INF2002 - Human Computer Interaction:

Studio Assignment 1

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INTRODUCTION

Autonomous vehicles (AV) are revolutionizing transportation by offering solutions to traffic congestion, reducing human error in accidents, and improving fuel efficiency. Despite these advancements, AV adoption remains slow due to passenger concerns about safety, control, and comfort. This report aims to explore these key passenger concerns through needfinding and task analysis, identifying solutions to enhance user experience, build trust, and improve AV adoption.

ACTIVITY & DESIGN THEME

Selected Activity

The selected activity focuses on riding as a passenger in an AV for daily commuting. In this scenario, the user fully relies on the vehicle's AI system to navigate to their destination.

Relevance to Design Theme

The activity is relevant to the design theme of enhancing passenger experience in AV by addressing their needs and concerns. The focus is on understanding how the absence of human control and transparency in decision-making affects passenger trust and comfort. By analyzing this activity, the design challenge becomes clearer and that is the need to create systems that can gain trust, provide greater transparency, and offer passengers ways to interact with the vehicle.

NEEDFINDING

Selected Needfinding Methods

Two methods were used for needfinding:

- Survey: This method collected broad, quantitative data from Singapore residents regarding their concerns, perceived benefits of using AV and their commuting habits. A total of 84 participants (36 drivers and 48 non-drivers) participated.
- Interviews: This method provided qualitative insights by interviewing 6 Singapore residents. The purpose of the interview is to gain a deeper understanding of personal experiences, concerns and needs related to AVs.

Survey Results

The survey revealed several key findings:

Most of the drivers who participated in the survey engage in passive activities such as listening to music or podcasts, as shown in Figure 1, while non-drivers prefer browsing social media during commutes, shown in Figure 2, reveals that 89.6% of the 48 non-drivers prefer during their travels.

Figure 3 and Figure 4 shows that both groups include safety and the desire for manual control. Many respondents are also keen on using AVs to enhance productivity or relaxation during their

commutes, showing a preference for features like live navigation updates and entertainment options.

Around 97.2% of respondents preferred enhanced safety protocols, while 75% of drivers wanted a manual override capability. Both groups also favored features like live route updates and entertainment options.

Figure 5 and Figure 6 reveal that most drivers and non-drivers prefer live route and navigation updates displayed in AVs, along with other popular features like estimated time of arrival, traffic conditions and safety alerts.

Survey Conclusion

The survey reveals strong interest in AV, though concerns about safety and control remain major hurdles to adoption. Both drivers and non-drivers are keen on features that enhance safety, such as collision avoidance and emergency braking systems, while drivers prefer manual override options and non-drivers emphasize the importance of government regulations. The data also shows a desire for features that enhance the in-car experience, including live navigation updates, safety alerts, and entertainment options. To foster greater public acceptance, manufacturers must prioritize transparent safety protocols, reliable manual controls, and rigorous cybersecurity measures, ensuring that AVs not only offer convenience but also instill confidence in users.

Interview Results

All the interviewees were aware of the existence of AVs, although their depth of knowledge varied. Below are the key benefits mentioned by the interviewees:

- Key Benefits of AVs
    - Common benefits cited by interviewees
        - Stress-free driving, reduced human error, time-saving, environmental benefits and convenience (e.g., benefits for people who cannot drive such as the elderly and disabled)
- Driving and Commuting Habits
    - Public transport users: Most relied on public transport and expressed frustration with unpredictable wait times and traffic jams.
    - Drivers: Mentioned congestion, poor weather and cost of car maintenance as challenges.
- Openness to AVs
    - All interviewees were open to using AVs, with key deciding factors being cost, safety and convenience.
- Concerns
    - Safety: All interviewees expressed concern on the safety such as how AVs would navigate mixed traffic with human drivers and the reliability of sensors to navigate emergency situations.
        - Interviewee 4: Highlighted concerns about the possibility of AV software being hacked which could put passengers in danger.

        - Interviewee 1 and 3: Highlighted concerns about potential malfunctions and breakdowns.
        - Interviewee 2, 4, 5 and 6: Focused on how the AV handles emergency situations and using the sensor to detect surroundings.
    - Using AVs
        - Interviewees also expressed doubts about AVs' ability to handle complex traffic, the reliability of sensors in emergencies, and the risk of system failure. Cybersecurity threats, such as the possibility of hacker attacks, also raised concerns about passenger safety.
- Desired Features
    - Features such as live route tracking, battery status notifications, entertainment (e.g., music and games) and in particular, manual override in emergencies were mentioned.

Interview Conclusion

The interview results identified key benefits of AV that include stress-free driving, reduced human error, convenience, and accessibility for non-drivers, particularly the elderly and disabled. Interviewees expressed frustration with current commuting challenges such as traffic and unreliable public transport, making them open to AVs if they are affordable, safe, and convenient. However, safety concerns were significant, particularly regarding sensor reliability, emergency handling, and potential malfunctions or hacking. Desired features included live route tracking, battery notifications, entertainment options, and a manual override for emergencies. Overall, the interviewees believed that AV interfaces should provide real-time information, entertainment and safety features and visual cues for route changes.

TASK ANALYSIS

Goal 1: Monitor Ride Progress in AV

Users want to ensure their trip is on track, check the ETA, and receive updates for route changes or delays.

- Main Task: Monitor ride progress via the interactive screen.
- Subtasks:
    - Check Trip Status
        - Navigate to the "Current Trip" section.
        - View the live route map with real-time updates on vehicle location.
        - Check traffic conditions to get the shortest route and update route.
        - Check the estimated time of arrival (ETA).
        - Receive Notifications
        - Receive notifications about route changes or delays (e.g., traffic or detours).
- Pros: Provides real-time and accurate information which increases user trust and transparency.

- Cons: Too much information may overwhelm users, and connectivity issues could cause delays in updates, leading to frustration.
- Conclusion: Providing real-time updates improves user confidence but may lead to information overload. Streamlined and predictive notifications can enhance the experience.

Goal 2: Monitor Vehicle Status and Conditions for Safety
Users need to ensure the AV is in good condition during trips to feel safe.

- Main Task: Monitor vehicle status and safety through the interactive screen.
- Subtasks:
    - Check Vehicle Condition
        - Navigate to the “Vehicle Status” section.
        - View battery level, fuel status, tire pressure and engine health.
        - Users receive real-time alerts for issues like low battery or overheating.
    - Receive Safety Notifications
        - Users are alerted to any potential hazards like sensor or brake issues
        - Include reminders for upcoming maintenance to ensure vehicle reliability.
    - Emergency Contact
        - Sends message of current location to emergency contacts in case of emergency
        - Automatic call for ambulance when accidents happen
- Pros: Real-time updates enhance user trust by reducing the risk of breakdowns or accidents.
- Cons: Too much technical information may overwhelm users, and sensor failures could lead to inaccurate alerts or false alarms.
- Conclusion: Monitoring vehicle status during trips offers peace of mind by providing real-time updates, reducing the risk of breakdowns. While this builds user trust, too much technical detail or sensor failures could cause confusion or false alarms. Simplifying the interface and ensuring reliable alerts are key to improving the user experience.

