WRITTEN REPORT

# **Introduction**

There are a lot of technologies that are integrated to daily life. All of these technologies collect or generate massive amounts of data. A relatively new kind of device is autonomous vehicles. These vehicles pick up so much information from sensors such as visuals and geolocation because autonomous processes like lane change assist, blind spot detection, or self-parking require these data. These systems continuously keep working as the vehicle is turned on, and in some cases even when the vehicle is turned off. This means that these vehicles generate tens of petabytes of data, if not hundreds. This data is usually pre-processed in the vehicles and then transferred to data lakes or data centers when the car is connected with a cable, as sending this amount of data remote is a tough challenge. A variety of data is collected and some of this data is very sensitive such as driver’s face or license plates. GDPR issued policies about protecting data gathered by autonomous vehicles in May 2018. Companies widely use anonymization technologies to solve privacy issues as most of the time the data gathered is shared with third parties for analysis. Another crucial point about autonomous vehicles is the decisions and their consequences. Making a decision about whose life is more valuable raises a lot of ethical questions. It is difficult to identify what is right and what is wrong as well as deciding who can make such a choice and take responsibility. Finally, the data stolen from such vehicles or control taken of such vehicles cause a major concern.

# **Tesla**

One of the most popular examples of autonomous vehicles is Tesla. As a company Tesla does manufacture autonomous vehicles but it is not their only source to collect data. Tesla collects data at four different stages of user interaction. Firstly, users can interact with Tesla through personnel, website or application. The data collected is declared as contact information, communications and interactions, and network activity information with the justification of providing services and optimizing website or application performance. Once a user becomes a customer, Tesla gathers information such as order information, financial information, and customer support activity with the justification of completing requests, purchases, provide customer service and provide technical support. Once a vehicle becomes active, it becomes the primary source for information collection. The information that the vehicle has is its type, diagnostic knowledge such as usage, performance and health, charging information, infotainment system data, mobile application information, autopilot data, service history and repair history. Finally, the solar panels produced by Tesla collect energy installation data, energy product data and energy diagnostic logs to triage, fix or improve product over time based on user contract or if Tesla has legitimate reasons to ensure product safety and performance.

# **First Principles Ethical Test**

O’Keefe and O’Brien (2018) has a test called First Principles Ethical Test that has four critical points. This test can be used to assess the ethical outcomes of a product or service based on human values.

## Does it preserve or enhance human dignity?

The first point is human dignity. The product or service should preserve or enhance human well-being to successfully pass this first point. Tesla, as a company, needs to be handled from two different perspectives regarding this first question. The first perspective is regarding the autonomous driving system. Tesla cars have been evaluated by NHTSA (National Highway Traffic Safety Administration) in United States of America. Based on these evaluations, the cars manufactured by Tesla are decided to be safe regarding hardware. Moreover, the comparison based on crashes logged on with and without autopilot technology in use, it is decided that Tesla drivers without autopilot technology engaged are two and a half times safer than the national average. Whereas Tesla drivers who use the autopilot technology are decided to ten time safer than the national average based on the crash logs. Thus, it can be said that Tesla’s autonomous driving technology does not only preserve human dignity, but it also enhances it. The second perspective is about the data collected by Tesla. The reasoning behind Tesla’s data collection is to improve the products and services or to triage and fix software issues. These claims can be verified from the outcome of the technology. It can be said that the data that has been collected by Tesla served for making their systems safer to preserve and enhance human dignity.

## Does it preserve the autonomy of the human?

The second point, autonomy of the human, is an interesting question for Tesla because obviously an autonomous driving system takes some, if not all autonomy from humans. Therefore, the better question might be how significant is the taken autonomy. It is perceivable that the driving is made safer when the autonomy is taken over by the autopilot technology. However, Tesla recommends the drivers to have their hand on the steering wheel at all times, so the drivers can have the autonomy back in cases of emergency. The conclusion is that autonomy of the human is preserved as the drivers always have the option to enable or disable the autopilot system.

