Ewon® BY HMS NETWORKS

Case study:
Marine

Solution: Remote Management
Country: UK
Company: Griffon Hoverwork

Benefits

- Reduced downtime due to predictive maintenance
- Faster problem resolution
- Reports and statistics enable optimized performance such as decreased fuel consumption for new vessels

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Robert Egan
Electrical Systems Engineer,
Griffon Hoverwork.

Remote monitoring of hovercraft

By using Netbiter, Griffon Hoverwork and their customers can keep track of their hovercraft wherever they are. The Netbiter remote management solution gives them online access to vessel status and operation which means they can reduce service trips and maintenance costs while giving their customers an even more reliable vessel.

Hovercraft are marine vessels which operate by creating a cushion of air between the hull of the vessel and the surface below. This makes it possible to operate over almost any flat surface including shallow water, ice, vegetation, mud, logs and debris, rapids and flood plains. One of the world's leading manufacturers of hovercraft is Griffon Hoverwork Ltd. based in Southampton UK.

The challenge — Keeping craft in operation

Being a manufacturer of technically advanced vessels which are remote by nature presents certain challenges. If customers need help with repairs or maintenance, service must be offered quickly as every second costs money. So if there is a way to keep track of the vessels remotely, spot problems before they occur and even have spare parts ready – this would save the end customer a lot of time and money. So when Griffon Hoverwork was building a hovercraft for Hovertravel Ltd who offers hovercraft service between Portmouth and the Isle of Wight, they started looking into a remote monitoring system.

"We looked at a number of systems," says Paul Newton, Electrical Design Team Leader at Griffon Hoverwork. "However, we could see that there was a lack of commercial experience at the leisure end of the market, and a huge expense at the marine commercial top end of the market.

This, together with the recommendation from Atlantis Marine, the supplier of our CAN-bus system, led us towards the Netbiter system. We liked the fact that Netbiter had offshore experience and that it would cover most of the parameters required within our budget. Also, the system has the flexibility to change and expand for future craft requirements."

How it works

The communication between the different devices inside the hovercraft is carried out via a marine-specific CAN-bus called Empirbus and information is gathered in so called EmpirBus DCM units. The machinery data, for example fuel levels, running hours, propeller pitch, temperatures etc., is displayed inside the vessel using Murphy HMIs. These HMIs are also able to convert data from the CAN-bus to Modbus which was perfect for the Netbiter gateways which use Modbus to communicate.

The Netbiter gateways send data via the cellular network to the Netbiter Argos web service. By logging into www.netbiter.net, Griffon Hoverwork and Hovertravel can see live data from the shore – the same data that is visible in the HMI panels at sea. The data is also stored in the Netbiter Argos database for trend reports and analysis. Furthermore, it is also possible to get alarms whenever certain thresholds are reached.

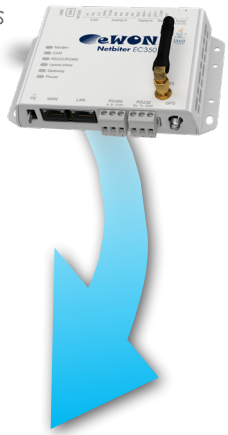
The results

"Remote craft diagnostics will have an instant impact for us and our customers," says Robert Egan, Electrical Systems Engineer at Griffon Hoverwork. "It allows us to detect deteriorating machinery and plan for it to be repaired in advance. Reducing craft downtime due to machinery failure is beneficial for both us and our customers. Also, we expect a long-term decrease in fuel usage as we can monitor usage and then standardize pilot operating procedures in differing conditions and load."

Lessons learned

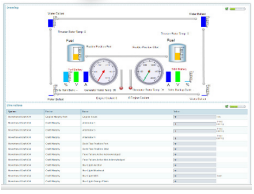
"The biggest challenge has been managing the expectations — both from ourselves and from customers," says Paul Newton. "Especially regarding how much data we should transmit. Agreeing on an acceptable level of monitoring for craft diagnostics and not overload the system with unnecessary data has been key for the success of the implementation."

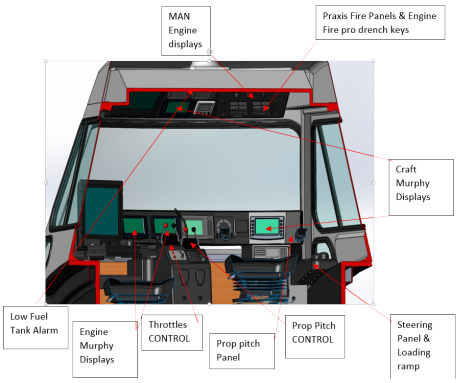
Also, Paul Newton recommends making use of the support given by HMS when implementing the solution. "We had some initial problems getting NMEA2000 on the CAN-bus to communicate with the Modbus-based Netbiter, but these issues where solved with good support from HMS." After implementing and learning about the Netbiter solution, Paul Newton can offer some good advice to new users of Netbiter: "Be aware of your requirements. Netbiter is a good system which will archive your remote data. For a larger marine project with more complicated machinery and controls to monitor, it may be a better option to use one of the bigger marine remote information systems, although there will be a marked increase in cost. For us, Netbiter was a very good fit."



An Empirbus DMT gathers the data from the CAN-bus inside the hovercraft. Data is displayed on a Murphy HMI which also communicates with a Netbiter gateway.

The Netbiter gateway sends the information via the cellular network to the Netbiter Argos data center where shore-based staff can see the same thing as the crew can online. Data is also stored for analysis and reporting.





Inside the hovercraft, several HMI panels are used to display information. With Netbiter, this information is also available online.