology requirement in automobiles. While technology has contributed to tremendous advancement in our lives, it is time for humans to outsmart the machine, and not give into technologies' tempting, all too convenient solutions.

[106] *Motor Vehicle Safety—Teen Drivers*, *supra* note 95.

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