USER NEEDS

1. **Real-Time Route & Navigation**
    - Users want live updates on their route, ETA, and traffic disruptions for a smooth and transparent experience.
2. **Safety Information & Emergency Features**
    - Users prioritize safety alerts (eg. collision avoidance) and quick access to emergency services, boosting confidence in the vehicle's safety.
3. **Vehicle Health & Maintenance Alerts**
    - Users desire real-time notifications on vehicle health (e.g., battery, tire pressure) to ensure proactive maintenance and peace of mind.
4. **Control & Customization Options**

- Users want flexibility with manual override and customizable settings for speed, route, and driving modes, offering reassurance and control.

5. **Entertainment Options**
    - Passengers need engaging, customizable entertainment like news and media to make travel time more productive or relaxing.

IMPLICATIONS

The task analysis and needfinding have revealed several user needs, such as real-time route, vehicle condition monitoring, safety alerts, and customization options. Implications for the design include prioritizing the display of essential, real-time information in a clear and non-overwhelming manner. Users highly value safety and transparency, so the design must incorporate reliable safety alerts and vehicle health notifications that are easy to access and understand. Overloading the user with technical details or too many options could diminish the experience, so the interface needs to strike a balance between providing useful information and avoiding information overload.

For instance, while users want to have a feature that monitors ride progress, too much data on traffic or routes can overwhelm them, especially if frequent updates are presented without context. Similarly, when monitoring vehicle status, users want to stay informed but without having to understand highly technical data. A simplified, visually intuitive design that presents predictive notifications will help users feel in control without needing to process excessive amounts of information.

CONCLUSION

In conclusion, it is clearly highlighted that having a real-time route progress and vehicle health status improves user confidence and trust in the AV system. However, the design must mitigate problems such as information overload that could overwhelm the users. In order to enhance user experience, the design should focus on streamlining the interface, ensuring that only critical information such as ETA updates, traffic alerts, and maintenance reminders is emphasized, with the option to include more details only when necessary.

Additionally, to have a safety monitoring system, it must provide reliable, real-time notifications that alert users to potential hazards or vehicle issues, while reducing the likelihood of false alarms. Clear, visually engaging icons and user-friendly navigation can simplify complex information, ensuring users feel both safe and informed without being overwhelmed. As users prioritize control and customization, offering simple and straightforward safety and navigation features will make the app more accessible and appealing, ultimately improving the adoption and trust in AV systems.

APPENDIX

Survey Questions

Generic Questions

- What age group do you belong to?
- Do you drive?

Drives

- What do you currently do to pass time during long drives or commutes?
- Are you aware of the existence of Autonomous Vehicles (AV)?
- What do you believe are the biggest benefits of autonomous vehicles?
- If you were a passenger in an autonomous vehicle, what activities would you most likely engage in?
- What features would make you feel more comfortable using an autonomous vehicle?
- What features will you like to see in an AV display screen?
- What are your biggest concerns about using an AV?
- If given the option, would you prefer an autonomous vehicle that is fully self-driving or one where you can take over control when desired?
- Any suggestions you have to improve AVs? (Optional)

Do not drive

- What is your most frequent mode of transport?
- What activities do you mostly engage in while taking your transport?
- What challenges do you usually encounter while taking your transport?
- Are you aware of the existence of Autonomous Vehicles (AV)?
- What do you believe are the biggest benefits of autonomous vehicles?
- What features would make you feel more comfortable using an autonomous vehicle?
- What features would you like to have displayed on the screen in an AV?
- What are your biggest concerns about using an AV?
- Any suggestions you have to improve AVs? (Optional)

Interview Questions

Are you aware of the existence of Autonomous Vehicles (AV)?

If No (proceed to explain briefly before moving on)

If Yes (move on)

- What do you know about AV? What do you think are the benefits it provides?
- Do you have any concerns about AV?
- Do you drive a car?

  Yes

  - How often do you drive and what do you usually drive for?
  - Are there any problems/challenges you face when you drive?
  - What do you currently do to pass time during long drives or commutes?
  - How do you think the introduction of AVs will change your daily commute? If you were a passenger in an autonomous vehicle, what activities would you most likely engage in?

- If you could own an AV, what features would you want to see on the screen?
- How important is the ability to manually override an AV to you?

No

- What is the reason for not driving?
- Since you do not drive, what is your mode of transport for daily commuting and what is the process like?
- What activities do you mostly engage in while taking your transport?
- How willing are you to use AVs for daily transportation? Why?
- What factors would influence your willingness to use AVs?
- If you could ride an AV ,what features would you want to see on the screen?

Interview Notes

(Interviewed by Andrea)

Interviewee 1	
Are you aware of the existence of AV?	Yes
What do you know about AV? What do you think are the benefits it provides?	AVs are like driverless cars, where you can just program it to where you want to go and it just drives you to your destination without the need for you to drive. It is good, but if the mechanism goes haywire or technology fails, it can be dangerous and result in accidents. Benefits ● Stress free when driving: It relieves me of the traffic conditions like traffic jams, accidents or heavy rain. ● Safety: It prevents accidents as I believe there are sensors. ● Convenience: It benefits people who cannot drive. The elderly and disabled can also go out or go for medical appointments without taking public transport. For those who do not know road directions well, AVs can take them to their destinations easily and they do not need to trouble their family members to help them or accompany them. ● Saves time: It saves time as there is no need to walk to the bus stop or MRT station to wait for public transport. ● AVs can also fetch children to school and enrichment classes if parents are busy.
Do you have any concerns about AV?	All technology related items can break down Concerns

	Cost and Safety: The cost may be high since automation is involved. I am also concerned about the safety in the event of any malfunction involved and accidents can happen
Do you drive a car?	Yes
How often do you drive and what do you usually drive for?	I drive daily as I have to fetch my children to and from school and also to their enrichment classes. I also drive to fetch my elderly mother for her medical appointments. I also drive for my work purpose. I am mainly on the road many hours a day.
Are there any problems/challenges you face when you drive?	Heavy traffic especially during peak hours or when there are accidents or road blockages. Heavy rain can also be challenging to drive as visibility is low. Recently, people are getting more impatient and there is more road rage, drunk drivers and speeding cars. High cost of petrol, ERPs, and maintaining a car can also be challenging.
What do you currently do to pass time during long drives or commutes?	I normally listen to music and news on the radio. I also talk to my passengers.
How do you think the introduction of AVs will change your daily commute?	It will not change for me as I still have my own vehicle. After my car's COE expires, I am open to changing to AV if the cost is not exorbitant.
If you were a passenger in an autonomous vehicle, what activities would you most likely engage in?	I can use the time to relax, read a book, take a nap or gather my thoughts, watch a movie, play games, observe what is going on in the surroundings without the need to concentrate on the road.
If you could ride an AV, what features would you want to see on the screen?	● Most important: Trip duration, route / map live tracking ● Easy programming, user friendly, not complicated functions, adjustable font sizes, able to detect my current location so I just need to input my destination. ● Display ETA (taking into consideration live traffic conditions like accidents or road blocks), weather conditions (the place I want to go may be raining while my current place is sunny) and battery life (when to charge car) ● Suggest alternative routes and the option for human driver when necessary In a bigger vehicle like a bus, it would be good to have individual screens and a main one as some with poorer vision may not be able to see clearly if there is only 1 main screen. Some may prefer an individual screen at each seat that can be customized to the features they want, like choosing the songs they like to listen to or the movies they want to watch.
How important is the ability to	Very important

manually override an AV to you?	

