Page 1

| **Lesson Plan** | | | |
| --- | --- | --- | --- |
| **Name:** | Phillip Bell | | |
| **Job Title:** | Autonomous Vehicle Safety Operator (AVSO) | | |

| **Date:** |  | | |
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| **Aim:**  *(Overall goal?)* | Complete all Learning Outcomes required for **Unit 1**:   * LO1 Drive an electric vehicle safely. * LO2 Prepare and drive an electric vehicle safely to a high standard. * LO3 Prepare and drive an autonomous vehicle in data collection. | | |
| **Objective:**  *(Steps taken to reach that goal?)* | - Undergo a high standard driving test to show your professionalism and ability to drive to the standards required here at Wayve  - Be shown how to conduct a BUI of a vehicle and ensure its roadworthiness before heading out onto the road.  - You will use your understanding of the systems to set up, and safely conduct a DC run to our closed road test site. | | |
| **Session:**  *(What are you planning to do? What resources did you use?)* | Today you will be working towards successful completion of LO3.  You will learn how to correctly set up the vehicle in Data Collection mode and plot a route to the test site.  You will follow the sat nav correctly and ensure a high standard of driving is maintained throughout your time on the road | | |
|
| **Trainer**  **Feedback:**  *(What Went Well & Areas Of Improvement)* | Phillip performed to the required standard today during his Unit 1 drive up to Millbrook, we discussed needing to ensure a safer distance is kept from vehicles so we don’t train the models this behaviour. On the motorway we talked about not undertaking vehicles and forward planning more to ensure we overtake correctly.  No issues found, good all round observations and hand positioning.  Well done, keep maintaining these standards | | |
| **Learner Self-Reflection:** | I am pleased with my performance on my assessed drive up to millbrook. Kieran praised me where I was doing my checks and also pointed out improvements where he felt necessary. | | |

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| **Lesson Plan** | | | |
| --- | --- | --- | --- |
| **Name:** | Phillip Bell | | |
| **Job Title:** | Autonomous Vehicle Safety Operator (AVSO) | | |

| **Date:** | 19/03/24 | | |
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| **Aim:**  *(Overall goal?)* | Complete all Learning Outcomes required for **Unit 2**: - LO1 Prepare an autonomous vehicle for safe operation in a Closed Road Testing - LO2 Operate an autonomous vehicle in a Closed Road Testing environment | | |
| **Objective:**  *(Steps taken to reach that goal?)* | - Attend a Closed Road Testing (CRT) site and conduct Autonomous driving - Work through the required steps needed to setup a Autonomous Feature Test (AFT) test on the UI - Learn and put into practise the methods of intervening with the system - Safely carry out an AFT | | |
| **Session:**  *(What are you planning to do? What resources did you use?)* | Today you will attend the test site and we will show you how to set up an AFT through the steps required on the UI.  We will show you the areas we use on the site to ensure your understanding of the different areas.  We will have discussions around Interventions with the systems and carry out a couple of tes circuits s to make sure you are comfortable operating the system, that you feel in control to intervene with the system if necessary and we will start to build up your confidence | | |
|
| **Trainer**  **Feedback:**  *(What Went Well & Areas Of Improvement)* | Phillip did well conducting CRT today, he naturally got used to the systems and gave good all round observations. We discussed the importance of all round observations and how these are crucial when conducting on-road testing. He showed a great ability to intervene in a safe and controlled way with the system when he felt the model was doing something he wouldn’t do as a driver. Moving into the city circuit he showed a great ability to intervene the moment the car wet out of the lines. Great all round observations | | |
| **Learner Self-Reflection:** | I enjoyed the millbrook outer circuit. I was able to clearly differentiate between the two models (Teal and Emerald)  The city track tested the model and my interventions more as the turns were very tight. Kieran was good at spotting where I may have forgotten my push and pull at one point, as well as doing both blind spots. | | |

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| **Lesson Plan** | | | |
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| **Name:** | Phillip Bell | | |
| **Job Title:** | Autonomous Vehicle Safety Operator (AVSO) | | |

