

AUTOMATED VEHICLE UPDATE REPORT

Report of the Corporate Director of Place and Deputy Chief Executive

1. Introduction

- 1.1. There have been a range of changes to the Synergy project as the process has been affected by both COVID-19 delays and the advances made or difficulties encountered by different partners with regards to the involved technology. These have impacted on the work that has been done by Stockport Council on the project and the activities that are proposed. This paper provides an update on progress with the project and proposed next steps.

2. Overview

- 2.1. The original aim of Project Synergy was to further develop technologies for connected autonomous vehicles (CAV), to accelerate adoption of driverless vehicles and allied technologies in the UK. The project was to introduce innovative technologies to operate connected autonomous cars in a platoon formation from Stockport to the Arrivals Terminal at Manchester Airport. Concurrently, a platoon of three pods was to transit passengers to and from a car park in the airport to the passenger terminals. Innovations include:
- Rapid battery charging using graphene supercapacitors enabling power sharing between vehicles.
 - An Artificial Intelligence system providing a natural conversation concierge service to users.
 - Development of control strategies and sensor technologies to facilitate platooning.
 - Design of secure connectivity solutions for real-time communications of the platoon convoy within urban infrastructure.
 - Deployment of resource sharing such as audio and video between the vehicles during platooning operation.
- 2.2. There are a number of companies, universities and councils involved in the project. Westfield is the lead member of the project. Groups involved in the project are:
- **Harper Adams University (Research)** - are looking to build on and provide technology transfer from their Agri-Tech Centre.
 - **Westfield** - will be building on work conducted on the GATEway and INSIGHT Projects where several vehicles have been built. Including providing the vehicles.
 - **Cisco** - will be building on the Jasper platform which has been deployed to over 8 Million Vehicles globally. The technology deployed here will be integrated into the vehicle and virtual concierge using protocols defined by Cisco and regulations which Cisco are currently drafting for Autonomous Vehicle Cyber Security

- **Conigital** - will be providing a virtual concierge system –linking into the airport duty free system and other related offer.
- **Heathrow Airport**- are providing technical support from their already proven platform at Heathrow Terminal 5 .
- **Manchester Metropolitan University** - simulation and modelling research of the effects of platooning.
- **TfGM** – are working with Manchester City Council and Stockport Council to develop policy around the issue of CAV for the future. Including work on legal issues and understanding who the early adopters are likely to be.

2.3. Stockport's Role

2.4. Stockport Council's original role was to undertake work to ensure that the trials on the Councils roads are carried out safely by:

- Undertaking a risk assessment of the proposed route.
- Ensuring that the route had received any necessary maintenance to make sure that is suitable for the trial.
- Insuring that accurate GIS mapping of the route and its signage, lining and related TROs is provided to the CAV development team as needed.
- Liaising with utilities about the trial to minimise conflict regarding works on the highway.
- The provision of communication to the public about the trial and its nature. Including safety advice about interacting with the vehicles. For example, CAV vehicles will still be subject to stopping distances as with other vehicles.

2.5. Stockport Council also received funding to undertake research into how residents, business and visitors feel about automated vehicles and how they perceive they would be used. This is funded for before, during and after the trial and will feed in to the findings of the TfGM work on policy and possible user groups.

2.6. There is also funds to increase the understanding autonomous vehicles in the public and disseminate the findings of the study.

2.7. The proposed route

2.8. The route proposal was to take the GTM cars from Stockport Station south down the A6 before joining the A555 to the Airport. Platooning is only proposed to be trialled on the A555.