(Interviewed by Ye Chen)

Interviewee 2	
Are you aware of the existence of AV?	Yes
What do you know about AVs? What do you think are the benefits it provides?	Self-driving cars will be an interesting entity in the future. Do not need to manually drive and reduce accidents due to human errors Most of the road accidents nowadays are due to human errors so AV might solve that.
Do you have any concerns about AV?	Safety because I am not sure of the reliability of sensors. I am scared that the AV will not be able to detect obstacles and collide with it while driving.
Do you drive a car?	No
Since you do not drive, what is the process you go through when you go home/work?	I usually commute by taking MRTs and buses. I will walk to the public transport station, take them to the station closest to my destination and proceed to walk there.
Why do you choose not to drive?	I currently do not know how to drive. In the future, I might not drive as well due to the cost of owning a car in Singapore.
What activities do you mostly engage in while taking your transport?	I usually use my phone to read comics, listen to music videos and browse social media. If I manage to get a seat I will sleep.
How willing are you to use AVs for daily transportation?	I am very willing to.
What factors would influence your willingness to use AVs? (eg cost, safety, convenience)	Cost ● If the cost is not high, I would be willing to use it. ● Maybe if it can be shared, like how Go-Get rental cars work, then the cost can come down Availability ● It also helps if I can be informed or have access to available AVs around, so I would be able to know if there are available AVs around for me to use to add to my convenience
If you could ride an AV, what features would you want to see on the screen?	Live routes and ETAs to track my travel progress. Road conditions and news for entertainment.

(Interviewed by Che Khei)

Interviewee 3	
Are you aware of the existence of AV?	Yes
What do you know about AVs? What do you think are the benefits it provides?	- No need drivers - Less human error - More sustainable, produce lesser carbon footprint compared to normal vehicle - People with disability will still be able to own a car without the ability to drive
Do you have any concerns about AV?	- Safety: worry that it will fail and break down (eg. suddenly no battery), worry that it will not be able to detect road hazard and car accident - Cost of maintenance: might be expensive for users
Do you drive a car?	No
Since you do not drive, what is the process you go through when you go work?	- At 8.20am in the morning, will have to walk to the bus stop and wait for the bus (usually very hot) - After waiting for about 5 to 10 mins, bus arrive - Change to another bus after 3 stops and have to wait for another bus again - Bus waiting time for the second bus is not accurate and unpredictable, waited longest for 15 mins before - Second bus ride is about 20 mins without jam. With jam, will be around 40 mins but has experience 1hr of jam before due to road break down - After the bus arrives at the destination, need to walk for about 5 mins to arrive at work. There is no shelter for the route from the bus stop to work.
Why do you choose not to drive?	License expensive and no time to take license
What activities do you mostly engage in while taking your transport?	- Listen to music - Browse through social media - Sleep
How willing are you to use AVs for daily transportation?	- Out of 10, it will be a 6 - Unless it is tested and proven that it is safe, then will be more willing to try

What factors would influence your willingness to use AVs? (eg cost, safety, convenience)	- Safety - Cost
If you could ride an AV ,what features would you want to see on the screen?	- Map to show route to destination - Warnings given when the car is at low power - Able to connect to phone so that can do activities such as picking up a call in the AV - Watch movie - Would be good to have a feature that could reduce motion sickness

(Interviewed by Aradhana)

Interviewee 4	
Are you aware of the existence of AV?	Yep, i am aware of it
What do you know about AVs? What do you think are the benefits it provides?	- I know that AVs are super cool, and that more and more places are thinking/looking into bringing AVs to their place since it is a pretty new concept (though it also comes with its own set of risks) - I think some benefits would be that it reduces the cost of human labour, as no one would need to drive the vehicle and everything is automated. The vehicle would also automatically know how to drive the car around, making it reliable on finding the fastest/most efficient route - Some people might like it more if they are introverts, as they won't need to make conversations with the driver.. - Since it reduces the cost of human labour, it might also potentially become affordable
Do you have any concerns about AV?	- Yes, mainly about how it handles emergency situations, and how aware it is of its own surroundings - Main concern is on whether it can detect its surroundings properly, so that it does not compromise on the passenger's safety, nor the pedestrians/drivers around the vehicle. - Another concern is with regards to the security, as there might be a small potential that the vehicle's software gets "hacked"?? And ends up kidnapping/putting the passenger in danger

Do you drive a car?	- no
Since you do not drive, what is the process you go through when you go home/work?	- I usually take the public transport, such as both train and bus - Occasionally if i'm in a rush or im tired, i would opt to take a taxi or private hire
Why do you choose not to drive?	- I dont choose not to drive, its just that i dont have a driving permit - Partially also because of the traffic on roads, especially during peak hours - And parking fee costs
What activities do you mostly engage in while taking your transport?	- I use my phone, scroll social media or watch shows - Occasionally, i just enjoy music and watch the scenery if there is any
How willing are you to use AVs for daily transportation?	- If it is affordable, on a scale of 1-5, i would say about 4
What factors would influence your willingness to use AVs? (eg cost, safety, convenience)	- Affordability - Safety - Convenience - Availability - Cleanliness - Sustainability
If you could ride an AV ,what features would you want to see on the screen?	- The route/direction that it is taking (like gps on tesla) - Visual cues on where it is turning/doing (turn left/right, move forward/backward, brake) - In ride entertainment (speaker control, screen)

(Interviewed by Hui Min)

Interviewee 5	
Are you aware of the existence of AV?	Yes.
What do you know about AVs? What do you think are the benefits it provides?	Not much, but since AV is auto, I think it can help people who don't know how to drive. Even people who drive will probably be happy to sit back and relax during their commute. It's more convenient and do not have to worry about driving.
Do you have any concerns about AV?	I am concerned about the safety, how reliable is it that the AV does not need a person to man it? Maybe there will be issues

	when AV drives on the same roads as normal cars, for example, if a normal car is about to crash into the AV from the back, im not sure how the AV can avoid it.
Do you drive a car?	No.
Since you do not drive, what is the process you go through when you go home/work?	I usually walk to the MRT and take it to work. Around 8.30am I will leave house, walking about 7 minutes to the MRT. Then, I take the MRT for about an hour, having to switch lines once. I then walk about 10 minutes to my office building from the station. Going home, sometimes my colleagues who drive will offer me to drop me off somewhere closer to home, so I can at least skip the peak rush hour commute and do not have to change MRT lines.
Why do you choose not to drive?	It is too expensive in Singapore. The price of COE is always rising, the cars itself are expensive, and you don't even own the car forever. You only get it for 10 years, and I think that is not worth the money at all. Recently there have been more rental car apps that I heard about, but I do not have a license and I am not sure if I want to get a license at this point of time.
What activities do you mostly engage in while taking your transport?	I always use my phone to browse social media or watch videos. Sometimes I play games and listen to music as well.
How willing are you to use AVs for daily transportation?	That will have to depend on how much it'll cost and how safe it is. And how would that work? Would it be like public transport? I don't think I can afford an AV. If it is something like public transport where everyone can ride in an AV, I would consider it.
What factors would influence your willingness to use AVs? (eg cost, safety, convenience)	Convenience, safety and cost. There would be no point in taking an AV if it is not convenient, and it has to be safe in order to ride on it. If the cost outweighs the current rates for grabs [private hires], then I also don't see why I should take the AV.
If you could ride an AV ,what features would you want to see on the screen?	Journey details such as time started, time of arrival, route taken. It should show the status of the AV, like fuel or battery levels. Would be nice if it also has an interface to select music or shows, or maybe simple old school games like tetris and bubble shooter.

