The Research Plan

Make sure you fill out completely *all* the information in the sections below. Failure to complete these sections fully and honestly may incur a loss of points. Responding to some questions with "no" or "n/a" or "I don't know yet" *is* acceptable; however, leaving any responses blank is not. If you do not understand any questions, you are encouraged to contact your instructor.

Section 1

Name: Fazel Banouei

Your Major: Mechanical Engineering (MCE)

Section 2

On a scale of 1 to 10, how confident do you feel about writing for this course?

1/ I am going to give this a **9/10** for two reasons. 1) I had done a research paper in my writing 102 course; thus, I am familiar with the process. 2) I have done days' worth of preliminary research on my topic, making sure it is the right topic for me.

Section 3

Based on your experience from your previous writing courses and from the lessons you have received so far in ENG 204, what **three** things have you given extra care and attention towards for this assignment?

1/ Ensuring that my topic of study is as interesting as it is resourceful. In my writing 102 course on the causes of stress, I had written a research paper, and while I had plenty of tools, I just found myself uninterested in the subject sometime during the middle of the semester; this greatly impacted my motivation to finish the paper.

2/ To properly filter my search results on scholarly databases. After reading chapter 6 (in ENG 204), I am going to now take extra caution while searching; using quotation marks and Boolean search terms to make my searching process easier and quicker.

3/ Deadlines; professor was not kidding when he said that for even a minute late, he would subtract 10%. My previous courses were not as rigid, at least they were to some degree flexible. I have come to realise, however, that I need to be as attentive as I can possibly get when it comes to deadlines in this course.

Section 4

Working Topic: (e.g., smoking)

1/ Autonomous cars

Working Research Question: (e.g., Is smoking beneficial?)

1/ Should non-autonomous cars be phased out from the market?

Working Secondary Questions

You may not have any secondary questions yet – but have a go at writing what some may be. At least, you'll get some feedback from the instructor.

(Examples: What are the benefits of smoking?

1/ What are the benefits of an autonomous car?

2/ What are the disadvantages of non-autonomous car?

Working Thesis: (e.g., Smoking is beneficial.)

1/ Non-autonomous cars should be phased out from the market.

Working Counter Theses: (e.g., 1/ Smoking is not beneficial. 2/ Smoking may have some benefits, but it has more drawbacks. 3/ Smoking may be beneficial but only when combined with other practices. 4/ Smoking may be beneficial for some people but not for others. Etc.)

1/ Non-autonomous cars should be phased out from the market.

2/ Autonomous car should be bought more frequently, but non-autonomous cars should not be phased out either.

3/ Non-autonomous cars should only be phased out in certain parts of the world and not the others.

Working Supporting Arguments: (e.g., [Smoking is beneficial because …] 1/ smoking makes you look cool. 2/ smoking helps you lose weight.)

Non-autonomous cars should be phased out from the market because…

1/ They have higher traffic death percentage

2/ They are more ideal for senior citizens

3/ They have higher travelling time

Working Counter Arguments: (e.g., [Smoking is *not* beneficial because …] because 1/ smoking causes serious diseases. 2/ cigarette smoke is very smelly. 3/ smoking not only harms the smoker, it harms other people in the environment of the smoker.)

Non-autonomous cars should be phased out from the market because…

1/ They are cheaper compared to autonomous cars

2/ They are not prone to being hacked (unlike autonomous cars)

3/ Certain under-developed countries do not have the roads to accommodate the GPS algorithm of autonomous cars.

Write Your Paper Below

Begin your paper at the start of the next page. Note that APA Level 1 headers have been provided. Write appropriate paragraphs within these prescribed areas. Remember to leave the rubric at the end of the paper.

Working Topic

My research topic is autonomous and non-autonomous cars. Autonomous cars function by utilizing sensors and complex algorithms to create a virtual map of its surrounding. In this paper, I argue that non-autonomous cars should be phased out from the market and how will that benefit society. Furthermore, my paper also focuses on the advantages of owning an autonomous car.

More countries such as The Netherlands and Singapore have started adopting the autonomous car system in recent years. However, several consumer skepticisms persist, such as its comparatively higher price and the likelihood of catching a computer virus or being hacked.

I realize that not everyone can afford an autonomous car. Similarly, immediate phasing out of non-autonomous cars from the market is not realistic either. However, the fundamental economic principle states that as the supply of a product increases, the price will decrease. Therefore, my paper will be focusing on phasing out non-autonomous cars from the market while simultaneously encouraging owning autonomous cars. Additionally, the probability of getting hacked or affected by a computer virus is very trivial compared to some of the disadvantages of owning a non-autonomous car, including higher traffic death rate, longer traveling time, and higher harmful emissions caused due to more traffic congestion.

Brief Introduction

My target audience is the public. As a mechanical engineering student, I want people to realize that the time for us to step into the third stage of car evolution has come, from manual to automatic, and now from automatic to autonomous.

As a society, it is crucial for us to take this step. I chose this topic because I realized that we could dramatically reduce traffic flow by choosing autonomous vehicles, thereby reducing

traveling time and electricity consumption. Moreover, I am a huge fan of Tesla and its autonomous technology, and I believe the transition from non-autonomous cars to autonomous cars is inevitable. Thus, I hope by writing this paper, I can contribute to accelerating that transition.