3. Changes to the project

- 3.1. There have been a number of changes to the project that has led to a need to amend the programme for the project:
- 3.2. **Build Delays-** There has been delays in the production of the GTM cars to be fitted with automation equipment. This meant that a decision was taken before Christmas 2018 to move the trial period from the summer in 2019 to the winter of 2019-20. A further change was made to have the vehicles being used changed to KIAs due to issues with the GTM braking system development. The project was then extended to April 2021 due to COVID -19 so that the trial could take place in February/March 2021. A further request has been accepted to extend the project to the 31st of May 2021 in order to allow for a later trial and post-trial dissemination.
- 3.3. **Partner changes–** One of the partners has decided to leave the project meaning that the project needs to identify a new partner to do the sensor technology on the GTMs. Salford University Automated Vehicle Lab has replaced them in this function with the use of KIA vehicles rather than the GTMs.
- 3.4. **Route –** Initially the expectation was that the CAVs would run in automated mode from the Stockport Station to the airport moving in and out of platooning as possible. The nature of the trials that will be achieved by the vehicles has been fluid during the course of the project with doubts about the achievability of open road trials and plans being made to deal with the different potential abilities of the vehicles. The current expectation is that autonomous function will be trialled on 2 junctionless sections of the A555 in traffic with the presence of a professional driver ready to take back control as needed. It will not be possible for the vehicles to be in autonomous mode on the A6. The on-highway testing is still to be confirmed by the off-road testing of the vehicles and the successful application for insurance on the basis of those tests. The uncertainty around the trials has impacted on the role of Stockport in the project. The ability to undertake the final on road trial is still subject to a successful off road trial and complete safety case being accepted by the project insurers.

4. Changes to Stockport's Role

- 4.1. The initial plan for the project was that the Council would need to fund staff for trials, checking related safety cases, reviews of plans and placement of changes to the local infrastructure identified as needed to facilitate the trial. Once it became clear that the trial would potentially be a closed road trail there was still an expectation that a lot of this work would still need to be done with funding needed for road closures.
- 4.2. Now the live highway trial is again taking place within the Stockport Area but within a far tighter timescale and over a smaller area we are to focus our work on the delivery of the following deliverables:

- Ensuring that the safety case for the trial is appropriate and raising any concerns we may have in this regard whilst recognising that the Local Authority does not hold the power to deny the progress of a trial on open roads in the borough.
 - Undertaking a pre-trial inspection of the route where autonomous vehicle will be in autonomous mode.
 - Consultation with the public to get a clear understanding of the views of the public in Stockport about the connected and autonomous vehicles in order to support future decisions regarding connected and autonomous vehicles. An initial draft questionnaire is included in Appendix 1 for comment.
 - Utilise data and learnings from previous research by TfGM and involved Universities to prepare and finalise a policy plan for the district regarding future Connected and Autonomous Vehicle developments
 - Dissemination of the findings in the borough.
 - Assisting TfGM with any online public events related to the trial.
- 4.3. Funding for this is still available although following the reduction in work we expect some funding has been reallocated to other areas of the project to support technology development.
- 4.4. It was always assumed that there may be a need for physical items as part of the consultation and the dissemination of the project with related funding being provided and we will work within the project to complete these elements as needed in line with the current proposed trial.
- 4.5. Initial project work to be subcontracted fell into 2 parts: firstly, traffic monitoring to establish effects on traffic of the live traffic trials and secondly, the adjustment of the highway to meet the needs of the trial in terms of safety and information to the public. Once it was suggested that the process would need to include closed roads it was considered that the costs of the process of closing the road and the process of making sure that the site was set up appropriately was assumed to be the probable use of the provided funding.
- 4.6. The identification that there is again a suggested route and on road trial but without the time to put in place some of the monitoring that had previously been suggested will mean that a decreased level of funding is required. However, there will still be a need for signage and some work to ensure that there has been checks of the road and repairs as necessary along the route for autonomous travel. Again as a result some of this funding has been redirected to other elements of the project.
- 4.7. Travel and Subsistence costs were funded to support expected meetings and project related travel. Much of this has not occurred due to the fact that COVID-19 has removed physical meetings, however, again while some has been redirected in the project some has been retained to facilitate unexpected needs in relation to the project. This is mainly in regards to the trial should it result in some type of physical event despite COVID-19 restrictions. Officers will continue to work closely with

colleagues in Public Health and PRT to review the potential for any physical events in the future.

- 4.8. Public Relations was initially expected to be a larger process due to the expected trials and related events. This has been reduced to reflect the need having reduced although some has been retained due to the need to do some dissemination and also potentially work to address the changes in the project around the trials and explain that to interested people.
- 4.9. Consultation was initially expected to be a more hands on process with physical interactions. COVID-19 has changed this which has led to the proposed spend being cut back. However, as the consultation is still proposed in some way and the process is still funded only slight reductions have been undertaken in order to support the areas of the project which are underfunded.