(Interviewed by Shing Ying)

Interviewee 6	
Are you aware of the existence of AV?	Yes.
What do you know about AVs? What do you think are the benefits it provides?	The first thing that comes to mind is Tesla, it is not exactly autonomous but they have a function that allows u to drive by itself. There are some vehicles in Singapore that I know are autonomous. The driver can be less focused on the road, they can do things on the side. Lesser occurrence of accidents due to the drivers responses not being quick enough since the AV will have sensors. Easier way of navigating since the human does not need to navigate it is already the system.
Do you have any concerns about AV?	Concerned for maintenance and how reliable the AV is to detect threats. Safety aspect, needs a manual override or another driver on the side. Maybe privacy issues, AVs might need a lot of cameras and sensors which the passengers might not like.
Do you drive a car?	Yes
How often do you drive and what do you usually drive for?	2 times a month, it can be either a car or a bus. If I drive a car it's normally for leisure and if I drive a bus it is normally for work.
Are there any problems/challenges you face when you drive?	There are always random obstacles on the road such as stones and tree branches. Other drivers also pose a problem such as motorcyclists as they will drive in between cars. Pedestrians will cross anywhere so I will need to look out for them as well. Navigation is also an issue, if you are unfamiliar with the road you will need to keep checking my GPS and it may be quite distracting.
What do you currently do to pass time during long drives or commutes?	There are other passengers in my car and I will talk to them. I will also play music while driving but normally there's not much to do to pass time since you need to be focused on the road.
How do you think the introduction of AVs will change your daily commute?	I will probably be more relaxed, I will just put in the destination and let the AV run its course.

If you were a passenger in an autonomous vehicle, what activities would you most likely engage in?	If I could, I would sleep but it may not be the safest so I will probably do some activities so that I have some awareness when I am riding the AV. Such as reading a newspaper or maybe getting ready for work/school on the AV.
If you could own an AV, what features would you want to see on the screen?	I want to see where it is going, I also want to see all the statuses of the sensors to see if it's working. It would be nice to have an entertainment screen that can watch videos. Mainly I would like to see the operational aspect of the AV to make sure that the whole ride process is smooth.
How important is the ability to manually override an AV to you?	If the system is well researched, I would have full faith in the system but anything can go wrong so it would be definitely good to have a manual override function.

Survey Figures

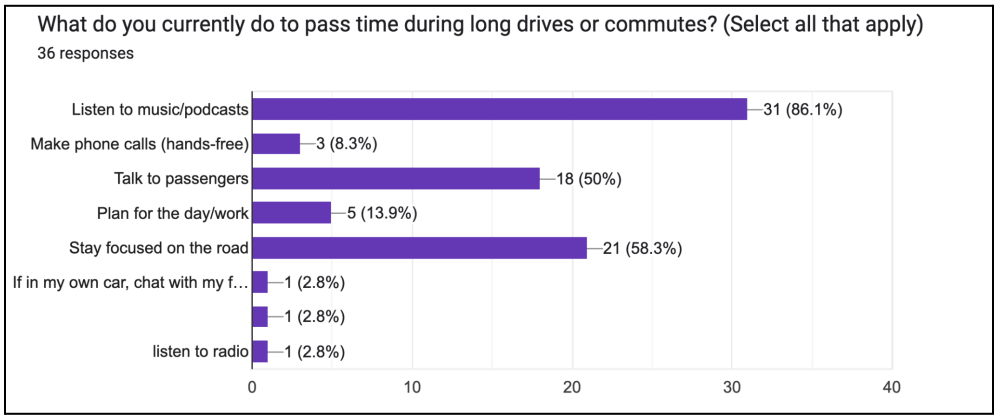

Figure 1: Drivers' responses to activities during commute

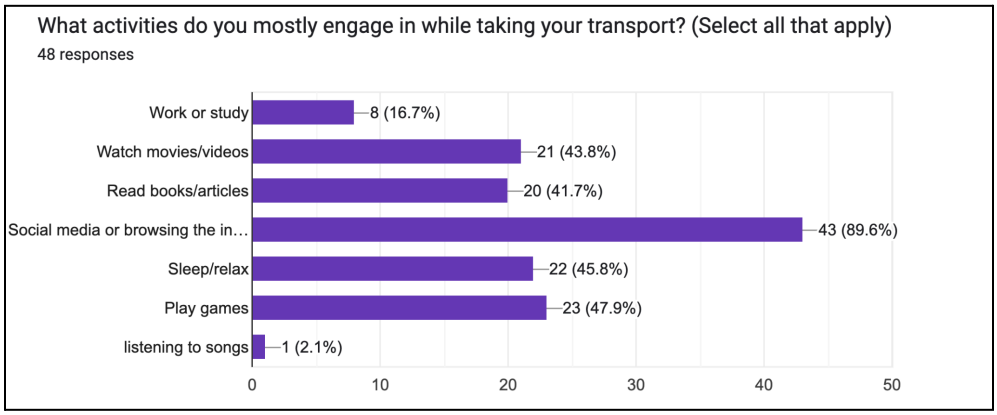

Figure 2: Non-drivers' responses to activities during commute

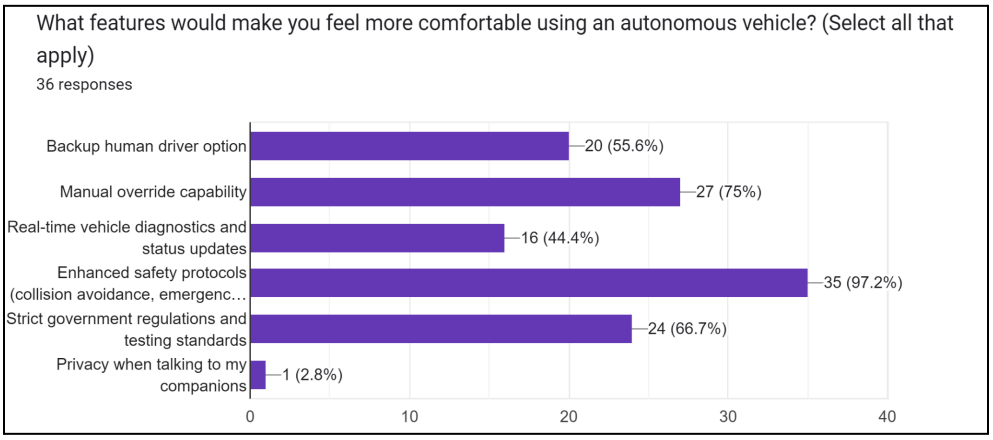

Figure 3: Drivers' responses to features that would make AV users more comfortable