| **Date:** | 20/03/2024 | | |
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| **Aim:**  *(Overall goal?)* | Complete all Learning Outcomes required for **Unit 3**: - LO1 Prepare an autonomous vehicle for safe operation in a Open Road Testing - LO2 Operate an autonomous vehicle in a Open Road Testing environment | | |
| **Objective:**  *(Steps taken to reach that goal?)* | - Head to Linton Street and Sommers Town to learn about on road testing. - You will be shown how to correctly setup an AFT for an Open Road Test, using the UI. - You will have the opportunity to demonstrate your ability to safely conduct testing. | | |
| **Session:**  *(What are you planning to do? What resources did you use?)* | During this session you will head out to Linton Street, Sommers Town and following successful competence at these test sites, you will conduct a Cali V2 test route. These environments will help you to further develop your skills as an AVSO. You will be shown how to set up an AFT, how to manually plot a route/load one from the UI pre planned maps and carry out a AFT of this route. | | |
|
| **Trainer**  **Feedback:**  *(What Went Well & Areas Of Improvement)* | Phillip carried out the BUI and showed a good understanding of how to set up an AFT on the UI and how to plot a route for an AV run.  He did well with on road testing today and showed a great improvement in handling the car in AV and demonstrated good standards in control and safety. We discussed the need for timely blindspot checks earlier on in the day, which improved a great deal throughout the day. We also discussed engaging in AV in good safe zones.  His interventions are carried out really well and controlled. He conducted a solo drive in the Linton Street location which he felt went well and that he felt that his confidence in AV is growing.  We discussed the importance of following the route map to ensure you are aware if the model is staying on route and catch it with an intervention if it’s about to go off route.  We then moved over to Sommers town where we encountered a problem with the wifi. Philip took advice from me and carried out different steps to try and get it working. He eventually got it working and learnt different problem solving methods along the way.  Phillip continued to grow more confident in AV and he took control of interventions in a safe and timely manner.  We went on to do a short Cali route where Phillip demonstrated a good level of AV testing.  Well done Phillip, keep up the good work! | | |
| **Learner Self-Reflection:** | At the start of our BUI today we encountered a problem where the system was stuck in cycling mode, and I am happy with our checks made to resolve the issue (turning the system off and on again) in order to continue our further checks.  On Linton street I feel that I was confident in using AV mode for the first time on the wide road and made appropriate interventions when needed. I feel that I need to improve on my taxonomy as I can sometimes get confused on which “What” is required.  On the way to the Sommers route we lost connection and worked through the solutions to resolve the issue. This issue and loss of connection however meant I was unsure of where to go, which I felt hindered my confidence slightly for the remainder of the DC drive.  On Sommers town route I got used to assessing the AV mode in slightly tighter roads and busier situations. I felt that my blind spot checks improved as I re-did the route as well as my confidence in the system.  On the Short Cali route I felt that I regained my confidence as Shima reassured me, and made sure I was driving like a real driver would, and not how you would on a driving test.  I was impressed with the system and only made an intervention for an incorrect overtake initiated for a bus.  Shima also gave me reminders to beep when moving off and out of the site. As well as making sure the car is in neutral parking brake when exiting the car so that it does not shut off.  Overall I think that the first day on the road went well and I am growing in confidence each time I drive. | | |

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| **Lesson Plan** | | | |
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| **Name:** | Phillip Bell | | |
| **Job Title:** | Autonomous Vehicle Safety Operator (AVSO) | | |

| **Date:** | 21/03/24 | | |
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| **Aim:**  *(Overall goal?)* | Continue to develop your ability to operate Autonomous vehicles in more complex environments | | |
| **Objective:**  *(Steps taken to reach that goal?)* | - Conduct testing on Alpha 1, 2 routes and a Crouch End. | | |
| **Session:**  *(What are you planning to do? What resources did you use?)* | During this session, Learners will head out and start conducting testing on Alpha, 1, 2 and Crouch end testing routes. This session will continue with the development of your AVSO skills, changing to a more complex environment and maintaining Autonomous Driving for longer distances. | | |
|
| **Trainer**  **Feedback:**  *(What Went Well & Areas Of Improvement)* | In the morning, Phillip seemed a little anxious when in AV mode. He was intervening quite early before giving the model a chance to react. We discussed that safety is of utmost priority, however moving forward, interveneing unecessarily is not the correct way to conduct AV testing as we can start teaching the model incorrect driving styles.  We discussed blindspot checks to be made on approach to and before you are about to turn and not during as whilst taking a turn, our priority needs to be checking whats going on ahead of us. Phillip took this on board and improved on his observations throughout the rest of the day.  On one occassion Phillip intervened with the foot pedal but did not place his hands on the steering wheel, I explained the importance of hands needing to be on the wheel for an intervention, just as we would if we are driving, however this happened a few times before Phillip got the hang of it.  We discussed that whilst in AV at a zebra crossing, you must make sure the pedestrians have finished crossing before you allow the model to continue driving. We also spoke about not allowing the car to come to a stop at an empty zebra crossing whilst in AV, we need to intervene and keep the car moving as the following car would not be expecting us to come to a stop.  We will continue to work on the above and develop Phillips skills in onroad testing. | | |
| **Learner Self-Reflection:** | On my Alpha 1 and 2 runs I got used to testing AV mode on slightly longer routes than yesterday. This enabled me to understand the model better, and where the common interventions were needed.  On the crouch end route I made a few interventions but as a whole felt I was getting more confident.  On the Finsbury park run I made a few early interventions where I felt the model wasn't acting as fast as I’d like it to. For example Slow Zebra, and Lane position.  I could have given the model a second more to react but I still need to monitor if it does feel unsafe or not. Shima made sure I was comfortable before starting each run. She was helpful in reminding me to make my blind spot checks before the turn in order to focus on the road ahead during the manoeuvre. She also corrected or reassured me that I was using the correct taxonomy for every intervention which helped me remember them a lot better.  Overall I felt I made positive progress during my Crouch end and Finsbury Park runs. | | |