## Is the processing necessary and proportionate?

The third question is about processing the data that is collected. Firstly, the data collected by Tesla is explained for each type of data, why is it required. Most of the time the data that is collected is used to improve or fix the systems. However, sometimes the data that is collected is used to fulfill contractual obligations with third parties, agents, and affiliates. It can also be used to comply with legal obligations, law enforcement, government requests, and to establish, exercise, or defend legal claims. This means the data that is collected has a very wide range of processing purposes. Even though Tesla declares this, they do not declare a distinction for the data that is collected. For example, Tesla collects billing information to process a purchase of a user. The car collects visual data of roads for lane assistance system. The car also collects the visuals of driver’s faces and license plates, which may be required by the law enforcement. While Tesla process this data, even though they use anonymization for privacy purposes, having no distinct separation between these data may lead to recreation of personal profiles. The current situation may allow Tesla to share sensitive information with third parties and with insurance companies if required, which would cause an important issue about privacy.

## Does it uphold the common good?

Overall, Tesla offers safer travel way while increasing the comfort of driver and passengers. They keep improving themselves as their system is being used. However, their systems and the data they have collected is still open to be used for malicious purposes or violate privacy.

# **Tesla Data Governance**

Tesla collects a lot of data for a lot of different purposes. Therefore, data governance and data privacy is an important issue. All the data that is collected is very well justified and requires user consent to be collected by the company. However, Tesla claims that they can collect this data with legitimate interests to improve users’ experience or if they have to fulfill contractual or legal obligations. This suggests that the users’ data might be used in ways that they initially would not agree, which is a very important ethical problem as it abuses people’s rights. Within all the data Tesla gathers, they use anonymization to protect users’ privacy. However, this does not mean that they do not have access to personal and sensitive data. The biggest problem with this is that there is no clear separation between the data that is gathered. Tesla does not claim that the drivers visuals or license plates will only be used for legal obligations. If a third party requires Tesla to share users’ billing information, Tesla will be obligated to share that as well. Firstly, a distinction has to be implemented for all the data that is collected. There has to be clear lines that clarify why any data is collected. For example, Tesla can go in detail to clearly state that vehicle data includes license plate information as well, but this information will only ever be used for legal purposes. Whereas geolocation can be used to improve the system and for legal purposes. Another concern about the vehicles is the discussion of sentry mode. The vehicles are capable of collecting a huge amount of data in various forms, which gives them a great potential to become a spying tool if they are used with malicious intent. Tesla has publicly falsified this, but the specific information of what systems are generating data at which specific times is not public information. It is people’s right to know not only what data is collected, but also when it is collected. Tesla declares at which stage of interaction with the company, what sort of data collection is made. It can be figured out that for example, while using the Tesla website, users can look into what kind of information is gathered from them during that interaction. However, it is not made clear whether the vehicle can be inspected same as a browser can to see which data can be generated and when can it be generated or already did if it already exists. It would be safer for the people if the technology is more transparent. Thus, when Tesla generates so much data, it is very easy for users to miss steps and never realize in its overwhelming functioning but it seems like Tesla should be making its procedures more transparent in the first place. If it is so, people would not have suspicions such as sentry mode, because Tesla should not let people have these kinds of suspicions to begin with.

# **Conclusion**

To conclude, autonomous vehicle technology needs a massive amount of data to work and improve itself and some of these data are sensitive for privacy. This data is pre-processed in the vehicles and then sent to the company databases with user consent after an anonymization process. Autonomous vehicles are also subject to ethical problems of decision making system. The fundamental version of the problem is similar to the trolley problem and the solution would be either not complex enough and solve arbitrarily or require assigning certain values to people. Tesla is one of the greatest examples for such systems. However, the complexity of Tesla is that the data collected by them is not exclusive to vehicles. Which is why Tesla should be more specific about what data is collected and when they are collected. Moreover, since Tesla collects a variety of data and from different sources, there should be a clear distinction between these data based on what they can be used for, especially sensitive information. Overall, Tesla seems to comply with the four points of First Principle Ethical Test and therefore, a good cause for the humanity. It is already reported that Tesla is safer than national average in United States of America when its autopilot is in use. Thus, one of the primary changes for Tesla is to be more transparent and its users about how the technology they own operates.

# **References**

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