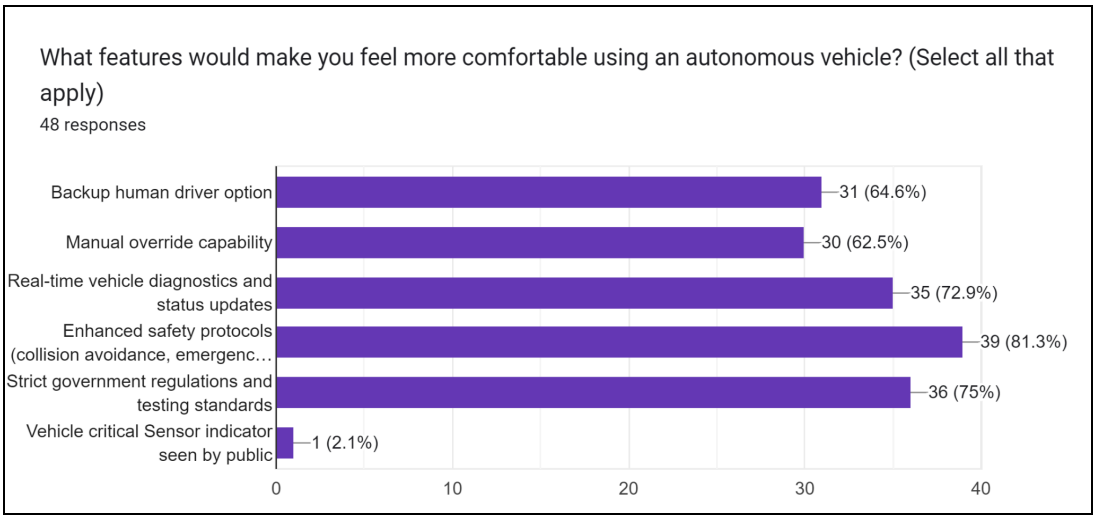

Figure 4: Non-drivers' responses to features that would make AV users more comfortable

