Integrating telematics systems

DISCOVER THE WAYS IN WHICH OFF-HIGHWAY VEHICLE OEMs CAN BENEFIT FROM INTEGRATING CONNECTIVITY INTO EXISTING HUMAN-MACHINE INTERFACES (HMIs) USING THE LATEST TECHNOLOGY FROM CURTIS INSTRUMENTS

The off-road machinery industry has undergone a transformation in recent years, fuelled by the integration of connected devices. Instant over-the-air machine data provided by telematics systems is playing a pivotal role in enhancing the efficiency, safety and productivity of a wide range of off-highway vehicles.

The integration of telematics functionality into human-machine interfaces (HMIs) offers OEMs cost savings, increased reliability and reduced complexity compared to a separate telematics module. The Curtis EnGage NX portfolio from Curtis Instruments offers a range of modern, unified and connected instrumentation products. This enables OEMs to scale performance and features to meet their needs while leveraging a common set of connected tools. Curtis Instruments' newest HMI, the enGage NX7, is a 7in touchscreen display that has built-in Bluetooth, Wi-Fi and RFID. It is fully customisable allowing OEMs to design an interface that meets their specifications and their own branding. The enGage NX7 works with Curtis Instruments' mobile application and cloud software to access information on any connected device enabling instant troubleshooting or software updates.

ABOVE: **The enGage NX works with Curtis Instruments' mobile application and cloud software to access information on any connected device**

Integration lowers costs

Historically, OEMs would procure separate HMIs for distinct functions. This results in increased system costs due to additional hardware and wiring. High performance multifunction displays have more recently become the norm, consolidating multiple functions into a unit. The integration of wireless functionality into the latest generation of HMI's is the next step. This further reduces hardware and wiring costs while enhancing signal range and reliability. In addition, recent off-the shelf software tools enable the development of customised mobile applications and portals for a fraction of the costs and efforts previously required.

Searching for signal

When determining optimal placements for wireless receivers/transmitters, considerations should include selecting areas with a clear line of sight to other wireless units while avoiding materials that may obstruct signals. Paradoxically, telematics units are often mounted in the base of a machine surrounded by metal which hinders signal range. In contrast, HMIs are typically installed in open spaces to facilitate operator interaction, making them ideal locations for wireless receivers/transmitters due to their unobstructed line of sight.

Data presentation is key

The true value of telematics can only be obtained when organising and presenting the transmitted data in a meaningful manner. Historically, OEMs were burdened with deploying telematics and then developing complex software projects to analyse the gathered data.

When connectivity is integrated into HMI's however, local data analysis and servicing of the machine can be supported by the HMI itself or with an application running on a smart device that is paired with the system. Graphical analysis of historical data, diagnostic video clips and viewing of service logs and manuals then becomes possible.

The latest offerings from HMI suppliers now provide OEMs with software tools allowing full customisation of these applications and graphical user interfaces (GUIs). This can be tailored to suit content and branding needs without the need for major software developments.

Looking ahead

Projections indicate substantial growth in the off-road telematics market over the coming decade, propelled by the need for higher productivity, increased automation, shortages in skilled labour and governmental regulations aimed at boosting efficiency. OEMs and operators of off-highway mobile machinery stand to benefit from embracing connectivity and telematics.

Integrating connectivity into the HMI display is the most cost-effective means of implementing easily customised solutions, and companies using such solutions can gain a competitive edge and thrive in an increasingly dynamic marketplace. **iVT**