5. Next Steps

- 5.1. Stockport has recently taken over the management of the projects website which will enable it to be brought up to date and be utilised for the dissemination of the projects consultation documents and the finding of the trial and deliverables finished to date. It will also be a suitable location for the provision of relevant advice about connected and autonomous vehicles to the public as necessary.
- 5.2. There is also further work being undertaken between Stockport and Manchester Council regarding the risk assessment of the route. This is awaiting further information from Salford University on the exact locations where autonomous travel will be undertaken and the risk assessment that will be undertaken.
- 5.3. Once the location and dates of the trial are confirmed then work will be undertaken to ensure that there is an inspection of the route locations before the trial takes place and if any defects are identified then action taken to address them. We are expecting the trial to take place in towards the end of May.
- 5.4. The development of a questionnaire is underway to understand the views of the general public with regards to the use of connected and autonomous vehicles. An initial draft questionnaire is included in Appendix 1 for comment.
- 5.5. Stockport will also work with the other project members to share the learning from the project. The current communications plan is attached in appendix 2.

6. Future Potential

- 6.1. Although automation of vehicles is still a developing area of work, Stockport is keen to be involved in its development and to support the creation and growth of businesses based in Stockport to support this initiative. This will enable us to

ensure that the residents and businesses of Stockport benefit fully from this new technology. Therefore, we are eager to understand the potential positive opportunities which we can exploit while making sure that we are ready to address any negative impacts that may result. Involving ourselves in this trial and being open to take part in future trials is a key part of this process.

6.2. Stockport has a wealth of skills and labour supply which can potentially develop and grow within the automation field. Especially where current businesses in the borough are involved in digital, computer programming, electronic hardware development and advanced manufacturing. This initiative could also tie in to Stockport's ambition to create green technology that supports the achievement of net zero carbon.

6.3. The proximity of Stockport to Salford University with its Automotive And Autonomous Vehicle Technology Labs also enables the potential for a skills, qualifications and educational offer to be developed in the borough with FE partners to create a clear opportunity to encourage today's school leavers to engage in this area of technological development and follow a career pathway in the sector.

6.4. The Council is also aware of the areas of work that the Council undertakes which could benefit in the long term by the use of automation. This is especially true where the work has a high risk to human safety. Examples include: working a height, in enclosed spaces and underwater work. Early examples of automation have already been used in the borough to minimise operative risks by utilising an automated grass cutter on a roundabout where access by members of ground maintenance staff was difficult. However the costs of these early adoptions is significant.

7. FINANCIAL AND RISK ASSESSMENT CONSIDERATIONS

7.1. Revenue and Capital consequences of report recommendations - None. 100% funding is reclaimed from innovate UK.

7.2. The effect of the decision - None, report does not ask for a decision

7.3. Risks - The project is subject to regular risk reviews in line with the risk management strategy established at project inception. Innovate UK have been continuously monitoring project risks.

7.4. Future savings/ efficiencies - Not applicable from the current trial. Future Autonomous vehicles may capture savings when rolled out.

8. Legal Considerations

8.1. The project has been developing a safety case which must be completed and approved by the necessary insurance authority before it is possible to undertake on road trials.

9. Human Resources Impact

9.1. The Stockport strands of the project are facilitated by staff from the Transport Strategy and other Transport Highways teams as necessary.

10. Equalities Impact

10.1. The trial will not involve public access. All vehicles must be considered by the safety case to be appropriately safe to use on the public highway to participate in on road trials. This includes considering the wide range of groups that can be found on the highway.

10.2. The consultation process proposed will be subject to the same levels of accessibility as other council questionnaires to enable participation for all.

11. Environmental Impact

11.1. The short vehicle trial using electric KIAs will have minimal environmental impact over a very short period.

12. SCRUTINY RECOMMENDATIONS

12.1. Comment and note report.

Further Information

<http://synergy-cav.com/>

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BACKGROUND PAPERS

There are none

Anyone wishing to inspect the above background papers or requiring further information should contact Mark Glynn on Tel: 0161-474-3700 or by email on mark.glynn@stockport.gov.uk