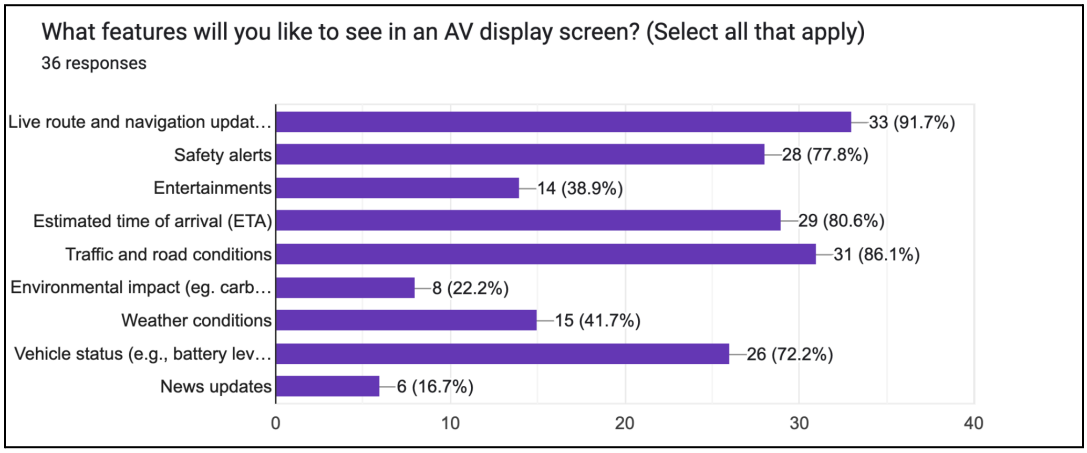

Figure 5: Drivers' response to features that they would like to see in an AV

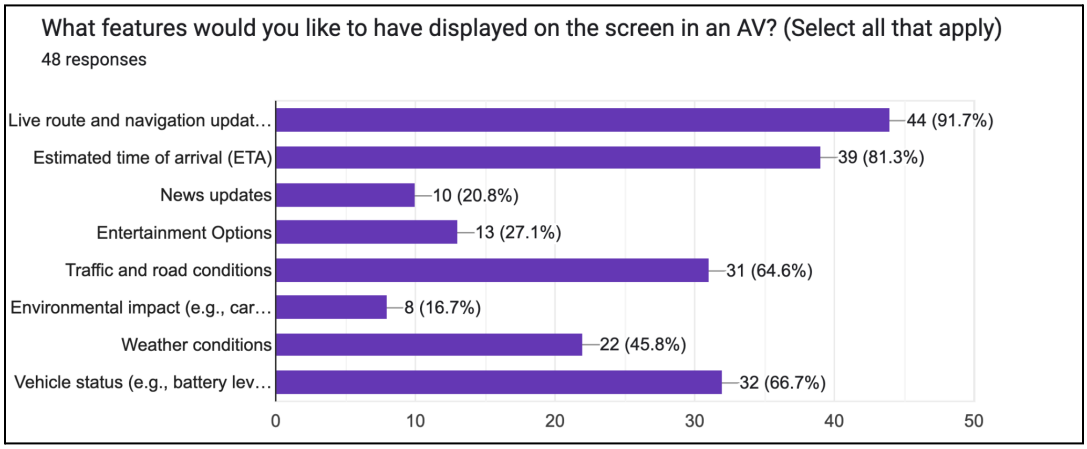

Figure 6: Non-drivers' response to features that they would like to see in an AV

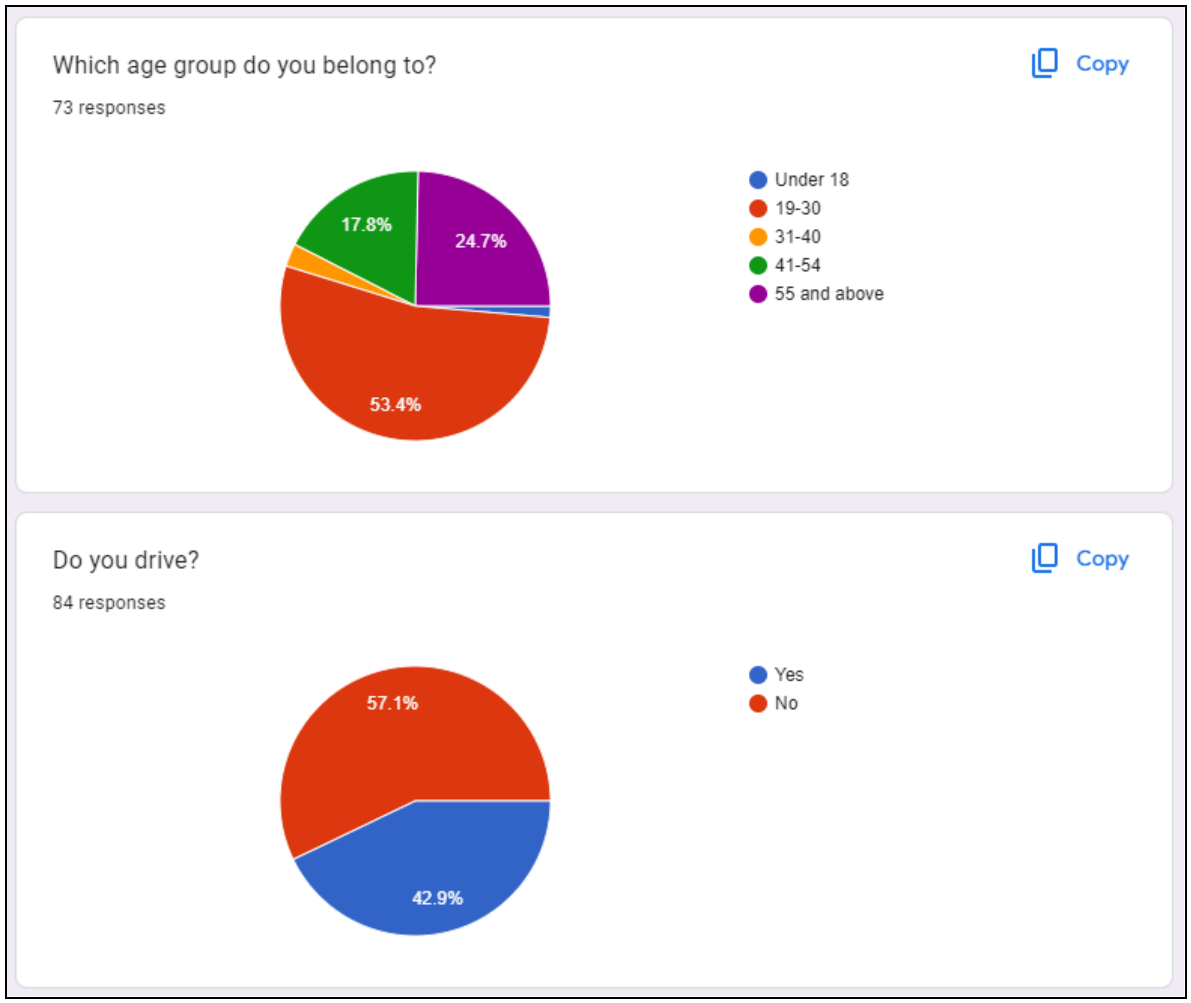

Figure 7: Responses for age group and whether do they drive

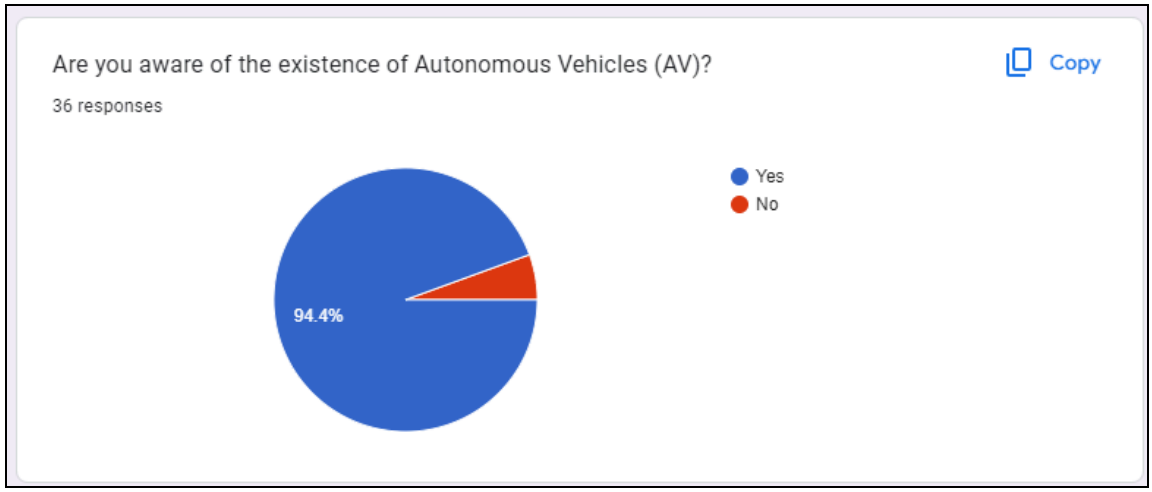

Figure 8: Drivers' responses on their awareness of AV

