UNIVERSITY of GREENWICH
Alliance with FPT Education

BTEC

Higher Nationals in Computing

UNIT 13

UNIT 13: COMPUTING RESEARCH PROJECT

ASSIGNMENT No.2

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ID: GDD18606

Class: GCS0801_NX

Subject code: 1639

Assessor name: **LE NGOC THANH**

Assignment due: April 2021

Assignment submitted: April 2021

ASSIGNMENT 2 FRONT SHEET

Qualification	**BTEC Level 5 HND Diploma in Computing**		
Unit number and title	Unit 13: Computing Research Project		
Submission date	April 2021	**Date Received 1st submission**	April 2021
Re-submission Date	April 2021	**Date Received 2nd submission**	April 2021
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Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	huyen

Grading grid

P6	P7	M4	D3

❒ Summative Feedback:		❒ Resubmission Feedback:
Grade:	**Assessor Signature:**	**Date:**
Internal Verifier's Comments:		
Signature & Date:		

ASSIGNMENT 2 BRIEF

Qualification	**BTEC Level 5 HND Diploma in Computing**		
Unit number	UNIT 13: Computing Research Project		
Assignment title	Doing reflection on your project		
Academic Year	2020 – 2021		
Unit Tutor	Le Thi Bich Khoa		
Issue date	April 2021	**Submission date**	April 2021
IV name and date	Le Ngoc Thanh March 2021		

SUBMISSION FORMAT:

Format: The submission is in the form of 1 document. You must use font *Calibri size 12, set number of the pages and use multiple line spacing at 1.3. Margins must be: left: 1.25 cm; right: 1 cm; top: 1 cm and bottom: 1 cm.* The reference follows Harvard referencing system.

Submission: Students are compulsory to submit the assignment in due date and in a way requested by the Tutors. The form of submission will be a soft copy posted on http://cms.greenwich.edu.vn/

Note: The Assignment *must* be your own work, and not copied by or from another student or from books etc. If you use ideas, quotes or data (such as diagrams) from books, journals or other sources, you must reference your sources, using the Harvard style. Make sure that you know how to reference properly, and that understand the guidelines on plagiarism. *If you do not, you definitely get failed*

UNIT LEARNING OUTCOMES:

LO4 Reflect on the application of research methodologies and concepts

ASSIGNMENT BRIEF AND GUIDANCE:

Scenario

As you have completed your research project now it is time to look back and learn some lessons from your work. You need to prepare a report to describe your personal development. **Remember to write your own experience, thoughts and it is specific to YOU NOT explaining the general concepts**.

Here are some suggestions which you can put in the report:

- Project's proposal, the research process(sequential example) how it helped you completed your research
- Reflection on the merits, limitations and potential pitfalls of the chosen methods: examples qualitative research, secondary research; the relationship between the two in your research
- The roles of Literature **review in your** project
- How did you create project plan and how often you did you update it. Why you need you need to update the plan
- How often did you meet the tutor and how the tutor helped you to create more effective research.
- How did you choose participations(sample types, sizes) and the importance of it?
- How did you present your research result?
- **Consider other research approach** and improvements in future research
- …..

P6 All or most previous questions are answered

P7 Mistakes, lessons learnt, improvements will have in future researches

M4 Discussed all previous concerns in a logical way, with good evidence

D4 Critically discuss all previous concerns and recommend changes in research process (from creating research proposal to conclusion after primary research), planning, carry out primary research in as systematic way. Suggesting different research process which may work out.

<table>
<tr><th colspan="3">Learning Outcomes and Assessment Criteria</th></tr>
<tr><th>Pass</th><th>Merit</th><th>Distinction</th></tr>
<tr><td colspan="2">LO4 Reflect on the application of research methodologies and concepts</td><td rowspan="2">D3 Demonstrate reflection and engagement in the resource process leading to recommended actions for future improvement.</td></tr>
<tr><td>P6 Reflect on the effectiveness of research methods applied for meeting objectives of the computing research project.

P7 Consider alternative research methodologies and lessons learnt in view of the outcomes.</td><td>M4 Provide critical reflection and insight that results in recommended. Actions for improvements and future research considerations.</td></tr>
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ASSIGNMENT 1 ANSWERS

LO4 Reflect on the application of research methodologies and concepts

P6 & M4 Reflect on the effectiveness of research methods applied for meeting the objectives of the computing research project. Discussed all previous concerns in a logical way, with good evidence. Provide critical reflection and insight that results in recommended.

1. The role of the project proposal and the research process in our research completion

The research proposal will demonstrate the quality and importance of our project as well as the usability to conduct the proposed research. The proposal also gives us the opportunity to think through our research project, refine our focus, and predict any challenges that may arise. It may be helpful to consult proposals at various stages in the research process to remind ourselves of our focus and to chart how our project has progressed. In other words, the project's proposal helps explain what we hope our research will find/show or our interest in an experience with this topic. Besides, the project's proposal also helps explain why this topic is worth considering or why this question or series of questions is worth answering. Moreover, the project's proposal will contextualize our research question within the literature in this field, limit the boundaries of our research question so that it is not too broad, cite landmark studies in our field and describe the kind of research we will conduct in this project. From that, once the project is underway, we might see or revise our methodology to adopt old/new methods of gathering and processing data.

On the other hand, **the research process** will help us identify, locate, assess, and analyze the information needed to support the research question or develop and express our ideas. The research process is broken down into seven steps, making it more manageable and easier to understand. This module will give us an idea of what's involved at each step in order to give us a better overall picture of where we are in our research, where we will be going, and what to expect at each step.

2. Reflection on the merits, limitations, potential pitfalls of the chosen methods and the relationship between them

We use two methods in this project: Primary Research and Secondary Research. Each method both have merits, limitations, potential pitfalls inside them. Can say that, the greatest advantage of Primary Research is that it allows the researcher to obtain original data that are current and highly specific to the needs given. Besides, because of the processes involved, primary research can be very time-consuming, sometimes requiring months or even years so it can also be a very costly process. In Secondary Research, this method is largely based on already existing data derived from previous research so it can be conducted more quickly and at a lesser cost. However, the major disadvantage of secondary research is that the researcher may have difficulty obtaining information specific to needs. Additionally, existing research data may not have the currency necessary to be useful.

By its nature, most scientific research is primary. However, almost invariably a supporting secondary component involved, as nearly all scientific studies require the evaluation of existing research information to some extent. In the case of secondary research, the problem of being able to obtain information quickly and inexpensively at the possible risk of lacking necessary relevance and currency is one that often can be hard for researchers to reconcile. Therefore, by using both methods, the result of this project could be improved and data will be validated to the maximum extent because this method can fill the shortcomings of the other. Meaning, we use Primary Research to collect all the realistic information of the objects to have better awareness about the variety of influence and understanding of everyone about autonomous vehicles, which means the document sources are updated and new. However, the authenticity in Primary Research is not as high as in Secondary Research. Because, the participants of the survey might not be honest or serious, which directly affects the reliability of the data. Therefore, the information that Secondary Research collects from the book, article or research that has been verified previously or accepted by professors or reputed unions will be much more qualified and reliable. Moreover, when Primary research and secondary research work together will save us time and avoid duplicate work while we can still investigate important questions that matter. In addition, combining both two methods will give us the most well-rounded view of our industry, our competition, and our target demographic.

