Self-driving cars could kill us all

Why we need to implement federal regulation for all autonomous vehicles

By Brittany Chiang | @bchiang7 | Apr 9, 2018, 4:00pm EDT

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In the wake of a fatal crash involving a self-driving Uber in Tempe, Arizona just last Sunday, self-driving cars have been drawing intense scrutiny and attention by the national media. Since it was likely the first time that a human pedestrian has been killed by an autonomous vehicle, this incident compels us to contemplate exactly how autonomous vehicles should be programmed to react in emergency situations and who is in charge of regulating these intelligent vehicles.

For years, proponents of autonomous driving technology have advocated that self-driving cars have the potential to prevent tens of thousands of traffic fatalities a year. By removing human error such as texting while driving or drinking while driving from the equation, it's obvious that self-driving technology can potentially save many lives.

On the other hand, the tech that enables self-driving cars to be so safe and efficient also has the ability to make choices for its passengers without their consent. In reality,

it's completely possible that a self-driving car could be programmed to always sacrifice the life of its passengers and save all other lives, instead of the other way around. Unfortunately, it's not guaranteed that self-driving software will always try to minimize loss of life, even if it means sacrificing its own occupants. And although it's clear that we should always try to save as many lives as possible, computers don't inherently know this. This raises some important ethical issues regarding the way autonomous vehicles are designed to react in the case of an unavoidable accident.

WHAT IF A PREDETERMINED ALGORITHM CHOSE YOUR FATE?

What if a predetermined algorithm chose your fate? When it comes down to it, the programmers who develop self-driving software are implementing how autonomous vehicles will crash even before an accident happens. But who actually gets to call the shots? Who tells how these engineers program these technologies? Well, the obvious answer here is the people we chose to represent us. The government. More specifically – the federal government. There are mandatory federal regulations on all kinds of things – food, housing, traffic, etc. Similarly, the most objective solution to the problem of programming ethics into cars is a federally mandated ethics setting for all self-driving car technology.

PROGRAMMING ETHICS INTO CARS IS UNPRECEDENTED

Since all driving involves risk, there will always be an ethical component in deciding how to distribute that risk between drivers, pedestrians, cyclists, and all people who share the road. Programming ethics into cars is completely unprecedented. And because it has never really been done before, its regulation has been fairly scarce so far.

Self-driving cars are probably only legal in the United States because of the legal principle that "everything is permitted unless prohibited." Essentially, if there are no official laws regarding self-driving cars, there's no way to justify that selling or driving self-driving cars is illegal. This gives autonomous car manufacturers such as Google free reign over what kinds of self-driving vehicles they sell and how they sell them.

So far, only 22 states out of 50 have enacted legislation related to autonomous vehicles. In addition to those 22 states, another 9 states have issued executive orders

related to autonomous vehicles. This muddled patchwork of state legislation and executive orders is incredibly inadequate for the safety of passengers all over the country. Potentially, each state could enforce different regulations for self-driving cars – some may be very strict, and some may be too lax. Variance between different accident algorithms could conflict with each other and even augment the problem instead of solving it.

