Why the Tesla Model 3 Should be Your Next Car

ENGL 199 Descriptive Report

Arun Woosaree

I. Introduction

One may think that a Tesla vehicle is expensive, given the many features a Tesla car has to offer, such as its famous Autopilot feature. A Tesla car is capable of driving itself without any user input and is safer than a human in control of the car, thanks to machine learning.[1] While the recently announced Tesla Roadster has a base price close to a quarter million[2], one may be surprised with Tesla's other consumer offerings, specifically the Tesla Model 3. I recommend the Model 3 for the average person, given its more budget-friendly price point, with all the characteristic features one should expect from a Tesla vehicle. Additionally, the long-term savings and environmental benefits of owning an electric car versus a gasoline-powered car makes the Tesla Model 3 a very compelling vehicle for those in the market for a futuristic car that won't break the bank.

II. Autopilot

Autopilot is one of the first amazing features you may notice about Tesla vehicles, offering both convenience and safety. Currently, all vehicles in production by Tesla have sufficient hardware and software to drive without any human interaction. A Tesla car can be summoned with the click of a button, predict where you're going without you telling it, know that it should stop en route to charge if needed, and park itself without any user input. Tesla even claims that their cars are capable of driving at a safety level "substantially greater" than a human driver[3]. Tesla is able to accomplish this by including eight cameras, twelve ultrasonic sensors, and a front radar sensor which all work together to monitor the area around the car. It is not hard to see why Tesla makes such bold claims about how effective its Autopilot system is, because a mere human is physically incapable of constantly keeping track of the area around the car he is driving. A human needs to divide his attention between looking forward, checking the blind spot when changing lanes or parking, among other things one would typically look out for when driving. In contrast, a computer is able to monitor everything around the car simultaneously. The ultrasonic and radar sensors provide information to the computer for sensing objects, that a human cannot detect with his natural senses. For example, the radar sensor is very useful when there is thick fog that a camera or human cannot see through. The computer, powered by the powerful NVIDIA DRIVE PX 2 chip uses machine learning to improve driving for thousands of users every day. Other companies like GM have to test their autonomous driving systems with fleets monitored by their own employees, while Tesla collects real-world data (with consent) from its users and processes the data with machine learning to constantly push new updates and features to improve the autonomous driving experience.[4][5][6] The amount of real-world data Tesla has, combined with its sensors (which can detect danger faster than a human can react[7]) makes Tesla's autonomous driving system the most reliable on the market for consumers today.

III. Price

Price is a concern for most who are in the market for a new vehicle. Upon seeing all the features a Tesla car has to offer, one might think that surely, such a futuristic vehicle would cost a pretty penny. While Tesla does have more luxurious offerings like the Roadster and the Model S, I would argue that the Tesla Model 3 is ideal for most users, starting at $35 000 USD. This advertised price might seem deceptive until you consider that it is common practice in the auto industry to advertise a starting price, while most of the models available are sold at a premium of a few thousand dollars more expensive than the base model. The Tesla Model 3 is no exception here, with a maxed out model costing about $59 000 USD[8]. However, if you don't care for 'premium upgrades', 19-inch wheels, or a custom paint colour, then the price will be closer to $50 000 USD, if you opt to have 'Full Self-Driving Capability', and the larger battery. It should be noted that Full Self-Driving Capability does not need to be bought at the time of purchase, and can be unlocked later if you so choose. $50 000 might seem expensive to some for a car, but I would argue that the price is well worth it for all of the features you get that are not offered in similarly priced cars. Additionally, depending on where you live, there is a good chance that there are tax benefits with purchasing an electric vehicle, not to mention the long-term savings. Using electricity to power a Tesla vehicle is much cheaper than using gasoline in a modern car. Taking the US average of twelve cents per kilowatt hour, it would cost about nine dollars to completely charge a Tesla Model 3 with the 'Long Range' upgrade. On one charge, the Model 3 with the long range upgrade has a range of about 500 km[9]. Compared to a somewhat best-case scenario for a gasoline-powered vehicle, if the cost of gasoline is $0.75 per litre[10], and if a car consumes a conservative five litres of gasoline per 100 km[11], it would cost a little over $18, which is twice the cost of charging the Tesla Model 3 with the long range upgrade. Elon Musk claims that "If you fill up a sports car, you'd spend 10 times as much."[12]. Another cost-saving perk of Tesla vehicles, is that since they don't use gas engines, maintenance costs can be lower, since there is no need for

regular oil changes, for example.[13] Since a car is a tool one would purchase for the long-term, it is easy to recommend the Tesla Model 3, given the savings when you look at its long-term costs.

IV. The Environment

The Environment is also an important consideration when purchasing a new vehicle. In the past, one may have been concerned with the fuel mileage of the car they are purchasing. With an electric vehicle like the Tesla Model 3, there is no need to worry about such a thing, because it is already insanely efficient. The well-to-wheel efficiency of the first Tesla roadster, for example, is about 52.5%, which is double the efficiency of the Toyota Prius[14], a car model highly regarded for its efficiency. This translates to three times less carbon dioxide emissions compared to a hybrid car.[14] One might bring up the valid point that in most places, fossil fuels are still used to generate electricity. However, according to multiple studies, even if the electricity powering an electric car comes from coal (one of the more dirty ways to generate electricity), electric vehicles are more environmentally friendly than a gasoline-powered car.[15] Furthermore, the process of refining gasoline uses about 6 kWh of electricity per gallon not including transportation costs. A gasoline-powered car can go about 38 km on one gallon of gasoline, while an electric car like the Tesla Model S, (which is similar to the Model 3) can go for about 32 km with 5 kWh of charge. Elon Musk has in the past, claimed that "You have enough electricity to power all the cars in the country if you stop refining gasoline."[12] This does not even take into account other environmental impacts of oil refineries, as transportation costs, or processing tar sands for example.[16] The great thing about an electric vehicle like the Tesla Model 3 is that the electricity that powers it can be generated from a variety of sources.[14] So far, I have not yet taken into account that electricity for electric vehicles can be generated from sources other than coal, and that the transportation of electricity over the power grid is 92% efficient[14], while the transportation of fossil fuels can be dangerous (oil spills, train derailments,etc). Additionally, in certain areas where clean electricity is produced, such as hydroelectric power in some parts of British Columbia, or if one has solar panels installed in his home, there is the possibility of having a truly zero-emissions vehicle. No matter which way you put it, electric vehicles like the Tesla Model 3 are hands-down more environmentally friendly than a gasoline-powered car, even before factoring in transportation costs and considering different methods of electricity generation.

V. Conclusion

In conclusion, the Tesla Model 3 is a solid choice for your next car. Its Autopilot feature is very mature and reliable, given that Tesla has access to real world data from its users, which it uses to constantly improve drivers' experiences using machine learning. The Model 3's price may have an upfront cost that is high for some, but buying one today will save you in the long run compared to a gasoline-powered car in terms of fuel price, and maintenance. Electric cars like the Model 3 are incredibly environmentally friendly compared to similar gasoline-powered cars, since they produce fewer overall emissions when factoring in the environmental impact of generating electricity using almost any method versus the process of refining gasoline for cars, even before factoring the transportation costs. Finally, the Tesla Model 3 is simply put, an all-round fantastic car with many features and advantages you won't be able to find in other cars offered around the same price at this time.

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