3. The roles of literature review in our project

Literature review gives us an understanding of the scholarly research on autonomous vehicles, AI and IoT to support research successfully. It helps us know our research topic or research question. Besides, it will set the scope to define boundaries concerning the number of sources, time frame to be covered, geographical area, etc for our research. In addition, it also helps us decide our databases we will use for searches. Start by looking at research abstracts in detail to see if respective studies relate to or are useful for our research. Next, search for bibliographies and references that can help us broaden our list of resources. Choose the most relevant literature and remember to keep notes of bibliographic references to be used later on. It also helps us to identify methodologies, the most important questions addressed if they are well-designed and executed, and if they are cited enough, etc then our research will succeed.

Because I have no experience in project management, these documents helped me a lot when I first made the research. After reading the above books, I learned how to manage the project and make research using certain sequences. I also know more about the reasons why a project fails, based on it that I can avoid these causes when research. Thanks to it, our project probability of failure will be lower. In addition, we are researching the combination of AI and IoT in Autonomous Vehicles, so the literature review also provides us with a wealth of useful information on this issue. Can be said in more detail, we can see that AI's development has gone through many stages. At present, AI has achieved much success and gradually become a technology trend in the future. Many new technologies are launched and applied by leading automobile companies. This proves that the application of AI to developing autonomous vehicles is entirely possible. Especially, a few big companies in the world have started to apply AI to autonomous vehicles and have had success. Therefore, the development of autonomous vehicles is entirely possible. From the result, we also know that autonomous vehicles are safe and useful with features such as highway teammate, handsfree feature, automatic parking, etc. Besides, car manufacturers must pass some problems to make autonomous vehicles become popular such as getting the trust of our customers, problems about legally, cost of the product, etc.

4. How to project a plan, how often to update it and the cause of the need to update the plan

We created the plan for this research project by defining your project's stakeholders, scope, quality baseline, deliverables, milestones, success criteria and requirements. Moreover, we also

create a project charter, work breakdown structure (WBS), identify/monitor the risks associated, list the necessary project resources and develop change management procedures/forms. Finally, create a communication plan, schedule and other guiding documents for the project.

We use the Gantt chart to create a project plan because the Gantt chart helps us organize, prioritize and assign tasks. After that, plan and schedule milestones (task dependencies). Thanks to it, we can monitor progress, share project plans with the team and stakeholders to generate reports on plans.

On the other hand, we also often update the project plan when our research happens, an issue (such as no previous research conducted on our topic, missing data or statistical analysis did not generate results, etc), have new requests or have any change in our research. Updating the project plan is very important because if anything does not go according to plan then it can make our research project fail. And updating the project plan will help us to divide work and handle everything in the time given so as not to be the late deadline. Summary, when having any incident affects the success of the research project or can make the research project fail then an update of the project plan is necessary to solve all problems.

5. Support of tutor in research

We meet the tutor twice each week. In each meeting, our tutor helped us a lot. First, our tutor introduced us to the knowledge necessary when implementing research and managing projects so they don't fail. Further, after we identify our research topic then our tutor will review and browser for us. Aside from that, our tutor also answers all our questions in extreme detail and is easy to understand. Finally, our tutor both reviews our draft report before we have submitted the report officially. So, our research process becomes easier and more effective.

6. How to choose participants and the importance

Our participants are those who understand some knowledge of autonomous vehicles, AI and IoT. This will help us know exactly what and how autonomous vehicles affect. We do the interview with the researcher who has experience in research, with a deep understanding of self-driving cars so he can answer social-related questions such as laws and technology. Another person has a self-driving car because they have the experience to use it. So I can ask them about their functions and experiences while using the product. The last person is the developer who has knowledge of technology and techniques for developing self-driving cars. Thus, each person I conduct the

interview with still has its own characteristics representing those with professional or non-technical skills, from those who have experience in using the product to no user experience. On the other hand, we do surveys about autonomous vehicles on almost all subjects with different professions and ages. Maybe they have certain knowledge about self-driving cars or they only are people who join the traffic. These people can introduce or give information about this topic for us in this research project. Besides, they also support us in reaffirming our thoughts before and give the right decisions for our research.

7. Research result: present our research result

We will analyze the data and resources before that by using analytical tools if necessary to better understand the resources. Then see whether it meets the objectives which decide the success of the research. Finally, will give a conclusion or reflection for the research.

7.1. Interview result

Because of COVID-19 so we didn't interview offline (face-to-face). However, signal, transmission, connection, and sound problems can affect the information/data collected so we interviewed online by messenger tool to info/data get absolute accuracy.