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| **Lesson Plan** | | | |
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| **Name:** | Phillip Bell | | |
| **Job Title:** | Autonomous Vehicle Safety Operator (AVSO) | | |

| **Date:** | 22/3/24 | | |
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| **Aim:**  *(Overall goal?)* | Continue to develop AV Testing skills further | | |
| **Objective:**  *(Steps taken to reach that goal?)* | Conduct ALR testing runs. Crouch End and Finsbury Park | | |
| **Session:**  *(What are you planning to do? What resources did you use?)* | Carry out runs across the whole day of ALR routes, Crouch End and Finsbury Park | | |
|
| **Trainer**  **Feedback:**  *(What Went Well & Areas Of Improvement)* | Initially today we started a crouch end run, following a few late interventions and a concern for safety during these, we decided to cut the run short and DC back to HQ, with a plan to revert back to CaliV2 runs. There were a few issues regarding standards on the drive back so we spent the morning working on Phillips High Standard of driving. In the afternoon, Phillip shadowed another AVSO and myself out on the road to see ‘what good looks like’. We discussed how to plan ahead and the attention required when in AV. Phillip took over and we completed x2 short circuit routes. There were still some issues regarding late interventions and safety during DC on these. We ended the day with a discussion about standards, what they are and how we need to build Phillip up to these during his DC driving, so it will help his AV testing.  Overall Phillip, you have got great all round observations, it would be good to see the actions you take from these observations better timed. Nice and early and safe. It would be good to see Phillip continue with some DC driving and look at improving his awareness in this area, then we can build more on his AV testing once we can see the DC driving level is where we need it. | | |
| **Learner Self-Reflection:** | During my crouch end run today I made a few late interventions where I should have reacted a lot quicker. At one point I hesitated to intervene whilst a bus was merging. I should have braked earlier in order to make sure there was an appropriate distance between myself and the bus. I also continued through a left turn junction box, however I should have waited in the box as the exit wasn't clear enough for me to clear the crossing. From here Kieran asked me to do a few DC runs just to make sure I was confidently conforming to the highway code. Throughout the DC run Kieran reinforced the importance of maintaining a high level of driving, in order to train the model in the correct way.  Going forwards I will continue to constantly be aware that my driving will affect the way the model will learn, and always forward plan in order to judge how to react in situations before they happen. | | |

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| **Lesson Plan** | | | |
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| **Name:** | Phillip Bell | | |
| **Job Title:** | Autonomous Vehicle Safety Operator (AVSO) | | |

| **Date:** | 25/03/24 | | |
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| **Aim:**  *(Overall goal?)* | Improve High Standard of driving Increase forward planning Earlier decision making Start incorporating AV Correct actions on observations | | |
| **Objective:**  *(Steps taken to reach that goal?)* | Conduct ALR testing runs. Crouch End and Finsbury Park | | |
| **Session:**  *(What are you planning to do? What resources did you use?)* | Carry out runs across the whole day of ALR routes, Crouch End and Finsbury Park | | |
|
| **Trainer**  **Feedback:**  *(What Went Well & Areas Of Improvement)* | Phillip did a Crouch End AV run and carried out some good well timed interventions. There was one occasion when he intervened after the car had passed an amber light at slow speed and Phillip intervened afterwards to speed it up, we spoke about intervening on approach to an amber light, especially if the vehicle had slowed down on approach, rather than waiting until it’s already gone past.  Another thing we spoke about is the importance of grabbing the wheel firmly with both hands every time he intervenes.  Phillip was receptive to the feedback and overall is showing an improvement in conducting an AV test run. | | |
| **Learner Self-Reflection:** | We started on a Finsbury Park DC run in order for Will to assess my standard of driving and to find where I needed improving.  During the DC run Will helped me to slow down and be more conscious of my forward planning. I was able to improve my DC driving by taking into account my small mirror checks whilst going round turns, as well as my distance especially when behind a bus or lorry so that I can see what is going on around them. I was able to safely progress during my DC run,  On my AV run we did a Cally V2. During this drive Will again stressed the fact of forward planning. This allowed me to make any interventions early before they escalated. At the start of my run I intervened for slow zebra and as well as speed zebra. Towards the end of the run I made far fewer interventions as I got used to how the model was behaving.  Overall I felt more confident as I progressed during the morning.  Things I need to remember are to progress after intervening and to progress when Zebras are clear.  In the Afternoon I shadowed Damien in order to get a good understanding of what an experienced AVSO run looks like. This was helpful as it showed me where I may have intervened, a more experienced AVSO may not have.  I then conducted an AV crouch end run. On this run I gained more confidence and only made 2 early interventions. When the model went through a yellow but was hesitating whether to stop or go, I intervened and accelerated to keep the car from stopping past the stop line and blocking the crossing. Alternatively I could have stopped the model earlier to avoid me having to make that intervention. | | |