Additionally, I have lost a relative due car accident on his wedding day, which brings this topic very close to my heart. Majority of the car accidents occur due to human error, and once we allow the computer to take over the driving, this statistic will drop drastically. Finally, I also think of my parents, who in a few years will become elderly citizens and may have driving problems, and I see autonomous cars as the ideal solution.

Research Questions and Methods

My primary working question is: "Should non-autonomous cars be phased out from the market?" Followed up by supporting secondary questions such as "What are the benefits of an autonomous car?" and "What are the disadvantages of a non-autonomous car?" I plan to address that non-autonomous car should be phased out by stating how autonomous cars cause less traffic (thus less traffic pollution), are safer on roads, and are more senior-citizen friendly. These answers will also be reflected in my two secondary questions mentioned above. By addressing all these questions in detail, I hope to make the audience realize that the benefits of owning an autonomous car out weights the disadvantages by a ton.

I will also be addressing some counterarguments to clear the skepticism in the audience. These counterarguments include: "Non-autonomous cars are cheaper compared to autonomous cars.", "Certain under-developed countries do not have the roads to accommodate the GPS algorithm of autonomous cars." and "autonomous cars are prone to be hacked or catching a computer virus." I will address the first counterargument by proving that in the long-term, as

supply increases, the prices will decrease. For the second counterargument, I will provide evidence on the improvements of underdeveloped countries infrastructure over the years and its trajectory on becoming autonomous-friendly. Finally, I will address the last counterargument through running risk assessment studies, showing the likelihood of a cyberattack on an autonomous car compared to the likelihood of a fatal accident due to human error.

Since my paper will be more quantitative than qualitative, I will be looking more into scientific databases such as Science Direct and IEEE Xplore, which was suggested to me by a senior in mechanical engineering. Moreover, I will also be considering Google Scholar to do any quick searches that do not require in-depth filtering.

References

Kim, K., Kim, J. S., Jeong, S., Park, J., & Kim, H. K. (2021). Cybersecurity for autonomous vehicles: Review of attacks and defense. *Computers & Security, 103*. Retrieved February 19, 2021, from

https://www.sciencedirect.com/science/article/pii/S0167404820304235?via%3Dihub

Penumaka, A. P., Savino, G., Baldanzini, N., & Pierini, M. (2014). In-depth investigations of PTW-car accidents caused by human errors. *Safety Science, 68*, 212-221. Retrieved February 19, 2021, from https://www-sciencedirect-com.aus.idm.oclc.org/science/article/pii/S0925753514000897

I have chosen the first source to shine a light on the car accidents caused by human errors; the author investigates several accidents and types of human errors involved. I will thus propose that switching to autonomous car technology would be the ideal alternative as the human error factor will be eliminated. My second source is to address the counterarguments about the likelihood of autonomous cars being hacked or attacked by a computer virus. The author speaks

in-depth about the cybersecurity of an autonomous vehicle, along with the risk assessments involved.

Planning

Initially, I was confused about organizing my writing plan, but after reading one of the examples from the guides, I realize that dividing my work into weeks will be most suitable for me. I always like to keep a to-do list, and having a weekly planned schedule helps me add it to my to-do list and complete it anytime during that week.

Week 4: Read and discover as many sources as I can. Create two folders, one for pro-autonomous sources and one for pro-non-autonomous sources, and respectively add the articles I find useful to each one. I have quizzes on Sunday, Monday, and Tuesday (20th, 21st, and 22nd February); thus, I will be doing most of the reading towards the end of the week.

Week 5: Start working on my research proposal, however, only on Monday and Tuesday. I Will stop all other activities and just focus on my first linear algebra midterm that I will be having on March 7th.

Week 6: After March 7th, within three days, I plan to finish my proposal and then start preparing for my Calculus 3 midterm on March 14th and Circuit exam on March 15th.

Week 7: Visit the writing center for feedback before submitting my final research proposal on March 11th, this should be at the starting of the week as I have programming lab midterm on 10th.

Week 8: Take a break from writing and focus on my second Linear Algebra midterm on March 18th.

Week 9 and 10: Get back to writing and start working on my working draft while making sure to visit the Professor and the writing center.

Week 11: Submit working draft by April 8th and wait for feedback, however, try to finish it by April 5th as I have a programming project submission by April 6th.

Week 12, 13 and 14: Reflect on Professor's feedback, multiple visits to the writing center but try to finish my paper by May 6th as my other final courses start from May 9th. Run some final spelling and grammatical checks before finally submitting on May 20th.

I am aware that the plan mentioned above is only an ideal situation. I might alternate some days due to quizzes and assignments. However, I will try my best to stick to the plan and produce the best possible outcome.

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Checklist

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Before submitting, write "YES" for each of the items below. If this section has not been completed in full then your paper will need to be resubmitted as LATE (incurring the usual 10% late penalties).

1/ I have read the rubric and included all the information required in the pages above.

YES

2/ I have pressed spellcheck/grammar check and corrected any text as appropriate.

YES

3/ I have carefully read *out loud* my entire paper and corrected issues where appropriate.

YES

4/ I have named the file for submission as follows: Research Plan [my iLearn name]

For example: Research Plan Philip Michael McCarthy

YES

5/ The file I am submitting is a Microsoft Word document.

YES