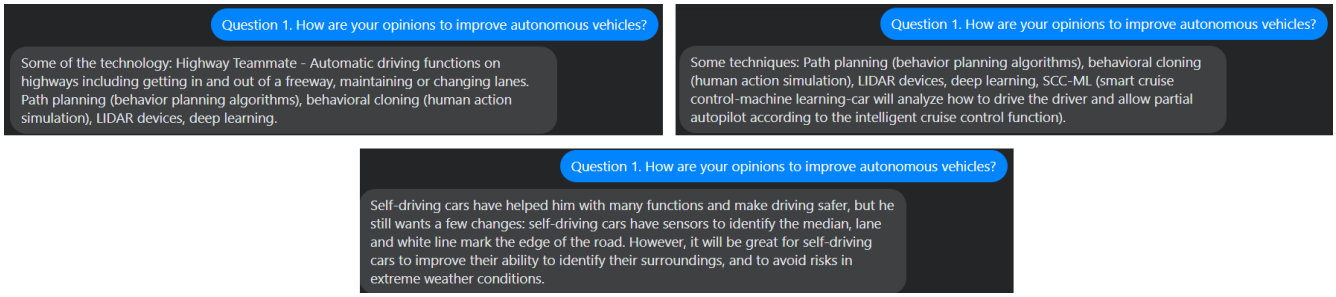

Figure 1: Interview result: Question 1 result

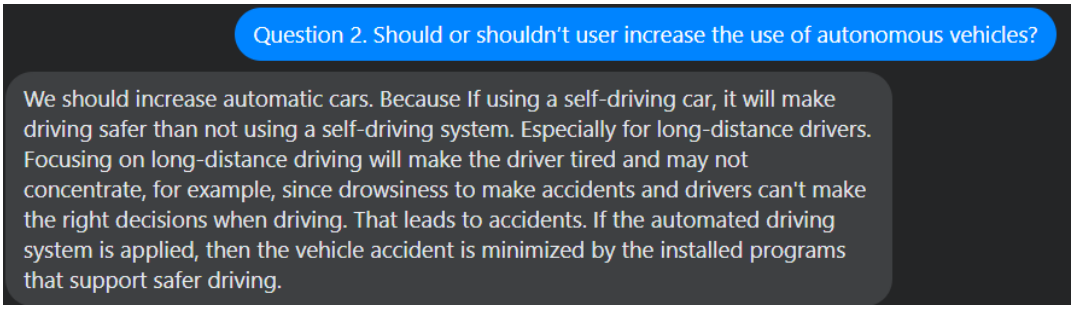

Figure 2: Interview result: Question 2 result

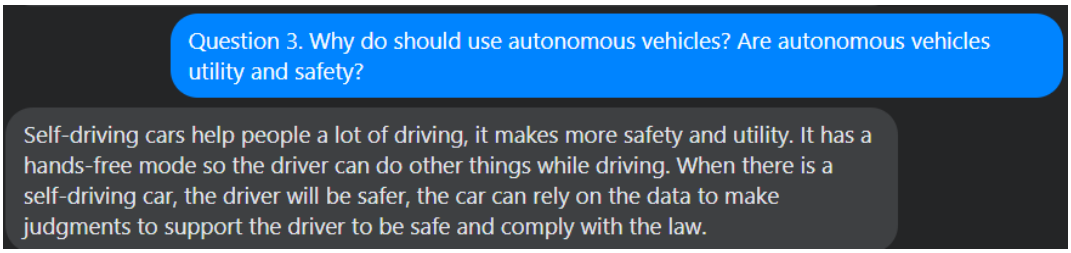

Figure 3: Interview result: Question 3 result

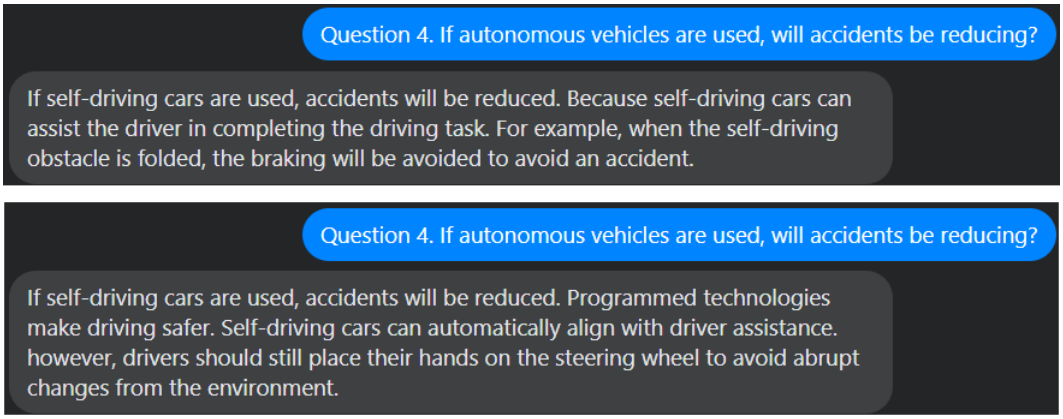

Figure 4: Interview result: Question 4 result

7.2. Survey

7.2.1. Survey form

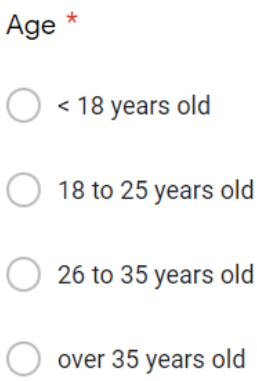

Figure 5: Survey form: how old are you?

Job

Short-answer text

Figure 6: Survey form: what is your job?

1. Do you think autonomous vehicles are utility and safe?

- Yes
- No
- Maybe

Figure 7: Survey form: question 1

2. What function do you think autonomous vehicles need?

- [ ] Automatically find parking
- [ ] Adjust the sound, temperature, creep according to the habit of driving
- [ ] Highway Teammate
- [ ] Communication between vehicles to find the way to avoid traffic jams
- [ ] Hands-free feature
- [ ] Other...

Figure 8: Survey form: question 2

3. If autonomous vehicles are popular, will you use them?

- ○ Yes
- ○ No
- ○ Maybe

Figure 9: Survey form: question 3

4. What are the advantages of autonomous vehicles?

- ☐ Reducing traffic jams
- ☐ Safety
- ☐ Support new drivers
- ☐ Reducing accident
- ☐ Other...

Figure 10: Survey form: question 4

5. What are the disadvantages of autonomous vehicles?

- ☐ Licensing infrastructure not yet in place
- ☐ Lack of trust
- ☐ Loss of privacy
- ☐ Pollution environment
- ☐ Expensive
- ☐ Other...

Figure 11: Survey form: question 5

6. Who do you think will be legally responsible when an accident occurs?

- Car owner
- Car manufacturer
- Driver
- Other...

Figure 12: Survey form: question 6

7. Do you think autonomous vehicles can decrease accidents?

- Yes
- No
- Maybe

Figure 13: Survey form: question 7

8. Do you think if autonomous vehicles are used, they can or not solve traffic jams?

- Yes
- No
- Maybe

Figure 14: Survey form: question 8

7.2.2. Survey result

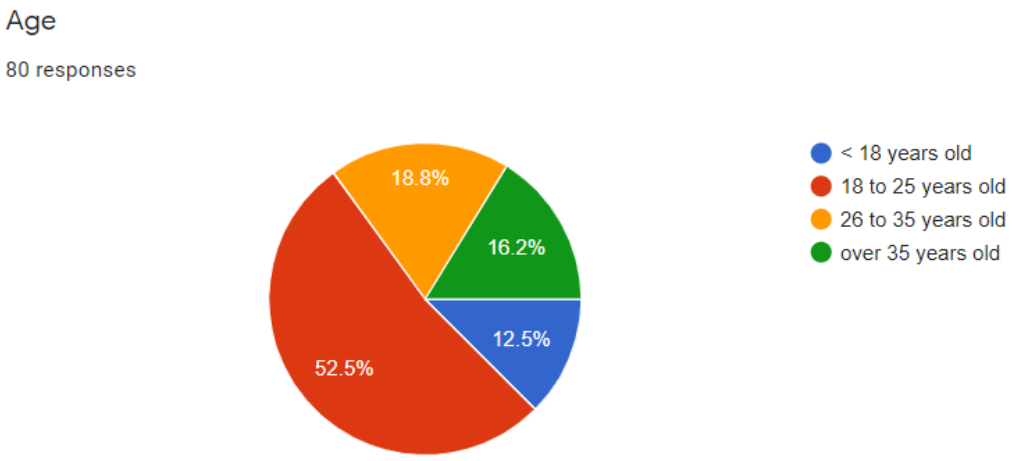

Figure 15: Survey result: how old are you?

The chart shows almost all of the age's participants are from 18 to 25 years old. At this age, they have their own perceptions of society and current technology. They also are easy to accept new technology, especially artificial intelligence.