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| **Lesson Plan** | | | |
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| **Name:** | Phillip Bell | | |
| **Job Title:** | Autonomous Vehicle Safety Operator (AVSO) | | |

| **Date:** | 26/03/2024 | | |
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| **Aim:**  *(Overall goal?)* | Further show your ability to operate the Autonomous vehicle systems by conducting ‘Solo testing’ on our ALR routes. | | |
| **Objective:**  *(Steps taken to reach that goal?)* | - Showcase your ability to successfully carry out testing of an autonomous vehicle when driving ‘solo’ | | |
| **Session:**  *(What are you planning to do? What resources did you use?)* | All being well that the learner has shown a successful ability to control the AV system to the required standard, they will now be able to head out and conduct ‘Solo On-road testing’. This will be a mixture of routes covered during their training, Alpha routes up to ALR’s. | | |
|
| **Trainer**  **Feedback:**  *(What Went Well & Areas Of Improvement)* | Philip is continuing to show improvement in conducting AV testing, however there are a couple of learning points that Phillip needs to work on. Whilst on a Finsbury Park run, Phillip was driving the vehicle, he drove past a green light and then stopped at the end of the road for emergency services coming from our right, once the vehicle had passed, Phillip was about to continue to drive on to turn right until he was asked to stop by his trainer. The lights had changed to red again and Phillip did not see it.   1. Phillip needs to assess the situation on the road before continuing to drive on. 2. Retain attention to current hazards and respond accordingly to the changing scenario. 3. learn taxonomy to be used when testing | | |
| **Learner Self-Reflection:** |  | | |

| **Lesson Plan** | | | |
| --- | --- | --- | --- |
| **Name:** | Phillip Bell | | |
| **Job Title:** | Autonomous Vehicle Safety Operator (AVSO) | | |

| **Aim:**  *(Overall goal?)* |  | | |
| --- | --- | --- | --- |
| **Date** | 27/03/24 | | |
| **Objective:**  *(Steps taken to reach that goal?)* |  | | |
| **Session:**  *(What are you planning to do? What resources did you use?)* |  | | |
|
| **Trainer**  **Feedback:**  *(What Went Well & Areas Of Improvement)* | This morning Phillip encountered issues with the cameras not showing images on the UI, he carried out a few different problem solving steps that he had learnt from a previous training session and managed to resolve the problem by turning the ROSCube off and back on. Also, the MIC was not working very well and he also remembered how to solve the problem from last time. He resolved both issues without any help and without asking FS for assistance. Well done for that Phillip.  He then went on to do a Finsbury Park run followed by a Crouch End run. We had a few early/unnecessary interventions, a few good interventions paired with late taxonomy or forgetting to say taxonomy at all. There was a fair amount of inconsistency with how Phillip was conducting the AV runs, with some positives and some negatives.  In the afternoon, Phillip did a Finsbury Park AV run. There was one late timed intervention to begin with, however for the rest of the run he did really well and he carried out some really good, well timed interventions followed by the correct taxonomy.  Heading down Liverpool road, waiting to pull out, a motorbike was approaching and the vehicle was pulling out of the junction and Phillip made a really late intervention with the model. The motorbike sounded his horn at the moment Phillip intervened. Phillip should have seen the situation developing and intervened to stop the vehicle sooner.  Showing inconsistency with your interventions, sometimes they are well timed however sometimes they are far too late and could have happened sooner. | | |
| **Learner Self-Reflection:** |  | | |