

5G Connected Tram

Transport



5G Case Study

5G Connected Tram



West Midlands
Combined Authority



Department for
Digital, Culture,
Media & Sport



EUROPEAN UNION
European Regional Development Fund



HM Government

Supported by the
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Synopsis

Working with West Midlands Metro and GoMedia, West Midlands 5G (WM5G) is exploring how 5G connected trams can create new possibilities for the region's public transport.

Trams collect a variety of valuable information, including CCTV footage and tram performance and maintenance data. Currently, this information is accessed and downloaded manually, outside the hours of operation.

To hasten this process, we equipped a tram with a 5G solution from Icomera. The increased bandwidth offered by 5G allowed high-definition CCTV footage captured on the tram to be securely and remotely transferred to the Regional Traffic Control Centre while in operation.

The ability to transmit high-levels of data almost instantaneously unlocks incredible opportunities to strengthen passenger safety. And to improve the maintenance of key public transport routes, operators will be able to provide passengers with the right information and give them confidence in using public transport post-COVID.

In the future, entire networks of trams could be equipped with 5G sensors that help engineers identify issues and perform maintenance on carriages and vital infrastructure. Looking forward, passengers will also be able to enjoy real-time travel information, on-board entertainment and a much safer and more reliable service.





Problem

Currently, CCTV footage from a West Midlands Metro tram can only be retrieved through a manual process. The data therefore must be accessed and downloaded outside the hours of operation.

Naturally, this reduces the speed at which investigations into on-board incidents can be investigated by the Regional Traffic Control Centre (RTCC).



Solution

To speed this process up, WM5G trialled equipping a tram with 5G. The fifth generation technology's low latency allowed the tram to securely and remotely transfer high-definition CCTV footage in real-time to the relevant authorities.

By conducting this trial, WM5G established that 5G allows for the safe and remote transfer of real-time CCTV footage, allowing further prospective use cases to now be developed.



Benefit

Digitising tram networks will help improve passenger safety and allow better incident management from local authorities.

Information on passenger capacity, crowding and social distancing will be available to help with COVID.

Passengers will also enjoy the benefit of a more tailored service, accessing on-board entertainment via 5G and real-time travel updates.

In the future, 5G-enabled trams could help engineers identify, maintain and service carriages and vital infrastructure.

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This project is a great demonstrator of how 5G can transform the way that public transport services are delivered. This use case is an example of how one technology, in this case CCTV, can open up a number of added value services and provide business opportunities for the organisations delivering them. We're pleased to have successfully showcased this project using 5G to connect trams while on the move. I congratulate West Midlands Metro, GoMedia and Icomera for working well together to deliver this and showcasing what the future of connected transport in the West Midlands region will look like.

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Chris Holmes, Programme Director – Transport,
West Midlands 5G

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We are proud to be working in partnership with West Midlands 5G, Icomera and GoMedia on this new initiative. It is our shared ambition to utilise new technologies, to improve services for passengers across the region. This collaboration has enabled us to use the advances in 5G technology to monitor the tram network in real-time. We now have the proven ability to transmit CCTV footage to our Operational Control Centre and the Regional Traffic Control Centre quickly, reliably and securely - helping us to improve passenger safety. We are pleased to be pioneers on this project, which has helped to demonstrate the future potential that 5G can offer.

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Sophie Allison, Head of Business Transformation,
West Midlands Metro

Takeaways

Sustain



WM5G has proven a business case for 5G-connected trams. Additional use cases such as real-time engineering data, passenger counting for more efficiently run services, and customer Wi-Fi and on-board entertainment can now be explored and scaled-up.

Learnings



The reliability and quality of the high-definition video streaming would be improved with increased browser support. Use of multiple cameras with different lenses could provide a better view to manage incidents. Digital video recorder would allow for more footage to be stored on-board.

Contacts



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