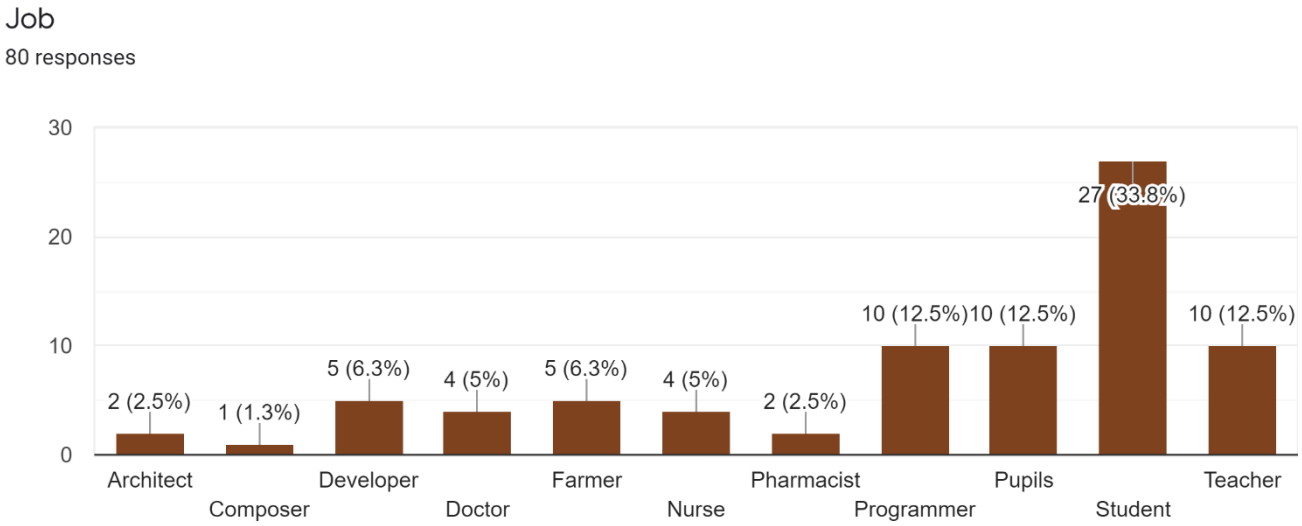

Figure 16: Survey result: what is your job?

The chart shows the main participants are the programmer (12.5%), the teacher (12.5%), the student (33.8%), the pupil (12.5%). Besides, also have many careers other like the doctor, farmer, developer, etc

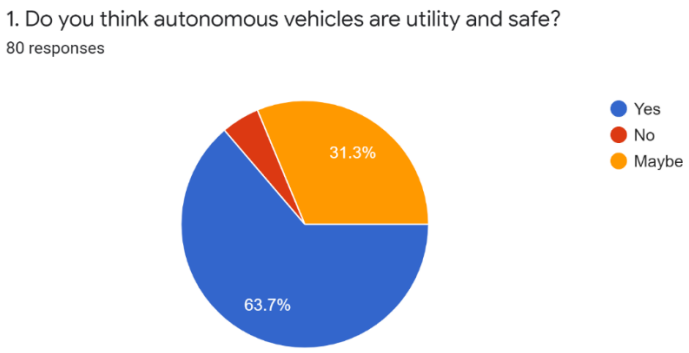

Figure 17: Survey result: question 1

Almost all of them think that self-driving cars are utility and safe with 63.7% and 31.3% of people think that maybe it is utility and safety. So according to people's perception, autonomous vehicles are quite useful and safe. On the other hand, only 5% of people think that autonomous vehicles are not useful and safe. From there we can see that autonomous vehicles are safe and convenient for users. This is also the reason why autonomous vehicles should be put into common use.

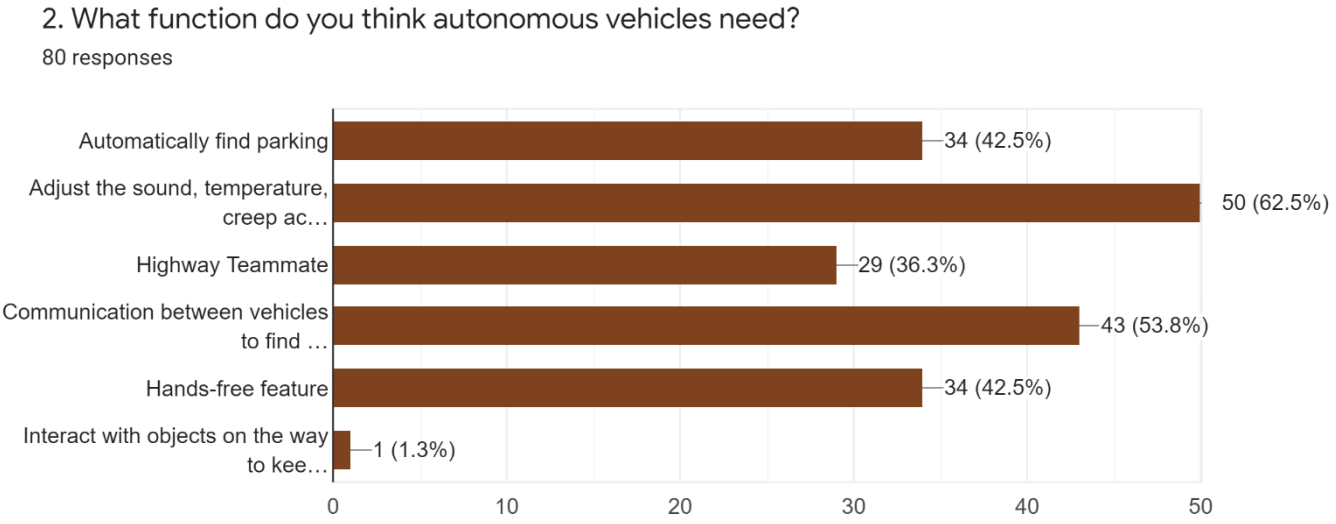

Figure 18: Survey result: question 2

36.3% of highway teammates, 42.5% of people agree that autonomous vehicles need to have hands-free features and automatically find parking. The chart also shows communication between vehicles to find the way to avoid traffic jams and adjust the sound, temperature,

creep according to the habit of driving are the features which have a higher choice with percent turn is 53.8% and 62.5%. So developers and companies need to focus on developing these functions so that users can feel more convenient, secure and utility. In addition, have an opinion about the interaction with objects on the way to keep a safe distance and avoid collisions. From that, we can base these requirements on the best product. This makes autonomous vehicles can be used more and more. It also makes the cars useful and safe. And we are able to gain the trust of users to gradually drive autonomous vehicles to become popular.

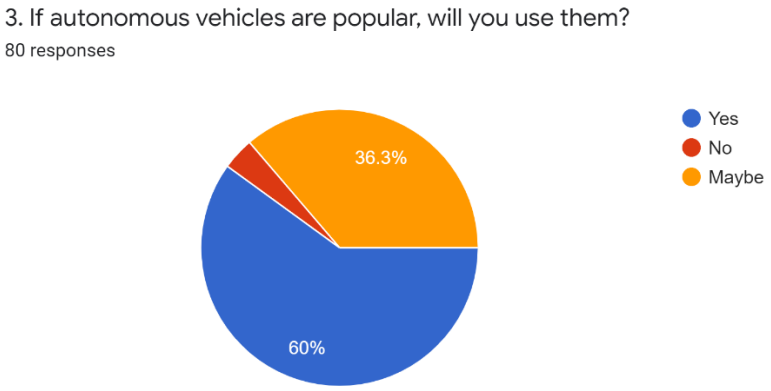

Figure 19: Survey result: question 3

Most people will use autonomous vehicles when it becomes popular with 60% and maybe will use 36.3%. Therefore, this is a good sign for the start of autonomous vehicles becoming popular.