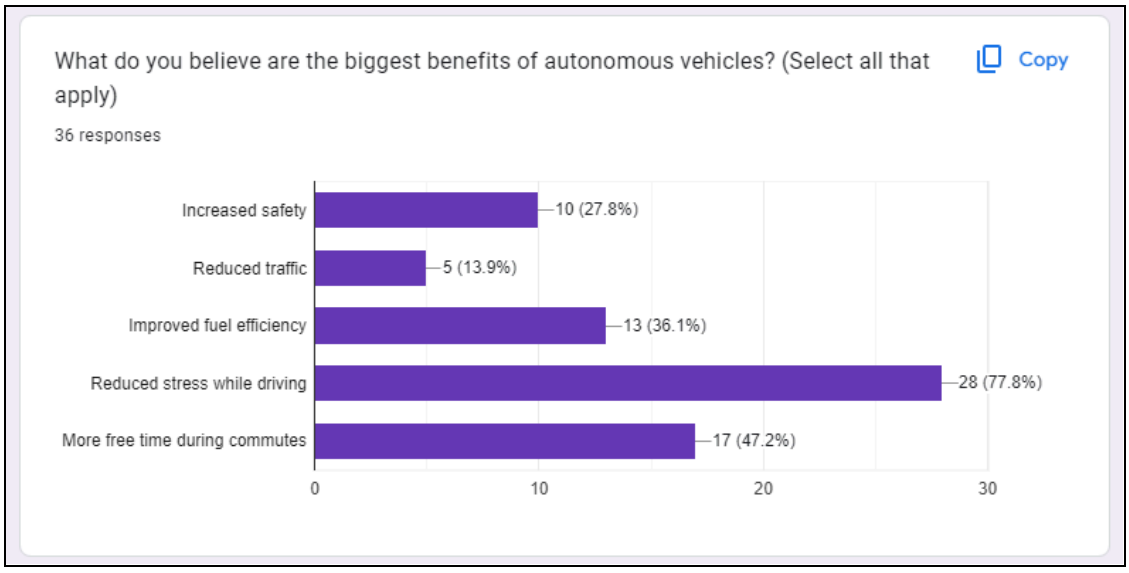

Figure 9: Drivers' responses on what they believe are the benefits of AV

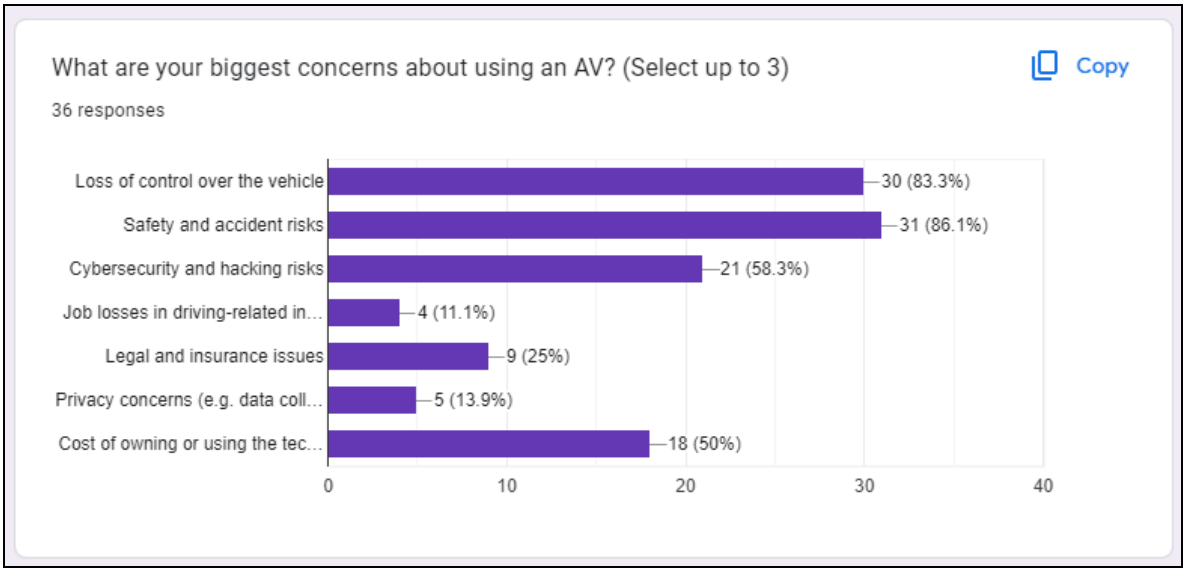

Figure 10: Drivers' responses on their concerns about AV

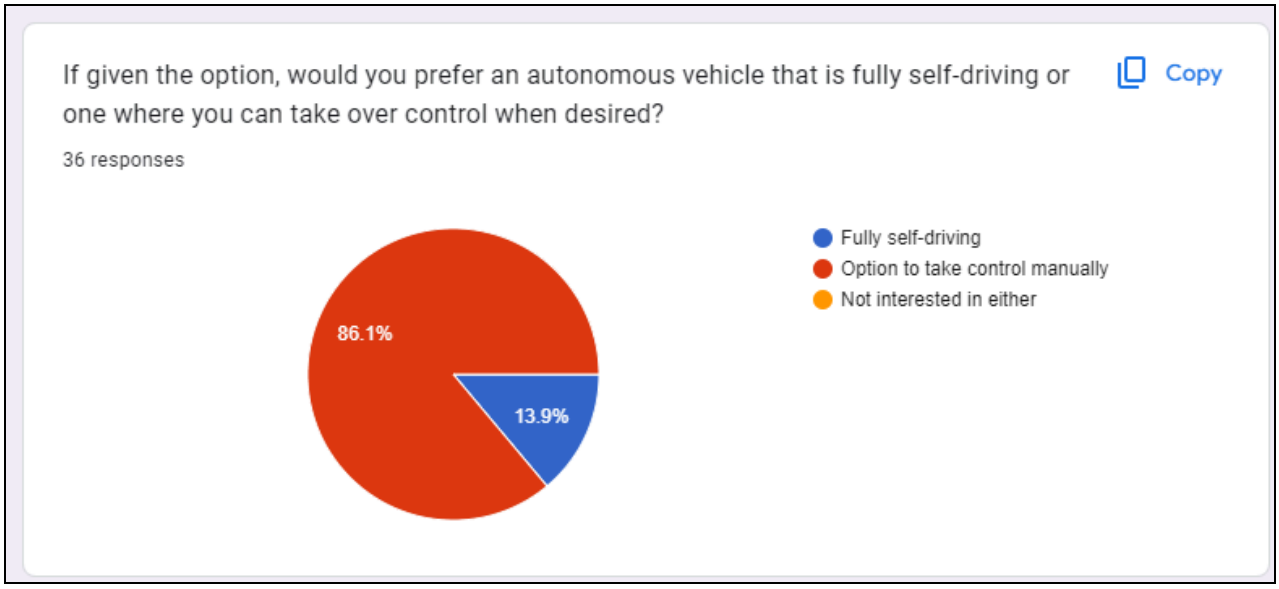

Figure 11: Drivers' responses on whether they prefer to take over the AV when desired?

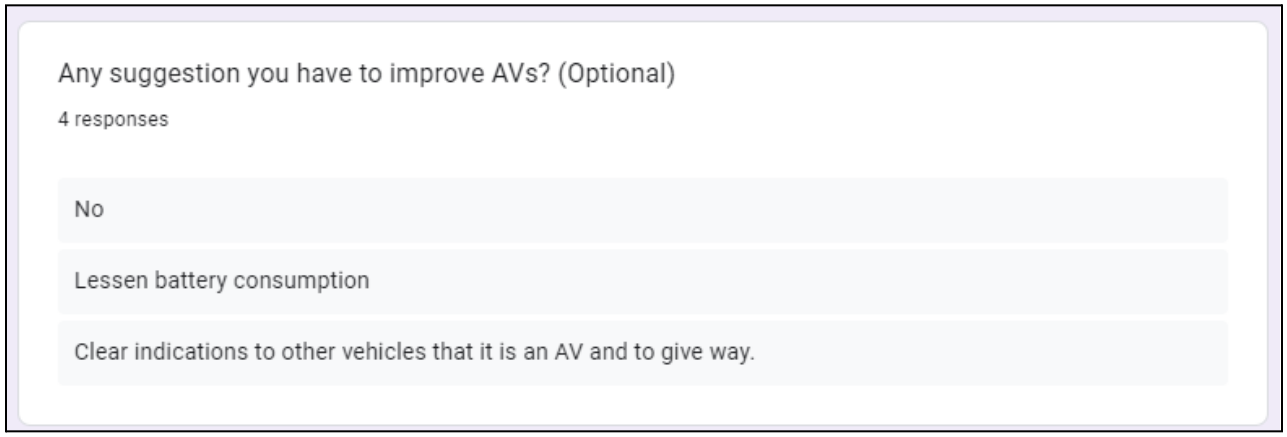

Figure 12: Drivers' open ended responses on suggestions they think AV can be improved