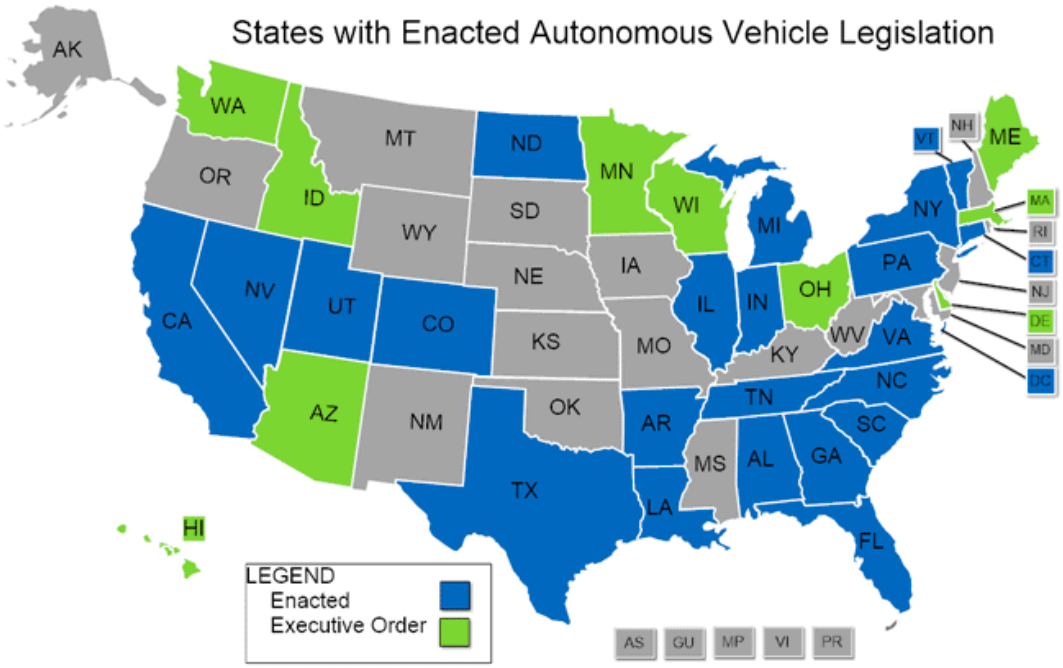

Photo courtesy of the National Conference of State Legislatures

The federal government also has not enforced any kind of mandatory legal framework for manufacturers to follow. The only kind of federal regulation currently in place was a set of guidelines released last September by the National Highway and Transportation Safety Administration (NHTSA). “A Vision for Safety 2.0” attempted to provide best practices for companies developing self-driving cars, including a range of goals for manufacturers regarding how AVs should be built and programmed.

THE NHTSA ONLY RECOMMENDED THESE GUIDELINES

The pitfall here was that the NHTSA only recommended these guidelines. The recommendations are still completely voluntary, and do not come with a compliance requirement or enforcement mechanism. This leaves dangerous room for manufacturers to potentially cut corners or only meet several of the safety guidelines that the NHTSA has

outlined. Not only does this pose a threat to all passengers of those AVs, but also to the other vehicles and passengers on the road. In the upcoming years, it's crucial that our government officials come up with a solid legal framework for regulating autonomous vehicles, specifically how they're designed to crash.

There are several different ways to program AVs in situations where crashing is inevitable. An easy way out would be to not program the responses of AVs at all. But this, of course, is an unacceptable solution. Being unprepared for situations such as the lose-lose scenarios outlined above, deems a self-driving car unfit to deal with the realities and contingencies of actual traffic.

Another feasible option would be to transfer control to the passengers in the car. However, human reaction-times are obviously much slower and erratic than computers. Even in the case of an unavoidable collision, computers are much more adept at handling how to crash. With advanced sensors and cameras, autonomous vehicles can calculate many possible consequences of different trajectories that involve combinations of braking and swerving.

ADOPTING A FEDERALLY MANDATED ETHICS SETTING IS THE MOST EFFECTIVE SOLUTION

Adopting a federally mandated ethics setting for all self-driving car technology is objectively the safest and most efficient solution to navigating the difficult issue of programming ethics into autonomous vehicles. This ethics setting would simply be a set of laws enforced by the governments. Under these laws, self-driving cars will be required to comply with predetermined and standardized ethical settings decided by a group of educated professionals in the field.

If the federal government enforced a universal ethics setting, many complex issues that come with programming morality into self-driving cars can be avoided, and most importantly, our roads will be safer. Regulating ethics in technology is a tedious and complex task, but with government enforced guidelines, self-driving car companies and manufacturers will be able to have a clear path to build safe, fair, and efficient autonomous vehicles.