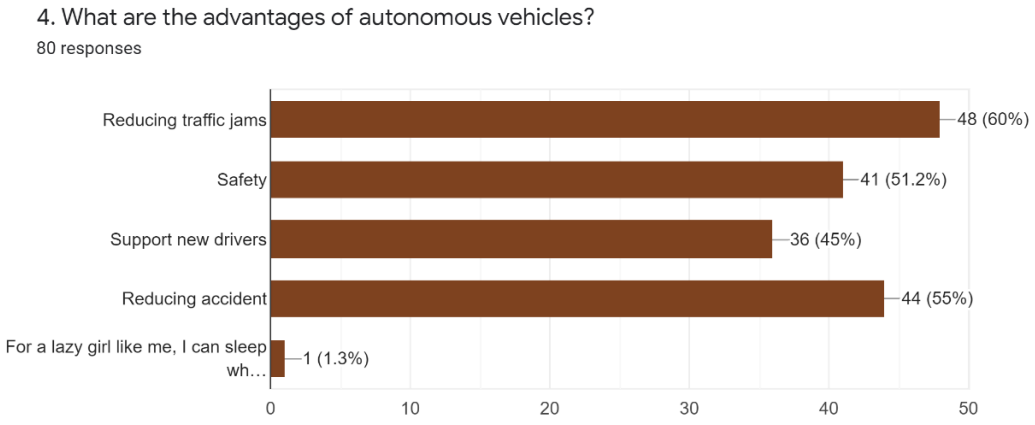

Figure 20: Survey result: question 4

The advantages of autonomous vehicles shown in the chart are evidence of the utility and safety of autonomous vehicles. It also shows that autonomous vehicles can contribute to solving common problems of traffic such as reducing traffic jams (60%), reducing accidents (55%), safety (51.2%) and supporting new drivers (45%), etc.

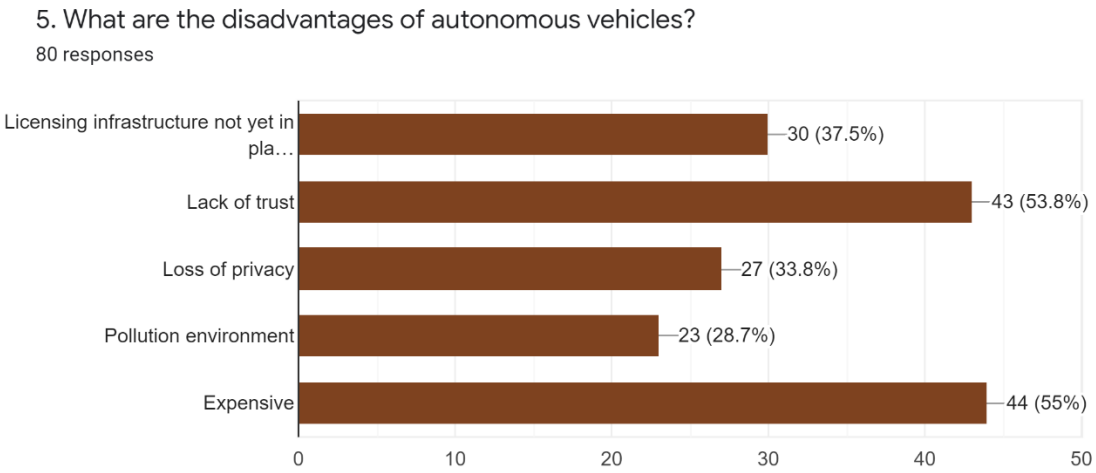

Figure 21: Survey result: question 5

Based on the chart, we can know some disadvantages of autonomous vehicles, maybe these are reasons which make the cars can't be popular. There are 53.8% to choose lack of trust which is the disadvantage of autonomous vehicles. The next is expensive at 55%, licensing infrastructure not yet in place (37.5%), loss of privacy (33.8%) and environment pollution (28.7%). From that, we can base these things to improve and make better products.

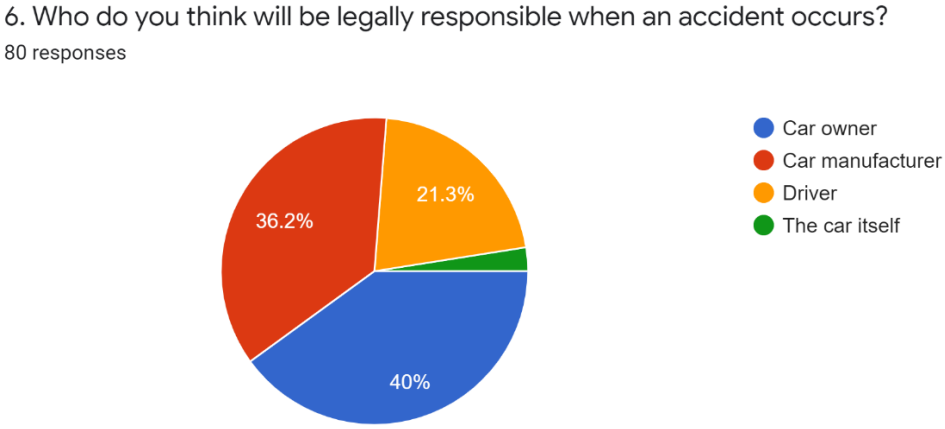

Figure 22: Survey result: question 6

There are 36.2% of participants who think that car manufacturers will be legally responsible when an accident occurs, 40% think that car owners and 21.3% think that drive will be legally responsible when an accident occurs. This result can also refer to solving legal issues when self-driving cars become popular. Besides, also an opinion thinks that the vehicle itself will be legally responsible when an accident occurs (2.5%).

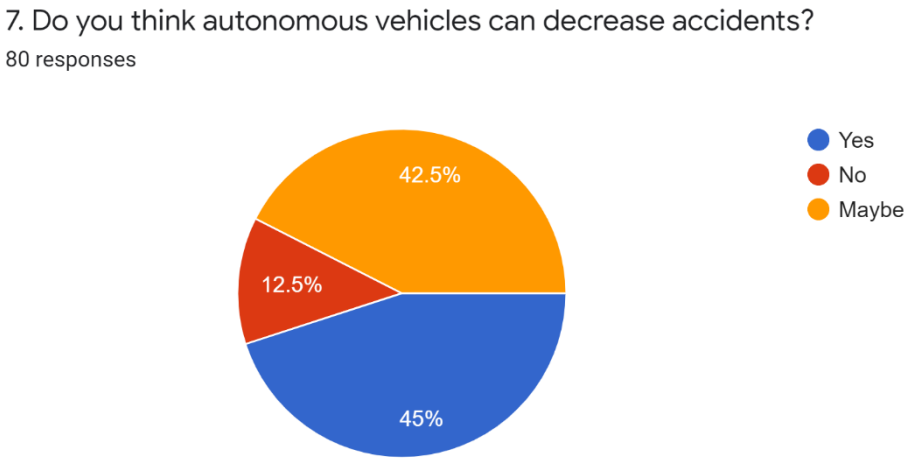

Figure 23: Survey result: question 7

Most autonomous vehicle users believe that autonomous vehicles can reduce traffic accidents for drivers when only 12.5% of people don't think autonomous vehicles can decrease accidents. This is also the reason why autonomous vehicles should be put into common use.

