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Nomad Digital

The Future of the Connected Bus

The Industry

The 'hydrogen bus' is a term you will be becoming more familiar with, should you be part of the travel sector or simply watching the news. The days of petrol and diesel are on their way out, as the transport industry strives to reduce its carbon footprint. Governments, councils and operators are looking towards the future, as the hydrogen bus is set to grace the roads of the United Kingdom and rest of the world. Nomad Digital aims to support bus operators around the globe in their quest for a greener solution by providing the innovative technology

which enables 'the connected bus' – enhancing passenger experience and safety, encouraging ridership and ultimately a more sustainable way to travel.

The Nomad Solution

The connected bus consists of a Nomad high-powered processor which is integrated with a CCTV/network video recorder (NVR) system hosted within the processing unit, driving all cameras, and essentially providing images to various on-board screens. Between the processor/NVR and monitors, the system can convert from

analogue to digital, assisting the process of delivering images on to the screens. Furthermore, the connected bus has a telematics unit which captures the output available from the 'CAN Bus'. The 'CAN Bus' is a bus system which feeds back information of all critical and non-critical bus systems: brakes (data), engine temperature, oil levels, tyre pressure, cabin temperature, battery level, battery top-up and so on. The data is fed to Nomad's domain in the required protocol so that Nomad can interpret, unpack and produce the required, alerting and reporting. Nomad then provides the data to the customer within a user-friendly dashboard.



The operator can gain operational and maintenance insights via real-time and historical bus information. Live camera feeds are available on request, whether it be an incident in real-time or a historical report. The telematics unit also alerts the processor and NVR when the bus doors are open or is in reverse to activate the reversing camera showing images with zero latency on the driver's monitors: an essential feature for the driver when reversing.

Predictive Maintenance vs. Reactive Maintenance

An element to improve and understand is failure patterns, to enable predictive maintenance instead of reactive maintenance. This is an augmentation to any RAMS (Reliability Availability Maintainability Safety) process, therefore maximising bus fleet availability. The Nomad solution provides in-depth and real-time information on the performance of crucial equipment and components on-board. This partnered with diagnostic alerts, provides bus operators and owners with the

intelligence and necessary time required to take proactive action to prevent unplanned maintenance. We focus on improving the overall reliability of fleets to support the industry with increasing ridership and sustainable travel. All buses share the same purpose – transportation; but it is how raw data from a bus is utilised to its full potential to benefit the efficiencies of the operator, therefore supporting an improved service.

Security

Another aspect important to operators is security. If there is an incident inside or outside of the bus, cameras will capture the footage (internal and external cameras – live feed and recording). The driver can also monitor when the luggage compartment is open from the driving position, enhancing the security of the bus. The operator can select any cameras on-board the bus and request footage of incidents filed in a tamper-proof video evidence locker. Typically, the operator would have to sacrifice the bus hard drive to provide recordings.

However, with Nomad's system, the video evidence locker provides a tamper-proof environment (secure file storage) for the content to be uploaded directly to law enforcement agencies. No one can access the virtual video evidence locker without appropriate authorisation.

Final Thoughts

Nomad Digital's vision 'connecting everything' underpins the connected bus. Now, the opportunity is not just to connect passengers during their journey, but also bus operators, maintainers and on-board staff; utilising key data insights to simplify fleet operation and maintenance.

If you would like more information about the contents of this article, please get in touch:
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BUS CONNECTIVITY

We pioneer the intelligent journey – a shared and secure network infrastructure to which all authorised onboard systems and devices may connect.



Now is the opportunity to not only connect passengers, but bus operators, maintainers and on-board staff by enabling the vision of the connected bus.