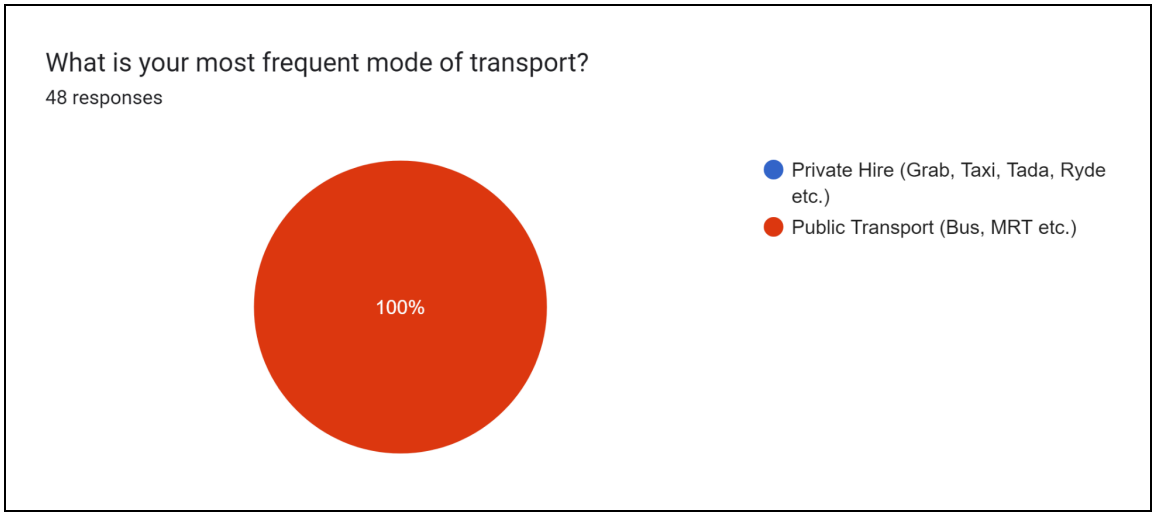

Figure 13: Non-drivers' most frequent mode of transport

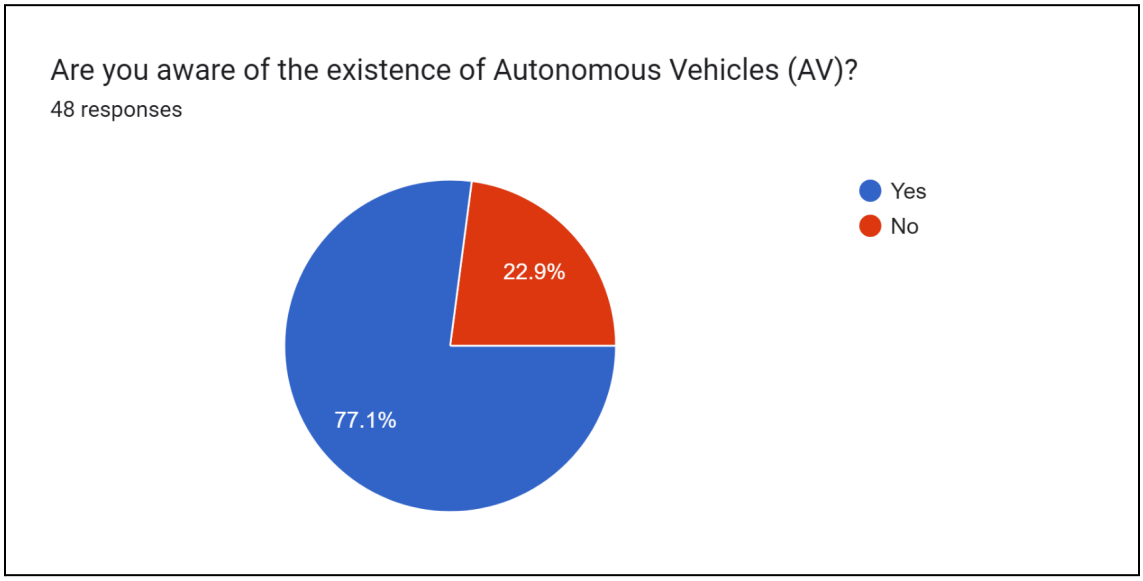

Figure 14: Non-drivers' responses on their awareness of AV

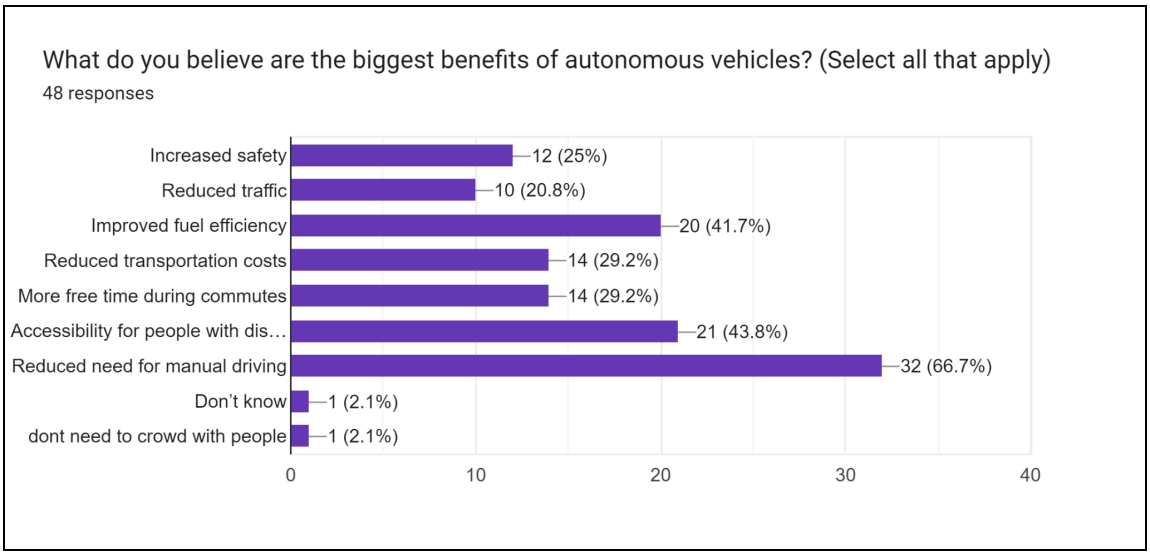

Figure 15: Non-drivers' responses on what they believe are the benefits of AV

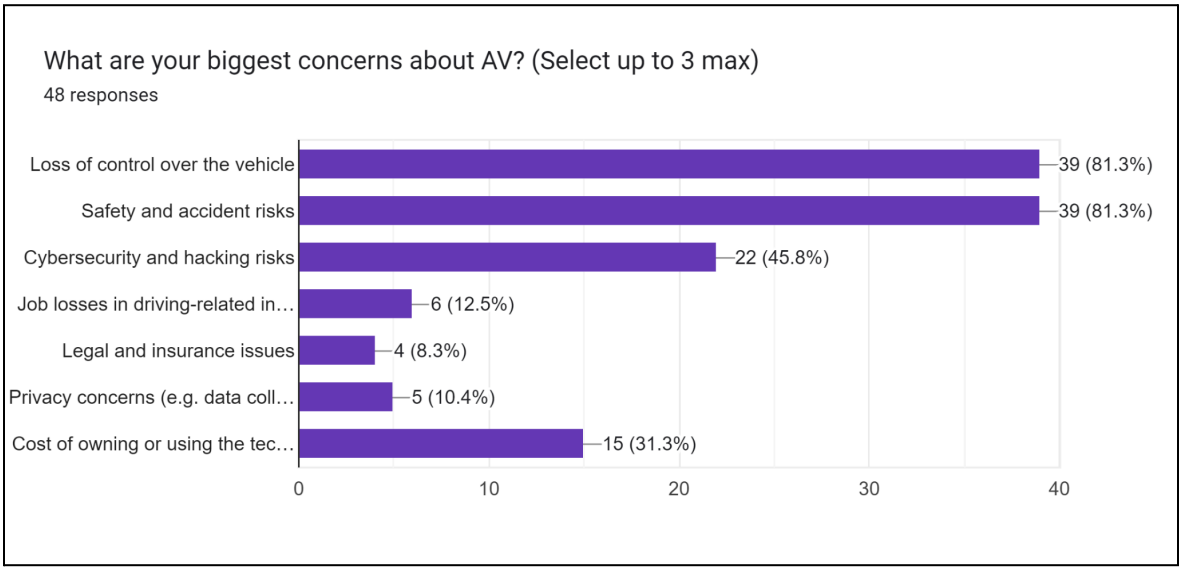

Figure 16: Non-drivers' responses on their concerns about AV

Figure 17: Non-drivers' open ended responses on suggestions they think AV can be improved