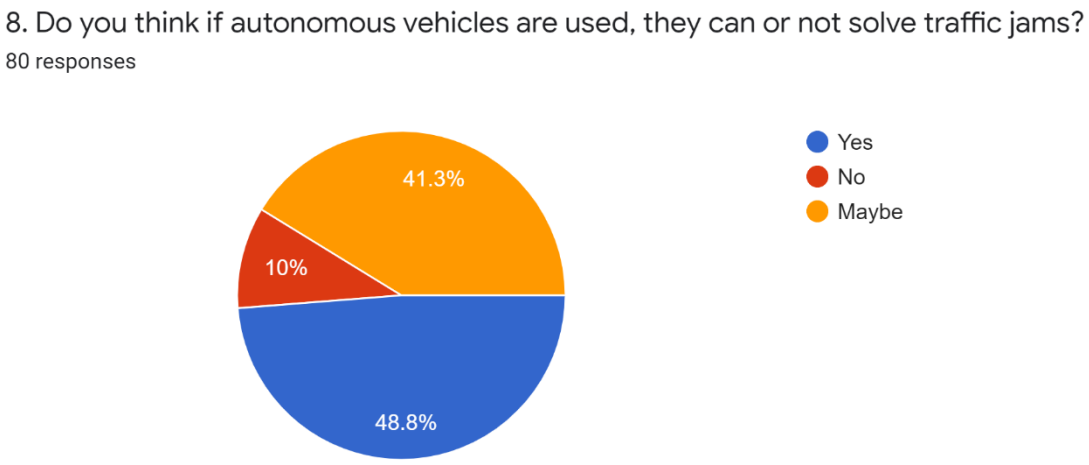

Figure 24: Survey result: question 8

Almost all of the participants think that autonomous vehicles are the solution for traffic jams when 48.8% of people think that and 41.3% of people think maybe autonomous vehicles can solve traffic jams. In addition, only 10% don't think that autonomous vehicles can solve traffic jams. This is also the reason why autonomous vehicles should be put into common use.

7.3. Research result analysis/evaluation

From the results of secondary research, we can see that AI's development has gone through many stages. At present, AI has achieved much success and gradually become a technology trend in the future. Many new technologies are launched and applied by leading automobile companies. This proves that the application of AI to developing autonomous vehicles is entirely possible.

Based on the primary research result, we can confirm that autonomous vehicles are safe and convenient, it is likely to become popular as secondary research said. Because almost all of the survey participants think that autonomous vehicles are convenient and safe for both drivers and other vehicles. For drivers, it has the support functions to make driving easier such as hands-free, highway teammate, etc. In addition, autonomous vehicles also contribute to improving traffic congestion and reducing accidents. For governments, it is possible to rely on the data that AI stores to identify violations. However, research also shows that autonomous vehicles still have many disadvantages such as are too expensive, do not have the trust of users, etc. The biggest barrier does not come from the technical aspect but the law. It makes it legally difficult to determine by the violation of the vehicle or driver. For example, when an accident occurs, it is difficult to determine whether the fault belongs to the person sitting in the car or not. Despite the improvements, the law is still slower than the speed of technology development. In the world, there is some law to push about this. Several US states have paid attention to the rules for autonomous and semi-automatic vehicles. For example, if a police officer sees the driver driving without touching the steering wheel, he can still stop the car and write a ticket, thinking that this action is dangerous for traffic. Therefore, the problem of developing and making autonomous vehicles more common is possible. Because the empirical results and interviews show that users are willing to use this new car again, and they are aware Its advantages. In particular, the government and companies are investing to gradually develop AI technology in areas of life, especially autonomous vehicles. However, needs to overcome the difficulties of lack of infrastructure, lack of data, resources and solid foundation of

businesses, difficulties in training human resources, and AI communities are still small and scattered. In order to overcome this, we need to connect AI communities to gather and share data and help each other develop.

In addition, it also has a problem because the road has too many pits and degraded roads after a few years of use or mostly small roads so moving traffic on the road is also difficult, causing it to be unsafe. This will be making it difficult for autonomous vehicles.

P7 & M4 Consider alternative research methodologies and lessons learned in view of the outcomes. Provide critical reflection and insight that results in recommended. Actions for improvements and future research considerations.

According to our plan, the project was pretty successful. We completed all goals and purposes given (the goals and purpose are already outlined in detail in the first assignment report). The issues also are solved following positive and most optimal directions. Everything both accomplished was on time. Things in the plan we have done quite smoothly and completed very well (the specific works that we did when implementing the plan recorded specifically in the research proposal, Gantt chart at the first assignment report and logbook research project below). However, when implementing the plan, we have to face up some small problems such as can't face to face for the interview or request changes while the project is still in progress. This causes a little difficulty for us in the process of implementing the project. Though, we passed it with many good solutions and support from our tutor. Then, everything takes place very well and our research project is also extremely successful.

Have very many research methodologies could be used as alternatives to the in-used research methodologies in our research project. One of them is a quantitative analysis that uses statistical analysis to present the data sources. The other alternative is an experimental research methodology that may involve records of research about the topic covered. Can be noticed that both qualitative and quantitative research classes can be used for our project after we are experienced with the research process. Due to these two approaches, both statistical data and the research subject's knowledge can be collected. The qualitative approach relies on in-depth interviews with an emphasis on participant observation. We will use standardized questionnaires and surveys with quantitative methods and respond to digital data in advance.

After doing this research, we finally got what we expected thanks to the participants and they both understand some knowledge of autonomous vehicles, AI, IoT and they also are people who join traffic. The participants give a variety of information and opinions about our topic and those pieces of information are very helpful for our research. Besides, the survey shows us exactly people's understanding and how autonomous vehicles affect life nowadays. From that, we can develop autonomous vehicles combined with AI and IoT will help create an autonomous vehicle's new type that can be overcoming the current disadvantages and bad problems solving of autonomous vehicles encountered now. Furthermore, the developers acknowledge it and have some solution which still has disadvantages but we believe that really works. Especially, experience helps us realize that we need to get better at setting questions for interviews or surveys and we also acknowledge that choosing objects play an important role in the whole research.

This research handles one of the most controversial issues and an important topic in computing. As said above, some of the recommended actions for improving future research for this research project are an exploration of quantitative analysis where we will add a different perspective to our research. This will be important in giving varied information that is different from what we have given before. About research methods, we still use interviews and surveys because it is very useful, convenient and easy when making research. In conducting interviews, we can ask people who have real knowledge and ask them in-depth questions about research issues or their own views on research issues. On the other hand, we choose the survey because it is able to save time and effort for us. Due to it is done on the internet with pre-compiled questionnaires by google form tools. Besides, after having survey results then this tool also we statistics and analyze the results by charts. So, we both save time and still get the desired results. Another reason is that if we did a survey then we could get the opinion of a group of people and the results would be more general.

Table 1: Logbook for project

Name:	Trinh Thi Dieu Huyen
Project title:	The combination of AI and IoT in Autonomous Vehicles (If autonomous vehicles are really useful and safe as people say or not? Can self-cars become popular?)

Date:	16/01/2021 – 18/01/2021 (Sat - Mon)

Update on weekly research/tasks achieved

Points to consider:

The work has been completed, include:

- Is already complete choose topic for the project
- Finished giving aim and objectives

➢ Research work breakdown structure in progress

Did fulfill task requirements and be on track within deadlines set.

Don't need to make any changes to the project management plan, everything still happening as planned.

Any risks and/or issues identified?

Points to consider:

Because determining risks and solutions for those risks before when performing the project, don't cause any issues that cause impact not good for the project management plan.

Problems encountered

Points to consider:

Because of COVID-19 so we didn't interview offline (face-to-face). However, signal, transmission, connection, and sound problems can affect the information/data collected so we interviewed online by messenger tool to info/data get absolute accuracy.

New ideas and change of project direction

Points to consider:

We totally concentrate on our first goal. The plan stays still and not changed through time. Mean, project direction unchanged and no have anything new ideas were given.

Tasks planned for next week

Points to consider:

Need must complete research work breakdown structure - This task is the priority. Then create a Gantt chart, research and choose approach/methodologies. Finally is secondary research.

Project plan status to date (on, ahead, behind)

The initiation phase of the project was on time.

Date:	18/01/2021 – 1/02/2021 (Mon - Mon)

Update on weekly research/tasks achieved

Points to consider:

The work has been completed, include:

- Research work breakdown structure completed
- Gantt Chart completed
- Research and choose approach/methodologies completed
- Secondary research completed

➢ Still in progress create a list of question

Did fulfill task requirements and be on track within deadlines set. Don't need to make any changes to the project management plan, everything still happening as planned.

Any risks and/or issues identified?

Points to consider:

Because determining risks and solutions for those risks before when performing the project, don't cause any issues that cause impact not good for the project management plan.

Problems encountered

Points to consider:

Because of COVID-19 so we didn't interview offline (face-to-face). However, signal, transmission, connection, and sound problems can affect the information/data collected so we interviewed online

by messenger tool to info/data get absolute accuracy.

New ideas and change of project direction

Points to consider:

We totally concentrate on our first goal. The plan stays still and not changed through time. Mean, project direction unchanged and no have anything new ideas were given.

Tasks planned for next week

Points to consider:

Need must complete creating a list of questions - This task is the priority. Then, proceed with the interview and survey. Next, statistically interview/survey results. Finally, analyze the data, write the report and evaluate the research. Have aside sufficient time for completion.

Project plan status to date (on, ahead, behind)

The planning phase of the project was on time.

Date:	1/02/2021 – 12/03/2021 (Mon - Fri)

Update on weekly research/tasks achieved

Points to consider:

The work has been completed, include:

- Is already creating a list of questions
- Is already interview and survey
- The statistics of interview and survey results have been completed
- Is already complete analyze the data
- Is already complete write the report
- Evaluate the research completed

Did fulfill task requirements and be on track within deadlines set. Don't need to make any changes to the project management plan, everything still happening as planned.

Any risks and/or issues identified? **Points to consider:** Because determining risks and solutions for those risks before when performing the project, don't cause any issues that cause impact not good for the project management plan.
Problems encountered **Points to consider:** Because of COVID-19 so we didn't interview offline (face-to-face). However, signal, transmission, connection, and sound problems can affect the information/data collected so we interviewed online by messenger tool to info/data get absolute accuracy.
New ideas and change of project direction **Points to consider:** We totally concentrate on our first goal. The plan stays still and not changed through time. Mean, project direction unchanged and no have anything new ideas were given.
Tasks planned for next week **Points to consider:** Continued to write the report and completed it. Have aside sufficient time for completion.
Project plan status to date (on, ahead, behind) The planning phase of the project was on time.

Date:	12/03/2021 – 31/03/2021 (Fri - Wed)

Update on weekly research/tasks achieved **Points to consider:** The work has been completed, include:

- Accomplished report

➢ Start to create a slide for the presentation

Did fulfill task requirements and be on track within deadlines set. Don't need to make any changes to the project management plan, everything still happening as planned.

Any risks and/or issues identified?

Points to consider:

Because determining risks and solutions for those risks before when performing the project, don't cause any issues that cause impact not good for the project management plan.

Problems encountered

Points to consider:

Because of COVID-19 so we didn't interview offline (face-to-face). However, signal, transmission, connection, and sound problems can affect the information/data collected so we interviewed online by messenger tool to info/data get absolute accuracy.

New ideas and change of project direction

Points to consider:

We totally concentrate on our first goal. The plan stays still and not changed through time. Mean, project direction unchanged and no have anything new ideas were given.

Tasks planned for next week

Points to consider:

Continue creating a slide for presentation and complete it. Have aside sufficient time for completion.

Project plan status to date (on, ahead, behind)

The execution phase of the project was on time.

Date:	22/4/2021 (Thu)

Update on weekly research/tasks achieved

Points to consider:

The work has been completed, include:

- Slide to present finished
- Gave a presentation

Did fulfill task requirements and be on track within deadlines set. Don't need to make any changes to the project management plan, everything still happening as planned.

Any risks and/or issues identified?

Points to consider:

Because determining risks and solutions for those risks before when performing the project, don't cause any issues that cause impact not good for the project management plan.

Problems encountered

Points to consider:

Because of COVID-19 so we didn't interview offline (face-to-face). However, signal, transmission, connection, and sound problems can affect the information/data collected so we interviewed online by messenger tool to info/data get absolute accuracy.

New ideas and change of project direction

Points to consider:

We totally concentrate on our first goal. The plan stays still and not changed through time. Mean, project direction unchanged and no have anything new ideas were given.

Tasks planned for next week

Points to consider:

Closing project. Have aside sufficient time for completion.

Project plan status to date (on, ahead, behind)

The closing phase of the project was on time.

REFERENCES

[1] Connors Writing Center, 2021. *Research Proposals*. [online] Unh.edu. Available at: <https://www.unh.edu/writing/sites/default/files/media/pdfs/research_proposals_final.pdf> [Accessed 21 April 2021].

[2] Guides.lib.usf.edu. 2021. *LibGuides: ENC1101_LibraryInstruction: The Research Process*. [online] Available at: <https://guides.lib.usf.edu/c.php?g=291297&p=2104188> [Accessed 21 April 2021].

[3] voccii.com. 2021. *Market Research Methods (Primary vs Secondary Research)*. [online] Available at: <https://voccii.com/market-research-methods-primary-vs-secondary-researchhttps://voccii.com/market-research-methods-primary-vs-secondary-research> [Accessed 22 April 2021].

[4] Toxplanet.com. 2021. *ToxPlanet*. [online] Available at: <https://www.toxplanet.com/primary-vs-secondary-research-the-pros-and-cons.html> [Accessed 22 April 2021].

[5] Elsevier Author Services - Articles. 2021. *The importance of Literature Review in Research Writing - Elsevier Author Services - Articles*. [online] Available at: <https://scientific-publishing.webshop.elsevier.com/research-process/importance-literature-review-research-writing/> [Accessed 22 April 2021].

[6] Academicguides.waldenu.edu. 2021. *Academic Guides: Literature Review: Role of the literature review*. [online] Available at: <https://academicguides.waldenu.edu/doctoralcapstoneresources/litreview> [Accessed 22 April 2021].

[7] Jain, Deeksha & Krishna, P. & Saritha, V., 2012. A Study on Internet of Things based Applications. [online] Available at: <https://www.researchgate.net/publication/227172798_A_Study_on_Internet_of_Things_based_Applications> [Accessed 31 January 2021].

[8] Bhat, A., 2020. Primary Research- Definition, Examples, Methods And Purpose | Questionpro. [online] QuestionPro. Available at: <https://www.questionpro.com/blog/primary-research/> [Accessed 31 January 2021]

[9] Bhat, A., 2021. Secondary Research- Definition, Methods And Examples. | Questionpro. [online] QuestionPro. Available at: <https://www.questionpro.com/blog/secondary-research/> [Accessed 31 January 2021]

[10] Guru99.com. 2021. *What is Waterfall Model in SDLC? Advantages & Disadvantages*. [online] Available at: <https://www.guru99.com/what-is-sdlc-or-waterfall-model.html> [Accessed 31 January 2021].

[11] Aeris | India. 2021. *What is IoT? Defining the Internet of Things (IoT) | Aeris*. [online] Available at: <https://www.aeris.com/in/what-is-iot/> [Accessed 31 January 2021].

[12] Bharti Bansal and Shweta Rana, 2017. *Internet of things: Vision, applications and challenges*. [online] Ijcttjournal.org. Available at: <http://www.ijcttjournal.org/2017/Volume47/number-4/IJCTT-V47P136.pdf> [Accessed 31 January 2021].

[13] Hitachi, L., 2021. *IoT-enabled AI technologies for self-driving connected cars : Hitachi*. [online] Hitachi's Research & Development. Available at: <https://www.hitachi.com/rd/sc/aiblog/023/index.html> [Accessed 13 March 2021].

[14] Vivek Kumar, 2021. *Augmented Mobility IoT is Redefining Autonomous Vehicles Landscape*. [online] Analytics Insight. Available at: <https://www.analyticsinsight.net/augmented-mobility-iot-is-redefining-autonomous-vehicles-landscape/> [Accessed 13 March 2021].

[15] Bernard Marr, 2021. *The Future Of The Transport Industry - IoT, Big Data, AI And Autonomous Vehicles*. [online] Bernard Marr. Available at: <https://www.bernardmarr.com/default.asp?contentID=1204> [Accessed 13 March 2021].

[16] Guest Writer, 2021. *AI is the Foundation of Autonomous Vehicles*. [online] IoT For All. Available at: <https://www.iotforall.com/autonomous-cars> [Accessed 13 March 2021].

[17] ERTICO Newsroom. 2021. *Self-driving vehicles and IoT services take the stage in Versailles - ERTICO Newsroom*. [online] Available at: <https://erticonetwork.com/self-driving-vehicles-and-iot-services-take-the-stage-in-versailles/> [Accessed 13 March 2021].

[18] Ronald L. Jackson II, D. K. (2007). What Is Qualitative Research? Qualitative research reports in communication 8.1, 21-28. [online] Available at: <https://blogs.baruch.cuny.edu/com9640/files/2010/08/JacksonetalQRR.pdf> [Accessed 13 March 2021].

[19] Sukamolson, S. (2007). Fundamentals of quantitative research. Bangkok. [online] Available at: <https://www.academia.edu/5847530/Fundamentals_of_quantitative_research> [Accessed 13 March 2021].

[20] Admin. 2021. *Types of AI Agents - Javatpoint*. [online] Available at: <https://www.javatpoint.com/types-of-ai-agents> [Accessed 13 March 2021].

[21] Joshi, N., 2021. *7 Types Of Artificial Intelligence*. [online] Forbes. Available at: <https://www.forbes.com/sites/cognitiveworld/2019/06/19/7-types-of-artificial-intelligence/?sh=508d50b3233e> [Accessed 13 March 2021].

[22] Schank, R.C., 1987. What is AI, anyway?. AI magazine, 8(4), pp.59-59. [online] Available at: <https://ojs.aaai.org//index.php/aimagazine/article/view/623> [Accessed 13 March 2021].

[23] Bringsjord, S. a. (2003). What is artificial intelligence? Psychometric AI as an answer. [online] Available at: < https://www.researchgate.net/publication/2925401_What_is_Artificial_Intelligence_Psychometric_AI_as_an_Answer> [Accessed 13 March 2021].

[24] Brodsky, J. S. (2016). cars, Autonomous vehicle regulation: How an uncertain legal landscape may hit the brakes on self-driving. Berkeley Tech. LJ. [online] Available at: < https://lawcat.berkeley.edu/record/1127427/files/fulltext.pdf> [Accessed 13 March 2021].

[25] J3016, S. i. (2014). AUTOMATED DRIVING LEVELS OF DRIVING AUTOMATION ARE DEFINED IN NEW SAE INTERNATIONAL STANDARD J3016. [online] Available at: < https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20190308-Geneva/09_SAE_Update-on-Global-Ground-Vehicle-Standards.pdf> [Accessed 13 March 2021].

[26] NICHOLAS WALLIMAN, B. B. (առանց ամսաթվի). Your research project. 2001. [online] Available at: <https://www.amazon.com/Your-Research-Project-Step-Step/dp/1412901316> [Accessed 13 March 2021].

[27] Legg, Shane, and Marcus Hutter. "Universal intelligence: A definition of machine intelligence." Minds and machines 17, no. 4 (Nyholm, S. and Smids, J., 2016. The ethics of accident-algorithms for self-driving cars: An applied trolley problem?. Ethical theory and moral practice, 19(5), pp.1275-1289.): 391-444. [online] Available at:

<https://www.researchgate.net/publication/1904177_Universal_Intelligence_A_Definition_of_Machine_Intelligence> [Accessed 13 March 2021].

[28] Howard, D. and Dai, D., 2014, January. Public perceptions of self-driving cars: The case of Berkeley, California. In Transportation research board 93rd annual meeting (Vol. 14, No. 4502, pp. 1-16). [online] Available at: <https://trid.trb.org/view/1289421> [Accessed 13 March 2021].

[29] Stone, P., Brooks, R., Brynjolfsson, E., Calo, R., Etzioni, O., Hager, G., Hirschberg, J., Kalyanakrishnan, S., Kamar, E., Kraus, S. and Leyton-Brown, K., 2016. Artificial intelligence and life in 2030. One Hundred Year Study on Artificial Intelligence: Report of the 2015-2016 Study Panel, p.52. [online] Available at: <https://ai100.stanford.edu/sites/g/files/sbiybj9861/f/ai_100_report_0831fnl.pdf> [Accessed 13 March 2021].

[30] Tettamanti, T., Varga, I. and Szalay, Z., 2016. Impacts of autonomous cars from a traffic engineering perspective. Periodica Polytechnica Transportation Engineering, 44(4), pp.244-250. [online] Available at: <https://www.researchgate.net/publication/309166095_Impacts_of_Autonomous_Cars_from_a_Traffic_Engineering_Perspective> [Accessed 13 March 2021].

[31] ProjectManager.com. 2021. *How to Make a Project Plan: The Ultimate Guide to Project Planning*. [online] Available at: <https://www.projectmanager.com/project-planning> [Accessed 22 April 2021].

[32] Nmbu.instructure.com. 2021. *Changing the Research Plan: Scientific Writing Resource Portal*. [online] Available at: <https://nmbu.instructure.com/courses/2280/pages/changing-the-research-plan?module_item_id=3102> [Accessed 22 April 2021].

[33] By me, 2021. *Survey about Autonomous Vehicles Affect*. [online] Google Docs. Available at: <https://docs.google.com/forms/d/1UrkzwRnQrNIl-A0fFHRgKmqRzsqjC5l3-MDz5f9yyww/edit> [Accessed 22 April 2021].